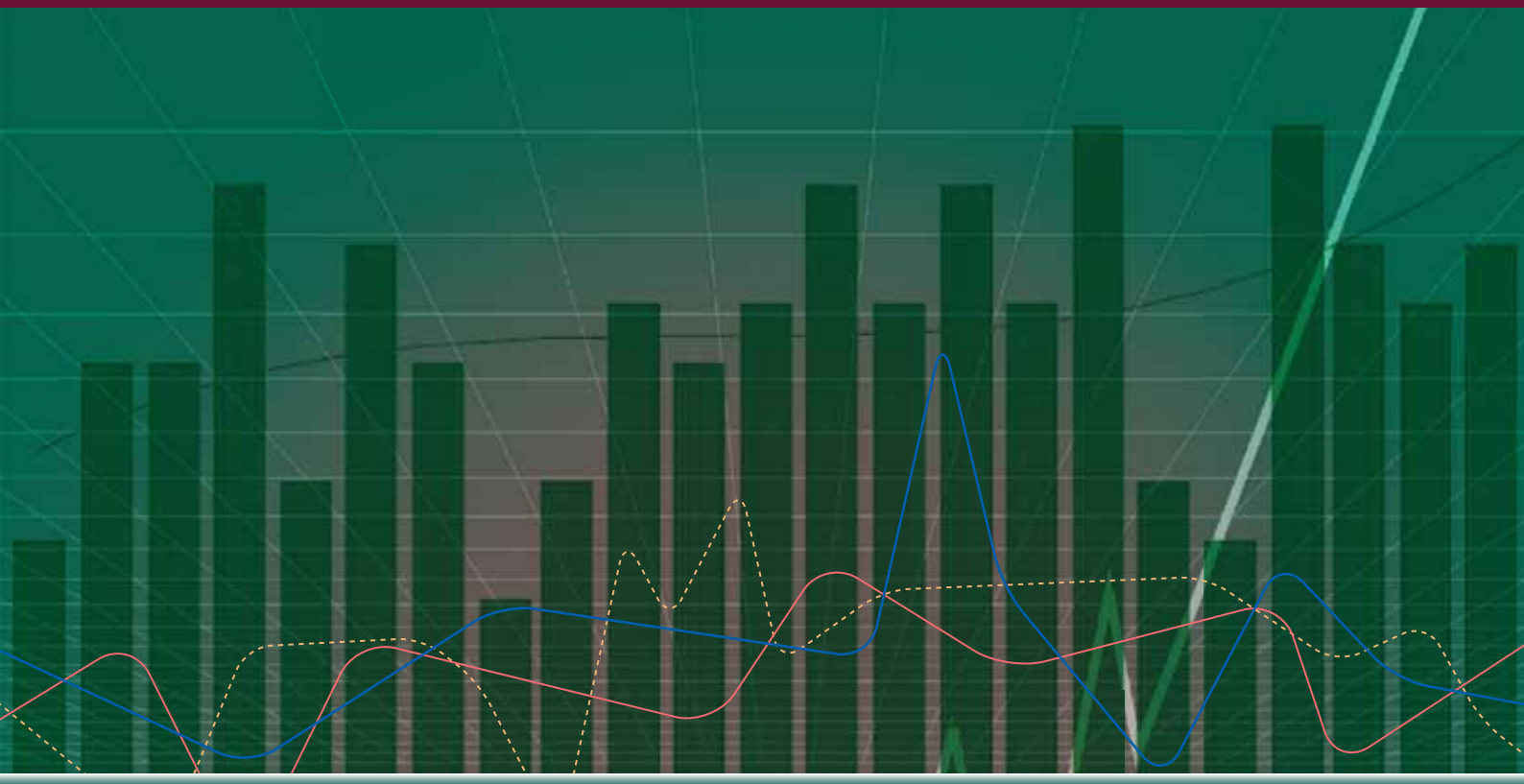
RELATIVE EFFECTIVENESS OF POLICY CHOICES DURING THE GLOBAL FINANCIAL CRISIS IN SEACEN ECONOMIES

Edited by

Rupa Dheerasinghe



The SEACEN Centre

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Edited By
Rupa Dheerasinghe

The South East Asian Central Banks (SEACEN)
Research and Training Centre
Kuala Lumpur, Malaysia

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Published by The South East Asian Central Banks (SEACEN)
Research and Training Centre
Level 5, Sasana Kijang
Bank Negara Malaysia
No. 2, Jalan Dato' Onn
50480 Kuala Lumpur
Malaysia

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by Rupa Dheerasinghe

ISBN: 978-983-9478-05-1

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FOREWORD

This study attempts to review policy options available for the authorities and examine their relative effectiveness in the 12 SEACEN member economies under review during the recent global financial crisis. During normal times, authorities often have space and flexibility to use policies impacting macroeconomic stability and sustaining economic growth but in crisis situations, the challenges can be quite different from those under normal conditions. Firstly, policy makers have limited options with regard to choice of policies and implementing them within a short period of time to address critical issues and obtain desirable outcomes. Secondly, the degree of effectiveness of the policies that have been adopted could also be different when compared with the results that were achieved through the same set of policies under normal circumstances. The outcome also may change from country to country as well as conditions under which such policies are adopted. Thirdly, normal monetary transmission mechanism may not be effective in a situation of market failure or lack of market confidence. Further, conventional policies may not be suitable and may have limited success in a particular sector which needs special attention during a crisis. Therefore, choosing effective policies to mitigate a crisis and obtaining the desired outcome within a short period of time is a formidable challenge that the policy makers face in a crisis situation.

Against this backdrop, this research project aimed at examining the impact of the recent global financial crisis, reviewing the policy measures adopted by the authorities and evaluating their relative effectiveness, particularly monetary policy against fiscal policy in achieving the policy objectives. In particular, this research project reviewed the impact of the crisis on each economy against the macro economic conditions which prevailed in the SEACEN economies under review at the time the global financial crisis hit those economies as well as their strengths and weakness. It also examined the way in which the authorities have resorted to conventional monetary policy instruments together with non-conventional measures to address the issues which emanated from the recent financial crisis while evaluating the fiscal stimulus packages introduced by the governments in the SEACEN region to support aggregate demand and stimulate economic activity. The paper also reviewed coordination among regional monetary and fiscal authorities as well as the communication and transparency policies adopted by SEACEN economies under review in addressing the situations emanating from the crisis. Finally, this paper analysed and assessed the relative effectiveness of these policy measures, monetary and fiscal ones in particular, by specifying and estimating an econometric model.

This collaborative research project was led by Mrs. Rupa Dheerasinghe, Superintendent of Employees' Provident Fund at the Central Bank of Sri Lanka who was a Visiting Research Economist of The SEACEN Centre in Operating Year 2010/11 and participated by eight SEACEN member central banks. The SEACEN Centre wishes to express its sincere gratitude to the Project Leader and the participating SEACEN member central banks as well as their project team members for their active participation and preparation of the integrative report and project papers. The project team members included Mr. May Sokchetha from National Bank of Cambodia, Mr. Tumpak Silalahi and Ms. Tevy Chawwa from Bank of Indonesia, Mr. Avralt-Od Purevjav from The Bank of Mongolia, Mr. Prakash Rai from Nepal Rastra Bank, Mr. Rowan Rupa from Bangko of Papua New Guinea, Mr. Jade Eric T. Redoblado from Bangko Sentral ng Pilipinas, Mrs. W A Dilrukshini from Central Bank of Sri Lanka and Ms. Hue-Heng Tao from Central Bank, Chinese Taipei. The Centre also wishes to thank Dr. D. S. Wijesinghe, former Deputy Governor of the Central Bank of Sri Lanka for his valuable comments on integrative report and Dr. Peter Morgan, Senior Consultant for Research of Asian Development Bank Institute and Dr Charles Adams, Professor of the Lee Kuan Yew School of Public Policy at the National University of Singapore for their helpful comments and suggestions during the first and second research workshops, respectively. The assistance received from staff members of the Research and Learning Contents Department of The SEACEN Centre is also gratefully acknowledged.

The views expressed in this study, however, are those of the authors and do not necessarily reflect the official views of The SEACEN Centre or the SEACEN member central banks/monetary authorities.

Dr. A. G. Karunasena
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Kuala Lumpur

October 2011

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Executive Summary

The consequences of the global financial crisis were felt by the SEACEN economies, but the magnitude of the impact varied from a country to country depending on their macroeconomic conditions and degrees of openness to the advanced economies. In responding to the crisis, the authorities were cautious and took numerous measures to minimise the adverse effects on their economies.

The financial sectors of the SEACEN economies were largely insulated from the crisis as they were not exposed to the toxic derivative instruments that initiated the crisis. However, when the crisis intensified towards the latter part of 2008, these economies experienced large short term capital outflows as investors both in the debt and equity markets pulled out their investments either to address their own liquidity issues or to park them in a safer place. Hence, stock prices fell and fluctuated sharply, while almost all currencies depreciated against the US dollar. In many cases, central banks intervened in the foreign exchange market to meet excessive demand for foreign exchange which in turn created heavy liquidity shortages in the domestic currency. Foreign exchange reserves declined substantially in some economies, causing balance of payments difficulties while the authorities took actions to mitigate these first round implications of the crisis on their economies. Many faced the second round effects of the crisis arising from a sharp decline in growth of advanced economies, which were felt on trade, employment and output.

Against this backdrop, this research project aimed at examining the impact of the recent global financial crisis, reviewing the policy measures adopted by the authorities and evaluating their relative effectiveness, particularly monetary policy against fiscal policy in achieving the policy objectives. In particular, this research project reviewed the impact of the crisis on each economy against the macro economic conditions which prevailed in the SEACEN economies under review at the time the global financial crisis hit those economies as well as their strengths and weakness. It also examined the way in which the authorities have resorted to conventional monetary policy instruments together with non-conventional measures to address the issues which emanated from the recent financial crisis while evaluating the fiscal stimulus packages introduced by the governments in the SEACEN region to support aggregate demand and stimulate economic activity. The paper also reviewed coordination among regional monetary and fiscal authorities as well as the communication and transparency policies adopted by SEACEN economies under review in addressing the situations emanating from the crisis. Finally, this paper analysed and assessed

the relative effectiveness of these policy measures, monetary and fiscal ones in particular, by specifying and estimating an econometric model.

The main findings of the study emphasised the fact that the economies with fundamentally sound macroeconomic policies were able to recover from the crisis quicker than other economies. The recent crisis had demonstrated that building up reserves in order to prepare for future crisis is not a sufficient condition but necessary for mitigating the impact of such a crisis. The economies which have substantial foreign reserves, together with sound macroeconomic fundamentals, were capable of stabilising exchange rate fluctuations while using stimulus packages without incurring high fiscal deficits and a high debt stock.

A comparison between the recent crisis and the Asian crisis revealed that the economies that were more affected by the earlier Asian crisis were able to recover faster from the recent crisis. The Asian crisis, which occurred in 1997, raised the awareness of the SEACEN economies to the importance of robust prudential policy measures and regulatory frameworks for their financial systems, prompting them to introduce both policy and institutional reforms in the financial sector. The need for a well structured financial system built on a strong base of international norms and best international practices was highlighted. The systems in place helped these economies to avert systemic bank failures which would have made the conditions worse.

The lessons from the global financial crisis of 2007/2008 and the responses of the policy makers were quite divergent. Firstly, it was clear that conventional monetary policy measures alone were insufficient to address the issues stemming from the crisis and it was felt that there was a need to combine both conventional and non-conventional policies to address the crisis effectively. Similarly, closer cooperation and coordination among the policy makers were deemed necessary in identifying and dealing with challenges posed by the global crisis. It was clear that some policy measures in the monetary, fiscal and financial sectors were taken simultaneously as the strategies demanded appropriate responses to the issues posed by the global financial crisis. For them to be successful, close coordination between public and private sector institutions such as ministries of finance, central banks, other financial institutions responsible for policy implementation, was required.

The recent financial crisis has also demonstrated the importance of financial stability. Before the global financial crisis, most central banks focused mainly on price stability as the key to economic and financial stability. However,

policy makers have now identified that effective financial regulation requires both micro and macro prudential policies. It was clearly illustrated that the lack of comprehensive supervision of some large financial institutions with operations around the world caused the problems faced by the global economy by transmitting the crisis from advanced economies to various parts of the globe. Therefore, it is incumbent upon central banks to pursue both price and financial stability.

The co-integration equation for the panel data showed that both monetary and fiscal policies have a significant impact on real GDP growth in the long run. The estimates indicate that in the long run, a one percentage increase in real government expenditure and broad money, accelerates economic growth by 0.68% and 0.21%, respectively. In the short run, fiscal policy was effective while monetary policy was not statistically significant in mitigating an impact on growth. The aggregate panel estimate shows that both the global financial crisis and Asian crisis had a significant negative impact on GDP in the short run. Similar results were shown for Thailand, Singapore and Mongolia. According to this estimate, the Asian crisis had a greater impact on Indonesia, Philippines and Korea than the recent global financial crisis. In conclusion, the estimates on some individual economies based on panel data and estimates made by some team members indicated the effectiveness of different policy combinations, highlighting the fact that there will always exist some scope for further improvement in econometric simulations.

Chapter 1

RELATIVE EFFECTIVENESS OF POLICY CHOICES DURING THE GLOBAL FINANCIAL CRISIS IN SEACEN ECONOMIES

By
Rupa Dheerasinghe[1]

1. Introduction

The current global financial crisis emanated from the subprime mortgage crisis that erupted in the United States of America in mid 2007. It soon spread around the world and reached a high point of intensity in September 2008 with bankruptcy being declared by Lehman Brothers, a US based leading investment bank. When the world economy was hit by the financial crisis, most of the South East Asian economies were still dealing with the consequences of a sharp increase in food and fuel prices. The worldwide commodity prices, including oil, soybeans, corn and wheat picked up pace rapidly in 2007 and climaxed in mid 2008. Net commodity importers suffered due to deterioration of external balances and escalation of headline inflation. Some countries allowed pass through of at least part of the world price surge to domestic prices, while some others had to increase the budgetary outlays to keep the domestic prices low. Therefore, most of the South East Asian economies hit by the world financial crisis had to face it, in the backdrop of increased pressure on current account, high inflation, relatively tight monetary policies and budgetary constraints. The global recession that followed the financial crisis brought about deflationary pressure to some extent but other risks continued to persist.

With the outbreak of the current financial crisis, many economies in the Asian region were confronted with large outflows of short term capital investment, causing a rapid depletion of their international reserves, exerting pressure on exchange rates and thereby creating a greater imbalance in the external sector. Secondly, exports were affected by a decline in the world demand[2] as the advanced economies, which were the main export destinations

1. The Author wishes to record her sincere gratitude to Mr. K.G.D.D. Dheerasinghe, Deputy Governor and Dr. D.S. Wijesinghe, former Deputy Governor of the Central Bank of Sri Lanka for their valuable comments on an earlier version of the paper and Dr. Reza Siregar, Director Economic Research and Ms. Jamiah Jaffar, Economist at the SEACEN Centre for their valuable assistance.

2. According to the World Trade Organization, world trade declined by a third during the first half of 2009, when compared to the same period in 2008.

of most Asian economies fell into recession. Thirdly, most of the financial markets were disturbed and many financial institutions were faced with liquidity constraints causing instability in the financial systems. Monetary authorities and the governments swiftly resorted to a combination of monetary and fiscal policy measures to stabilise their economies and to prevent them from falling into a recession. Monetary authorities had to choose between defending the exchange rate through interventions or letting the rate to depreciate which could be too sharp. In many economies, monetary authorities first opted to address the liquidity shortages, both domestic and foreign currency, created by the sudden capital outflows, by pumping liquidity into the banking system. Then they attempted to boost economic activities by influencing financial conditions through lowering the cost of funds, increasing availability of credit as well as inducing the lending. In many cases, central banks cut policy rates to record low levels, with some central banks reducing the rates even closer to zero in order to lower lending rates and facilitate bank borrowing by the private sector. In addition, a number of direct and non-conventional monetary policy options were adopted by central banks. A number of central banks in the region initiated programmes jointly with their governments to guarantee lending to small and medium enterprises while some other central banks took steps to provide a variety of new facilities and extended their support even beyond the banking sector. Funds were provided to encourage lending and to restore confidence in the securities markets while Asian regulators took steps to maintain the functioning of financial markets by taking some non-conventional measures, for example, authorising government and central bank purchases of commercial papers and implementing other liquidity provisions etc.

In addition, all SEACEN economies introduced fiscal stimulus packages, in order to support aggregate demand through higher private and public consumption and investment and the continuation of economic activity. Stimulus packages in some economies had a narrow focus of supporting targeted sectors such as farmers, exporters etc. through subsidies while some other packages were more comprehensive, involving both demand side measures such as low taxes to increase consumption and supply side measures with tax cuts and relaxation of constraints on funding. In the eve of the global financial crisis, monetary authorities and governments had to react immediately to minimise the effects on their economies by adopting expansionary monetary and fiscal policy measures but the risks and uncertainties associated with such policies may not have been evaluated properly. According to IMF, the major challenge faced by the policy makers today is maintaining an appropriate balance between providing support to economies until the recovery is self-sustaining and sufficiently robust and restraining inflationary pressures while ensuring the fiscal sustainability.

It is, therefore, high time now for authorities to review the policy measures resorted to during the crisis, and evaluate their effectiveness and formulate a timely and well sequenced exit strategy to reach the ultimate objective of sustainable economic growth while maintaining macroeconomic stability. A comprehensive evaluation of the effectiveness of the policy measures adopted by the economies in the region will enable the policy makers to share their experiences and exchange views, understand the pros and cons better and formulate a way forward without any harmful effects on growth and stability.

Against this background, this study focuses on assessing the relative effectiveness of the various (conventional or non-conventional, monetary, fiscal, exchange rate or financial reforms) policy measures adopted by the SEACEN economies during the recent global financial crisis. The study proposes to evaluate the relative effectiveness of such policy choices (i) in crisis period against non-crisis period, (ii) alternate policies (monetary policy vs. fiscal policy) used in two different crisis periods (1997/1998 vs. 2008/2009). It also examines the overall transmission mechanism and suggests policy options in particular, monetary policy for minimising the effects of the crisis and speeding up the recovery process while highlighting the longer term issues and risks that may need attention of the policy makers on their exit strategies.

This study was undertaken as a collaborative project with the member central banks. The author served as Visiting Research Economist (VRE) and was in charge of research methodology and outline of the country papers and produced the integrated chapter which gives an overview of the regional analysis partly based on the inputs produced by a team of country researchers. Team members undertook detailed studies of respective economies which in turn followed the outline drawn by the VRE. Since only eight member economies were participating, it was decided to examine Malaysia, Republic of Korea (Korea), Thailand and Singapore too in order to ensure in the integrative section a sufficient representation of the SEACEN group and to learn from their experiences.

Accordingly, the study is divided into two parts. Part I will be the integrative section of the study which gives a regional analysis of the effectiveness of policy measures adopted by SEACEN member economies. Following this introduction, Section 2 reviews the literature on the impact of the global financial crisis on the SEACEN economies under review in particular and empirical work done on the relative effectiveness of fiscal and monetary policies on those economies. Section 3 of the Part I provides a brief overview of the background of the global financial crisis and its impact on the world which provides justifications for a study of this nature. It is argued that economic fundamentals that prevailed

at the time the crisis evolved were an important factor in determining the extent of the impact of the crisis as well as the success of the policy measures that were resorted to. It is further argued that economies with strong macroeconomic fundamentals were better able to withstand or absorb shocks. Therefore, Section 3 of the study also examines the economic fundamentals that were in place at the time the global financial crisis hit the economies. Hence, this section scrutinises the structure of the economy, degree of liberalisation, prospects and strengths of the financial sector and reviews the impact of the crisis on SEACEN economies. Section 4 reviews policy options available to the economies (such as intervention to defend the exchange rate or letting the exchange rate to depreciate, maintaining high interest rate policy to contain inflationary pressure or relaxing it to promote economic activity) and the rationale for economies to choose a particular policy mix that was adopted by the monetary authorities. This will cover both conventional and non- conventional monetary policy measures as well as other macroeconomic policy measures adopted by the authorities. Section 4 also analyses the effectiveness of those policy measures and possible interaction between different policy options using key economic indicators. It is widely believed that the choice of optimal policy mix is critically important in view of achieving economic growth. In the meantime, it is also argued that the economy's ability to absorb shocks depends on the strength of its economic fundamentals. Therefore, relative effectiveness of policy choices cannot be measured in isolation, based on a single event or on developments of an economy in a short timeframe. Therefore, Section 5 endeavours to examine the relative effectiveness of both monetary and fiscal policies on economic growth by analysing the results using the Error Correction approach of analysing economic time series. This Section will also attempt to make an analysis based on pooled data for participating economies. Section 6 reviews important issues in formulating a timely and sequential exit strategy for policies in place while Section 7 concludes the Part I of the study. Part II of the study consisting of eight chapters[3] produced by the economists in the research team which follow the same format and provide detailed analysis of their own experience in responding to financial crisis and effectiveness of their policy actions, in particular.

3. Cambodia, Chinese Taipei, Indonesia, Mongolia, Nepal, Papua New Guinea (PNG), Philippines and Sri Lanka.

2. Literature Review[4]

This Section reviews the previous studies on the impact of the recent global financial crisis on the twelve SEACEN economies being considered. In this endeavour, particular attention is drawn on the relative effectiveness of policy choices, i.e. monetary and fiscal policies on those economies. The literature on the impact of global financial crisis on the US, other advanced economies and emerging market economies are available in abundance but the studies on SEACEN economies are very limited. Similarly, literature focused on relative effectiveness of policy choices is limited to a small number. Of these studies, a few examine the impact on some of the SEACEN economies which fall into different economic groups such as SAARC, ASEAN etc. There have been a few studies on the impact of the recent global crisis on individual economies in the SEACEN group but their focus is on general issues relating to the crisis but not particularly on analysing relative effectiveness of policy choices. Most of the available studies on the global financial crisis on various country groups were carried out by the World Bank, IMF, ADB and other international research institutions. In this Section, conclusions and key findings of the literature that are relevant to the impact of the global crisis on the SEACEN economies are highlighted. It also reviews some empirical work that has been applied, to evaluate the relative effectiveness of monetary policy or fiscal policy and other policies in addressing the issues arising from the financial crisis.

2.1 Impact of the Global Financial Crisis on the SEACEN Economies

The origin of the recent crisis has been widely discussed in the literature but it may be well summarised with the words of Edwin M. Truman who says that the financial crisis began in the US, particularly due to a combination of the economic, financial, regulatory, and supervisory policies in the United States and possibly those in other traditional industrial countries. He also adds that "the emerging and developing economies should be held blameless for the crisis and that they have been adversely affected by the crisis though no fault of their own policies" (Truman 2009).

It is clearly demonstrated by the data produced by the World Economic Outlook and data published in the official websites that all SEACEN economies suffered from the slowdown in economic growth at least for 2-3 quarters and

4. The project leader wishes to thank team members who have provided economy specific literature to compile this Section. Some of the reference details relevant to this Section which are not listed in Part I of the study could be find in the reference lists of economy specific chapters in Part II.

none of them were fully insulated from the global financial crisis. The integration of the global financial system has exposed many economies particularly, open ones to the contagion risk.

When the literature on individual economies is considered, the waves of the global financial crisis have reached the shores of Cambodia, with visible impacts on the economy. Related to the current global financial crisis, Hang Choun Nararon (2009) found that a shock in global risks has only limited indirect effects, if any, on Cambodian banks. The National Bank of Cambodia (NBC) recently authorised financially sound commercial banks with excess liquidity to invest some of their assets abroad. However, the foreign assets of the banking system are invested abroad only in secure financial instruments under the close supervision of NBC. Therefore, the exposure to the crisis could only be through the channel of the impact on the foreign operations of some of the international commercial banks based in Cambodia. There is no information that any of them has been severely affected by the subprime crisis. In this regard, the Cambodia Institute of Development Study (CIDS) presented a "Rapid Assessment on the Impacts of the Financial Crisis on Cambodia" as a foundation to help expedite a stronger and more coherent policy response from national stakeholders and the international community to mitigate the effects, particularly on the most vulnerable groups. An empirical study by Kang Chandararat, Director of CIDS, shows that Cambodia's exports were affected by low external demand, particularly in the US market. Three-fourths of garment output is destined to the US, with another 20% to the EU. In addition, the removal of safeguards on China by the US at the end of 2008 would have intensified competition and limited the growth of this sector. The sector contracted by 4% in 2008 due to falling orders, and this trend continued, shrinking further in 2009.

In addition, the business structure of the industry makes it extremely vulnerable to shocks in the global economy. According to the Garment Manufacturers Association in Cambodia (GMAC), 60% of factories in the industry are cut, make and trim (CMT), of which 11 CMTs are typically subsidiaries of companies overseas with bases in China, Chinese Taipei and Korea.

An empirical study by Santoso et al (2009) shows that Indonesia has a contagion relationship with several economies in Asia, such as Japan, Chinese Taipei, Korea, Hong Kong and India. The domestic financial market moves closely with the movements in global financial markets. The research also showed that there is no direct contagion relationship between the Indonesian stock exchange and the Dow Jones index and Nasdaq index. Thus, if Indonesia is affected by the global crisis, it is not a direct effect from the US market but rather indirect

effects from capital markets in Asia that share a direct relationship with the US capital market. Furthermore, the research indicates that Indonesia is a shock absorber rather than shock transmitter, particularly with regard to developed countries i.e. Japan, Australia, Germany, United Kingdom and the US.

In the real sector, Indonesian exports are also affected by external conditions. Research by Kurniati's et al (2008) shows that Indonesia's exports are most sensitive to the economic growth of Singapore (1.19), followed by the US (0.84), Japan (0.81) and China (0.3)[5].

Related to the current global financial crisis, Kurniati and Permata (2009) found that a shock in global risk aversion has an immediate negative impact on capital inflows to Indonesia, particularly on portfolio investments that leads to rupiah depreciation. The impact through financial channel on financial variables is temporary and relatively faster to recover (self-market correction). The second round effects of global crisis occur through trade channel. Negative shock of US GDP growth leads to a contemporaneous decline in Indonesia's exports which subsequently result in a lower real GDP growth, capital outflow and rupiah depreciation. The impact on exports seems to persist requiring policy responses by the authorities.

A few studies analyse the impact of the global financial and economic crisis on the Mongolian economy. First, Narantuya, Ch., et al. (2009a, 2009b, 2009c, 2010) evaluates the impact of the global financial and economic crisis on the Mongolian economy for the four consecutive quarters of 2009 and assesses the state of the economy for every quarter by comparing with the previous quarter in order to see how the impact was dragging on. Their study mostly focuses on the impact of the crisis on the real sectors of the economy including real GDP, industry, agriculture and mining, and offered some policy options to promote domestic demand. They conclude that the impact of the recent global crisis was significant, especially in the mining sector that depends on the dynamics of the world commodity market and the economy, particularly fiscal expenditure which was tightly associated with the revenue from mining sector exports. Furthermore, they point out that many of the measures to be taken entail correcting past mistakes in the short term and strongly suggest the government to put in place a better framework going forward in order to manage the boom and bust cycle

5. The number in brackets shows the elasticity of Indonesian non-oil export in response to the changes of economic growth of each country. For example if US growth decline by 1%, then Indonesian non-oil export growth will decline by 0.84%.

of its mining revenues. They highlight the potential importance of the adoption of the "Fiscal Stability Law" to ensure that a higher proportion of copper revenue is saved, hence limiting procyclicality in fiscal policy and strengthening the institutions of budget management.

Upon assessing the impact of the recent global crisis on the Mongolian financial sector and its stability, Tuvshintugs (2009a, 2009b, 2010) reveals that global financial crises did not have a deep and direct impact on the Mongolian financial system as the Mongolian economy is not deeply interconnected with the world financial system. Overall, he concludes that Mongolia has been hit hard by the current worldwide economic and financial crisis and highlighted the country's increasing dependence on primary goods' exports which made Mongolia vulnerable to external shocks at the onset of the crisis. Lastly, he argues that expansionary fiscal and monetary policies in the past left the policy makers with a very little policy space to counter the crisis.

The report by Otgontugs, B., et al. (2009a, 2009b) indicates that due to global financial crisis, registered unemployment rate has increased dramatically in the Mongolian labour market from November 2008 to the beginning of the 2009 and employment in official sectors has become relatively stagnant. When foreign countries experienced economic difficulties during the crisis, migration in labour force outward from Mongolia has decreased significantly and migrant workers have returned to the home country and as a result, the amount of remittances has declined dramatically. Economically active work force has increased by 6.6%. Employment in the services sector has increased relatively whereas overall employment in other sectors including industry, mining and construction sectors was stable. However, there have been a positive trend in the labour market in the beginning of the second half of 2009 as the registered unemployment rate decreased and new employment increased compared to Q4 2008. It has become evident from the social welfare programmes that short term policies and programmes implemented to alieviate poverty, and vulenrablity are not very stable in the long run. Therefore, it is recommended to implement policy measures and policy strategies that are efficient in the middle and long run such as implementing policy strategies which are associated with economic growth, as well implementing strategies to prevent poverty by paying more attention to potential households that might be afflicted by poverty.

According to the World Bank (2010) Economic, Financial and Policy Development study, between 2008 and 2010, Mongolia was one of the East Asian economies to be strongly hit by the global crisis. The Mongolian economy is still recovering from the downturn while policy challenges have not been

addressed yet. The report states that it is the time for Mongolia to put in place a strong policy framework to manage the upcoming mining boom and avoid recurrence of previous mistakes. Moreover, it highlights the risk of "Dutch Disease" due to the impending expansion of the mining industry. Measures to avoid fiscal boom and bust cycles include fiscal stability law, enhancement of the budget process, public investment planning and management for more efficient absorption of increasing revenues, and an appropriate policy framework to support future infrastructure investment. Finally, the study anticipates that reforms in the mining sector will encourage new explorations, environmentally superlative and socially pro-poor development. The ADB Report (2010) on the impact of global financial crisis too concludes that Mongolia had experienced economic recession through the world price slump of its major exporting commodities and economic slowdown in neighboring economies.

In the case of Nepal, Jan Sharma and Ganesh Gurung (2009) claim that Nepal has been mostly insulated from the first round effects of the global financial crisis owing partly to sound macro management, but also because of the underdeveloped nature of the financial market that is not well connected to international financial markets. Nepal is, however vulnerable to the second round effects of the global financial crisis through export earnings, tourism receipts, remittances and external financing for infrastructure. It does not directly affect Nepalese financial system, nor will it put the monetary policy under strain as Nepal is largely insulated from the toxic assets of big investment like in the West. However, it will indirectly affect economic growth, revenue collection, and development initiations carried out by Non-governmental Organizations (NGOs).

Chandan Sapkota (2008) notes that the economy could feel the impact of the global financial crisis through four different routes: (i.) a slowing down in inflows of remittances, (ii.) a recessionary tourism sector, and (iii.) a decline in aid, and (iv.) a demand deficiency in the manufacturing sector.

Ex-finance minister Baburam Bhattarai rules out the direct impact of the global financial crisis on Nepalese economy. The Nepalese economy could not remain aloof from the global financial crisis that was spreading worldwide, but a severe or direct impact could be ruled out because the Nepalese economy is not fully dependent on the international financial market.

Anuj Dahal (2009) indicates that a failure in worldwide capital markets may not have a severe impact on financial markets of Nepal as its capital account is not convertible. However, the liquidity crisis in the international money market

can transmit into Nepalese banking system to some extent through money market transactions.

Bhubnesh Pant (2009) mentions that it is difficult for Nepal to attract Foreign Direct Investment (FDI) inflows in the context of global financial crisis. Still, Nepal being a post-conflict economy, FDI is very much sought after because it can play a crucial role in buttressing the building-up process.

Dr. Kamal Raj Dhungana (2010) explains that, during the past decade, remittances amounting to more than 20% of the GDP have played a vital role in Nepalese economy. However, the growth rate of remittances entering Nepal has slowed down as a result of the global recession. During the economic downturn, Nepalese migrant workers in the developed nations were among the first to lose their jobs and many of them have well chosen to return home. The migration in 2007/08 was 249,051 and this number has declined to 219,965 in 2008/09.

"Impact of global financial crisis in foreign employment and remittance trends of Nepal" by Nepal Rastra Bank (2010), observes that Y-O-Y number of workers going abroad for employment actually declined since May 2009 to until April 2010, which could be attributed to the delayed effect of global financial crisis, causing an impact on foreign employment remittances.

As in most economies, specific studies on the Philippines have remained scarce as most research work on the impact of the crisis is still in the process of taking shape. However, some early studies for the Philippines have come out. Yap (2009) makes a rapid assessment of the impact of the global financial crisis on the Philippine economy. The deceleration in 2008 growth of the Philippine economy was attributed more to the run-up in prices of food and fuel commodities rather than the recession in the US. The implication was that the lagged impact of the crisis was still forthcoming. Perceived adverse effects were expected on exports, foreign direct investments and domestic private investment. The impact on domestic employment was of a concern. The possible return of overseas Filipinos who lost their jobs could exacerbate the problem and reflect a possibly permanent loss in remittance flows. The immediate impact of the liquidity crunch in developed economies was felt in terms of greater risk aversion[6] and exchange rate volatility. The impact on the financial sector was relatively light in as much as local financial institutions have limited direct exposure to sub-prime and other

6. The rise in the price of risk was reflected in larger bond spreads and a sharp drop in equity prices.

related structured financial products; strong bank balance sheets; improvements in risk and liquidity management; strengthened supervisory and regulatory systems; and the absence of a strong search for yield abroad[7] by domestic financial institutions.

Milo (2009) provides early details on the impact of the global financial crisis on output of Philippine economy. While the surge in food and fuel commodity prices slowed down the growth of private consumption expenditures, the continued strong inflows of remittances during the first three quarters of 2008 provided support to household consumption. While exports of electronics fell dramatically, the fall has been mitigated by growth in non-factor services exports. It was also noted that, while the fiscal position had improved, the improvement was traced to privatisation proceeds which are non-recurring. Nonetheless, the improved fiscal position of the public sector provided hope in the national government's ability to ensure stability of the economy. In fact, Bird and Hill (2009) remark that the Philippine economy has performed relatively well compared to its historical performance and ask if the economy had reached a turning point from the boom-bust cycle[8] of its postwar economic history. They trace the robustness of growth to the length of the economic expansion (the longest in three decades), its resilience despite deterioration in the economy's terms of trade, positive total factor productivity growth and strong inflows of remittances from overseas Filipinos.

Gochoco-Bautista (2009) notes the growing severity of the impact of the global financial crisis on the economy in the last quarter of 2008. She questions the sustainability of expansionary fiscal and monetary policy. The historically weak fiscal position of the national government and the still relatively high inflation were identified as constraints to effective countercyclical policies. The reliance on remittance flows from overseas Filipinos was cited as a source of vulnerability. Manning (2009) disputes the scenario presented by Gochoco-Bautista (2009). He presents a comparative perspective on the region and points out that other economies such as Thailand, Malaysia, Singapore, Korea and Japan were facing greater difficulties. He remarks that the situation in the Philippines was no different from that in Indonesia yet the Indonesians were less downbeat about the current situation. That being said, he agrees that the reliance on remittance flows was a source of vulnerability for the Philippines going into the crisis and

7. New and profitable domestic business lines such as consumer lending provided easier alternatives to investments in foreign securitized financial products.

8. Historically, economic growth would have generated deterioration in the terms of trade thereby sparking a balance of payments crisis.

further identifies the high concentration of electronics in the country's export product composition as another weakness in the structure of the Philippine economy. Abidin (2009) concurs that the Philippine economy may be seriously affected by lower remittance flows.

The World Bank (2009) also highlights its concerns about possible labour market outcomes and provides suggestions on fiscal policy response. It was expected that the economy would remain resilient with projected GDP growth still positive at 1.9% for 2009 and higher growth figures expected for 2010. Remittance flows were also assessed as facing a moderate decline. Controlled fiscal easing was suggested to ensure the potency of the fiscal policy response.

Literature on the impact of global financial crisis on PNG is also very limited. The comments and sentiments expressed by various academics; civil servants and concerned citizens point out broad trends and Bank of Papua New Guinea (BPNG) through its surveys provides the much needed data to substantiate these trends. The bulk of the literature was forward looking towards the development of the mining, gas and petroleum sectors. The literature on the commodities boom in these sectors, far over shadowed the literature analysing the impact of the global financial crisis on PNG. The limited literature available was mainly written by foreign financial institutions including, ADB, IMF, various academics and affiliated web pages, and BPNG.

ADB stipulates in its Pacific Islands Studies that PNG and Timor-Leste have partially offset the effect of the global financial crisis through the revenue bonanza of the commodity price boom preceding the global financial crisis. ADB further points out that the slowdown in global growth may impact on PNG but the economy will continue to make progress albeit with a lower growth rate when compared to the Asian financial crisis (ADB, 2009).

In the monetary policy statement published by BPNG, the bank highlights that PNG economy was not highly leveraged or exposed to the impact of the global financial crisis with the domestic economy remaining very strong in the second half of 2008. [Monetary Policy Statement, March 2009]. The IMF's preliminary findings also points out in their article 1V consultation report that PNG's financial institutions were insulated from the impact of the global financial crisis. [IMF, article 1V, 2010]. PNG was insulated as its banking system raises a significant part or almost all of its funds domestically through deposit mobilisation and invests these funds in PNG and the South Pacific region. The high level of liquidity in the banking system has also allowed banks to fund their lending domestically instead of offshore funding. Foreign currency deposit form only a

small portion of the banking system balance sheet and investment offshore is relatively small compared to their total assets. The banking system has high capital adequacy and no exposure to sophisticated financial products. (BPNG, media release, 2008).

Despite PNG's financial institutions' insulation from the primary impact of the global financial crisis, second round effects were seen clearly in the government's actions to reduce the budget deficit for 2009. The Finance Minister revised revenue downwards, basically, because of the gloomy commodity prices and expected lower tax receipts. [Firmin Nanol, 2008]. BPNG tighten monetary policy in mid 2008 in response to the high imported inflation brought about by the international food and fuel prices, high monetary growth aggregates and a robust domestic economy particularly during the first half of 2008.

The kina is a commodity currency and commodity price shocks will impact on the exchange rate immediately and through subsequent quarters [Kuazi and Sampson, 2009 p26]. In PNG exchange rate changes have a significant impact on inflation with an estimated pass through of 65 % [Sampson *et al.*, 2006]. Consistent with these studies, the BPNG tightened monetary policy early in 2008 in response to the international food and fuel shortage.

Examining the state of the Singapore economy towards end of 2008 Thangavelu (November 2008) concludes "compared to the 1997 Asian financial crisis, Singapore seems to be more vulnerable in the current global economic crisis. Given its exposure to global export market and with strong financial links to the US and European financial market, the transmission of global shocks is directly affecting the Singapore economy".

A research study by the ADB cites that India and Sri Lanka were affected most by the global economic crisis among four South Asian economies of India, Bangladesh, Nepal and Sri Lanka. (Carrasco et al., 2010, ADB). This study highlights that the impact of the global crises on India and Sri Lanka was significant, since international investors withdrew their short term capital investment. This resulted in weakening their balance of payments. Further it highlights that the intervention made by the Central Bank of Sri Lanka (CBSL) in the foreign exchange market to moderate currency depreciation has led to a depletion of foreign reserves to a greater extent. Carrasco et al. emphasises that due to capital outflow and its impact on the domestic financial market and weak external demand, the economic growth had decelerated in Sri Lanka in 2009. In analysing the effectiveness of fiscal and monetary policies, Carrasco et al. explain that Sri Lanka had a narrower focus, supporting producers (farmers

and exporters) through subsidies. The size of the fiscal stimulus in Sri Lanka had limitations due to its limited fiscal space. In terms of monetary policy intervention, Carrasco et al. highlight that the injections in the money market by the CBSL helped stabilise the financial system. In the next step from liquidity management, the central banks turned to address the issue of credit crunch by way of relaxing the monetary policy measures. According to their conclusion, monetary policy successfully stabilised the financial sector after the initial shock of the global crisis but the effectiveness of the support for economic growth through financial intermediation was inconclusive.

The Annual Report of CBSL 2008 discusses the impact of global economic crisis on Sri Lankan economy. In the case of Sri Lanka since the capital account is not fully liberalised and the local banks do not deal with the complex financial instruments, the direct impact of the global financial crises on the Sri Lankan financial market was minimum. However, as a result of the crisis, Sri Lanka has lost external reserves. With the intensification of the crisis that has spread out to the real sector, the impact was strongly felt by the economy (Box 1: CBSL Annual Report, 2008).

2.2 Effectiveness of Monetary and Fiscal Policies during the Crisis

The above literature review indicates that a number of studies have examined the impact of global financial crisis. However, hardly any research has been carried out for developing economies with emerging markets, particularly, for Cambodia, Mongolia, Nepal or Sri Lanka to examine the relative effectiveness of monetary and fiscal policy in those economies. This section reviews such studies carried out for some economies in the SEACEN Group.

The effectiveness of monetary policy depends on the environment of the domestic economy and the disturbance from external shocks. Arifin (1998) which analyses effectiveness of interest rate policy in Indonesia in the stabilisation of the rupiah during the 1997/1998 crisis, concludes that interest rate policy is effective only if there are no disturbances from other non-economic factors, such as negative rumours, mass mobilisation and riots. Interest rate policy becomes less effective in reducing inflation level as inflation is also affected by supply factor pressures such as production and distribution.

Simorangkir and Adamanti (2010) examine the impacts of fiscal stimulus and interest rate cut on Indonesian economy during global financial crisis using the financial computable general equilibrium (FCGE) approach. The estimated

results show that the combination of fiscal expansion and monetary expansion implemented during the crisis had boosted economic growth of Indonesia effectively. Relative to the effectiveness of fiscal expansion without monetary policy expansion or monetary expansion without fiscal expansion, the combination of those two policies was more effective. It shows that the combination of fiscal and monetary expansion had a larger multiplier effect by boosting aggregate demand through increasing consumption, investment, government expenditure, exports and imports. Meanwhile, from the production side, the combination of fiscal and monetary expansion has positive effects on increasing production of all economic sectors, while the increase in aggregate demand encourages enterprises to increase their production. This paper also finds that fiscal measures through lower taxes has a positive impact by increasing investment. Moreover, monetary easing increases income and purchasing power of the poor and rich households in rural and urban area, which in turn results in higher all household consumption.

Several other research related to the effectiveness of fiscal policy during the crisis note the importance of (i) the coordination between central and local government and (ii) the ability of local and central government in disbursing the money quickly when government providing fiscal stimulus. Accordingly, it is important that the complicated procurement processes and administration practices are simplified and made more transparent.

A survey conducted by the SMERU Research Institute in 2009 on the roles of social safety net programmes and fiscal stimulus programme (especially infrastructure and labour intensive programme) in mitigating the impact of global financial crisis (GFC) found that:

- There were several problems related to the implementation of social safety net programmes that lessened their effectiveness: (i) among most local government officials, lack of specific information on the impact of GFC on the community, (ii) lack of hierarchical, periodic & systematic information system on the socioeconomic conditions of community and (iii) lack of responsiveness to price changes or other signs of crisis.

- There were several problems relating to fiscal stimulus programmes (FSP), among other things: (i) Central government did not formally socialise FSP to the local governments, (ii) There was no linkage between the level of impact of GFC and the fund allocation to the regions, (iii) There was no linkage between the sectors affected by the crisis and the funded sector projects, (iv) Central MP has been assigned with the important role of

informing local governments on the availability of projects to be funded, (v) Funds allocated to the regions also depended on the active role and effort of local governments in lobbying the central government.

These problems are also pointed in Yudo et al., (2009) that examine the social safety net programme, known as JPS (*Jaring Pengaman Sosial*) that the Indonesian government introduced in response to the 1997/1998 crisis. An evaluation of this anti-poverty programme which encompass food security, employment and income maintenance, and preservation of access to education and health, shows that in many cases the target groups have largely been missed and the effectiveness of the efforts varied across programmes and regions. This suggest that some districts were better than others in implementing the common national programme, and highlight the need for large improvements in the programme implementation, in particular in targeting the beneficiaries of a particular programme and raising coverage within the target groups. Sumarto et (2001) re-affirm the earlier conclusion on the heterogeneity of performance both across programmes and regions. This could be due to programme design, budget allocation across programmes and regions, and regional capacity to implement the programme. One main lesson to be drawn from these assessments is that targeting requires detailed administrative guidance as well as community involvement if it is to be both effective and socially and politically acceptable. Furthermore, static administrative targeting was unable to capture the newly poor or shocked households.

3. Impact of Global Financial Crisis on SEACEN Economies[9]

3.1 Pre-Crisis Conditions

The 16 SEACEN economies accounted for a little more than 5% of the world output in 2007[10]. Except for Fiji, all recorded positive growth rates in 2007 and the average growth rate of SEACEN economies was 6.4% which was higher than the world average growth rate of 5.3%. The SEACEN economies were benefitted by fast growing western economies through international trade links and large amounts of capital inflows from those countries during the period 2003- 2007. Net capital inflows to the emerging market and developing economies marked the record-highest level of US$ 1.2 trillion (8.6% of GDP of developing

9. This study covers only 12 SEACEN economies, Cambodia, Chinese Taipei, Indonesia, Korea, Malaysia, Mongolia, Nepal, PNG, Philippines, Singapore, Sri Lanka and Thailand.

10. When China joined the SEACEN on 25 January 2011, major part of this paper had been completed and therefore, the analysis makes no reference to China. If China is included, the contribution to world output by SEACEN economies would increase to 11 % in 2007.

countries) in 2007[11]. The volume of exports in goods and services by this group increased by 9.9%, while imports in goods and services recorded a growth of 13% in 2007. Many economies benefited from the large inflows of remittances sent by their citizens working abroad while the tourism sector was flourishing with a large number of tourists arriving from the West and the Middle East. Net commodity exporting economies were benefitted highly from the growing commodity prices in 2006 and 2007 and recorded current account surpluses and many were able to build up substantial foreign exchange reserves (Table 1). Except for Sri Lanka, other SEACEN economies were enjoying lower fiscal deficits or surpluses. Market conditions were conducive for debt and equity market developments.

Table 1
Availability of Policy Space

Category	Fiscal and Current Account		Foreign Reserves for Months of Imports	
	Criteria	Economies	Criteria	Economies
High	Surplus or low fiscal and current account deficit	Indonesia, Korea, Malaysia, Mongolia, Nepal, Philippines, Singapore, Thailand PNG, Chinese Taipei	Sufficient to cover more than 6 months	Indonesia, Korea, Malaysia, Nepal, Philippines, Singapore, Thailand PNG, Chinese Taipei
Medium	Moderate (less than 3%) fiscal and current account deficit	Cambodia,	Sufficient to cover 3-6 months	Cambodia, Sri Lanka, Mongolia,
Low	High fiscal and high current account deficit	Sri Lanka	Sufficient to cover less than 3 months	

Notes:
1. Classification is based on current account deficit of BOP and fiscal deficit data for 2007.
2. Months of imports = End year balance of foreign reserves for 2007/ Average monthly imports for 2007.

Sources: IMF World Development Outlook Database, October 2010 and IMF Direction of Trade Statistics 2007.

11. Global Development Finance, 2009.

However, this very same development of capital flows and trade links particularly, with the West, opened avenues for the financial turmoil to affect the emerging markets and developing economies adversely. Out of 12 SEACEN economies under review, seven economies traded more than 50% of both their exports and imports with the advanced economies [12] while four economies traded between 25-50% of their imports and exports with those countries before the crisis (Table 4). In some cases, this share was as high as 65-80%. Since the SEACEN member economies were largely dependent on external trade, they were highly vulnerable to fluctuations in the international commodity prices. Largely owing to the oil and commodity price boom, the SEACEN economies experienced high inflationary pressure both in 2007 and 2008. Some economies in the group such as Sri Lanka, Cambodia and Mongolia recorded average annual inflation rates of over 20% in 2008. As a result, even some fast growing SEACEN economies, faced high and rising inflation, higher interest rates, increasing pressure on current accounts, large public spending and increasing fiscal deficits and balance of payments imbalances.

The nature of the economy, degree of export/ import dependence and the degree of vulnerability based on fiscal and current account space and level of external reserves and the existing policy framework played a key role in shaping the impact of the crisis on individual economies. When individual economies are considered, Indonesia, Korea, Malaysia, Nepal, Philippines, Singapore, Thailand, PNG, Chinese Taipei were functioning with sound fiscal and current account conditions with a satisfactory level of foreign reserves. Mongolia had a high fiscal and current account space but foreign reserves were at a moderate level. Though Sri Lanka was having sufficient reserves to cover more than three months of imports, it was experiencing high fiscal and current account deficits. Accordingly, when the crisis hit the SEACEN economies, nine of them had sufficient policy space while two had moderate conditions. Only Sri Lanka was having low fiscal and current account space for policy adjustments.

3.2 First Round Effects

Most of the SEACEN economies showed a certain degree of resilience to the crisis during the first half of 2008. The crisis intensified towards latter part of 2008, exerting enormous pressure from risky assets of the financial markets all across the world and SEACEN economies too felt the heat to a great extent. Most economies experienced large short term capital outflows as international

12. Advanced economies as defined in the IMF –World Economic Outlook.

investors moved their investments to safe havens influencing both the debt and equity markets. Stock prices fell and fluctuated sharply. Almost all currencies depreciated against the US dollar while some currencies lost more than 25% of their value compared to that prevailed a year ago. In many cases, central banks intervened in the foreign exchange market to meet excessive foreign exchange liquidity requirement, which in turn, created heavy liquidity shortages in the domestic currency. Foreign exchange reserves declined substantially in some economies, causing balance of payments problems.

3.2.1 Impact of the Crisis on Forex Market

The SEACEN economies, like most other emerging market economies, have become rapidly integrated into international financial markets through capital account liberalisation and opening financial markets for foreign investors. The degree of capital account openness is generally considered to be a measure of financial integration. It is also argued that capital account liberalisation is not a necessary condition for capital mobility. However, *de jure* restrictions on capital account by individual economies and actual capital flows across countries are indicators of financial globalisation (Dheerasinghe, 2009). Though there are some theoretical guidelines for measuring the degree of openness, due to complexity of the subject, this study considers the extent of financial market liberalisation as measured by the Chinn-Ito Index[13] and the external trade dependence of the country to distinguish the openness of the economies under consideration. Table 2 which gives an indication of the openness in relative terms, shows that all SEACEN economies' current account transactions are fully liberalised and capital account transactions are at various degree of liberalisation.

Singapore has a fully liberalised capital account and follows a managed floating exchange rate system. Indonesia, Cambodia and Mongolia had a free floating exchange rate system while that of Malaysia was a managed float. The degree of *de jure* restrictions on these economies were lower than that of Korea, Philippines and PNG which were having floating exchange rate systems while that of Malaysia was a managed float. The Sri Lankan authorities too intervened in the foreign exchange market to avoid unwarranted fluctuations.

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13. The Chinn-Ito index (*KAOPEN*) is an index measuring a country's degree of capital account openness. The index was initially introduced in Chinn and Ito (*Journal of Development Economics*, 2006). *KAOPEN* is based on the binary dummy variables that codify the tabulation of restrictions on cross-border financial transactions reported in the IMF's *Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER).*

Table 2
Degree of Openness Vs Exchange Rate Systems

Category	Conventional Peg	Managed Floating Systems (a)[14]	Floating
Current account liberalised (Relatively high degree of controls on capital account)	**Nepal** (Flexibility is limited vis-a-vis the Indian Rupee)		**Sri Lanka**[15] (Flexibility is limited vis-a- vis the US dollar) Thailand (Intervene to prevent excess volatilities)
(Relatively low degree of controls on capital account)		Chinese Taipei [16]	Korea (Negative list) Philippines (Intervene to maintain order and stability) PNG
Capital account nearly fully convertible (a few restrictions prevailed)		Malaysia (Based on a basket of currencies of major trading partners)	Indonesia **Cambodia** (Flexibility is limited vis-a- vis the US dollar) Mongolia (USD as intervention currency)
Capital account fully convertible		Singapore **(**Managed against a basket of other currencies).	

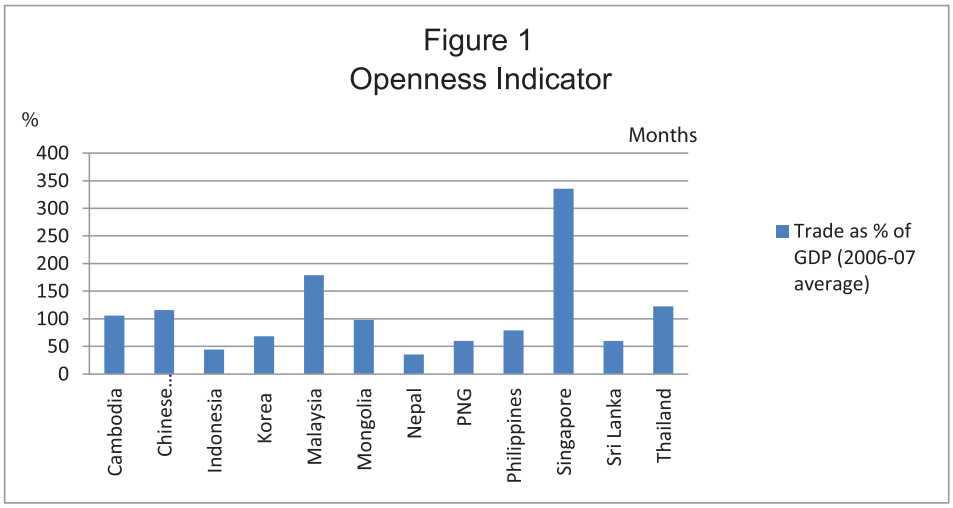
Source: Based on Annual Report on Exchange Arrangements and Exchange Restrictions 2007, IM

14. Need some capital controls. This arrangement can co-exist with an open capital account if the country has a high level of financial development and sound policies.

15. IMF categorized Sri Lanka under stabilised arrangement category.

16. Based on information given in Exchange Rates and Capital Flows in the SEACEN Economies (2007).

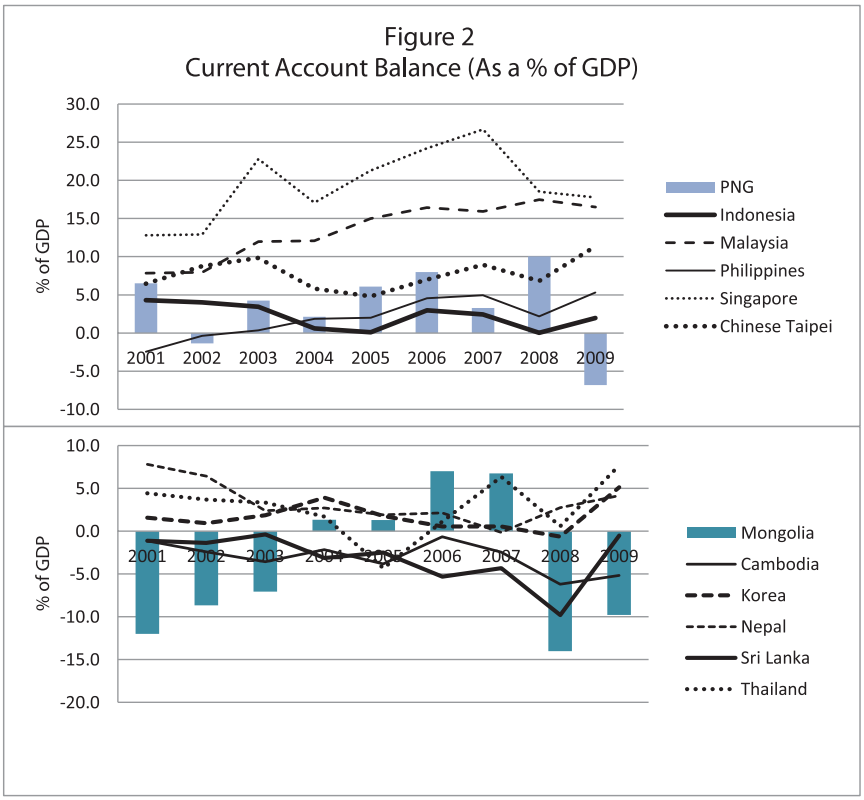
Taking the external trade openness of the economy as given in Figure 1 into consideration, for the purpose of this study, Singapore is considered as a fully liberalised economy while Korea, Chinese Taipei and Philippines Cambodia, Malaysia, PNG, Mongolia and Indonesia are considered as highly liberalised economies. Thailand, Sri Lanka, Nepal, are considered as partially liberalised economies in terms of capital account openness though Thailand is highly integrated in terms of international trade.



Though it is not an essential condition, in economies where capital accounts are liberalised, capital flows usually bring about high volatility. According to Choongsoo Kim, Governor of the Bank of Korea, "Capital inflows surge greatly during economic booms, but decline or go into reverse during economic slowdowns " (Choongsoo Kim, October 2010). In boom periods, large capital inflows bring in great economic benefits but it can trigger internal imbalances by increasing inflation and asset prices. It may widen the current account deficit through currency appreciation and may also increase systemic risk of financial sector.

According to the former IMF Managing Director, Dominique Strauss-Kahn, "Capital flows can lead to exchange rate overshooting, credit booms, asset price baubles and financial instability" (Dominique Strauss-Kahn, October 2010). In contrast, in an economic down turn, countries experience sudden outflows due to uncertainties in the global economy. The financial sector would face a shortage of foreign exchange to meet demand, thereby exerting pressures on the exchange

rate and external reserves. Real sector economic activities would slow down due to liquidity shortages in the domestic financial and foreign exchange markets. Similarly, the economies that were highly dependent on external trade and particularly that are linked to crisis originating US and other advanced economies, the impact of the crisis was much greater. Twelve SEACEN economies under review were affected through both financial and trade channels, but at different magnitudes.



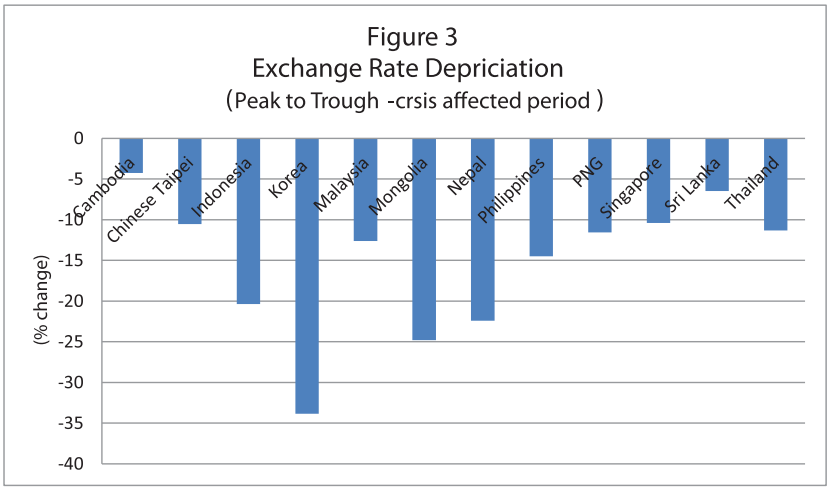
Out of 12 SEACEN economies discussed in this Section, Singapore, Malaysia, Chinese Taipei, Mongolia, Philippines, PNG, Indonesia, and Korea experienced positive current account balances before the crisis period (2004-2007) while Thailand and Nepal experienced negative balances only in 2005 and 2007, respectively (Figure 2). Out of these economies, Malaysia and PNG showed an overall improvement in current account balances in 2008 due to better commodity prices while Nepal progressed well due to higher remittances despite the weakening in the latter half of the year. Other nine economies

showed an overall deterioration. Chinese Taipei, Thailand, Philippines, Korea, Malaysia and Nepal showed improvements in their current account balance in 2009. However, it was not necessarily an indicator of better performance as both exports and imports declined with a marked slowdown in economic activity. Sri Lanka and Cambodia, which recorded persistently negative current account balances even before the crisis, deteriorated further in 2008 but showed signs of recovery in 2009.

As a result of sudden outflows of foreign exchange, almost all currencies depreciated against the US dollar and some currencies lost their value by more than 25% within a period of less than a year (Figure 3). Korea has a free floating exchange rate regime and its currency, the Korean won was under pressure since early 2008 and depreciated by about 34% during Q4 2007 to Q1 2009. Korea, one of the most liberalised economies in the SEACEN region, suffered currency depreciation more than other economies. As emphasised by the Governor of the Bank of Korea (BOK), "this was not triggered by domestic factors as Korean fundamentals remained sound, but principally by external factors in the form of the global credit squeeze and massive-leverage".

After the recovery from the East Asian crisis, Korea has become rapidly integrated into international financial markets, through capital account liberalisation and market opening. Equity investments led the portfolio investments during the first half of 2000s', encouraged by low interest rates in advanced economies, abundant global liquidity and Korea's sound economic fundamentals. Bond investment inflows overtook equity investment in 2006 and 2007. As a result of high capital inflows, Korean won appreciated persistently, by 38% during end 2000 to end third quarter of 2007. In 2006, the Korean government introduced policies to promote capital outflows by encouraging residents to invest abroad. As a result, foreign direct investments and portfolio investments by residents increased, offsetting the capital inflows. In the meantime, hedging the risk of these investments abroad and heavy forward selling by exporters increased foreign borrowings by the banking sector increasing the economy's external liabilities[17].

17. Short term external debt, increased from US$ 65.9 billion at the end of 2005 to US$ 189.6 billion as of end-September, 2008 raising the ratio of short term debt in total external debt portfolio from 35.1 % at end-2005 to 44.5 % at end-of third quarter, 2008.



Korea (Q4 2007-Q1 2009), Indonesia, Malaysia and Thailand (Q2 2008 -Q12009), Singapore, Sri Lanka and Chinese Taipei (Q3 2008-Q1 2009), Mongolia and PNG (Q4 2008-Q1 2009) Philippines and Nepal (Q1 2008-Q1 2009).

After the collapse of Lehman Brothers in October 2008, Korea experienced a large outflow of foreign capital since there was a rapid increase in repayments of external borrowings by domestic banks and Korean branches of foreign banks exerting tremendous pressure on the foreign exchange market. Korea reported a substantial deterioration in its foreign reserves in 2008. Foreign exchange reserves of Korea declined by more than US$ 60 billion during end 2007 to end 2008. Exchange rate depreciated by 34% from end 2007 to end Q1 2009 while external borrowings by banks declined sharply by about 30%. The current account turned negative while the turmoil in the financial and forex market spread to the real sector economic activities which were affected due to balance sheet effects arising from currency depreciation and drain of liquidity from both domestic and foreign exchange markets. Export growth became negative from Q4 2008 due to sharp drop in exports to advanced economies while imports followed a similar trend. Negative growth in industrial production continued from Q4 2008 to Q3 2009. As a result, GDP growth became negative in the first quarter of 2009 and continued to be negative till the third quarter of 2009[18].

18. Trading Economist data base (Seasonally unadjusted quarter growth over same quarter of the previous year)

Singapore, the most liberalised economy among the SEACEN economies, which held the third largest stock of foreign reserves among SEACEN economies, was the first SEACEN economy to be hit by the financial crisis. In July 2008, Singapore was officially announced to be in a technical recession by experiencing two consecutive quarters of negative growth. Capital outflows of Singapore were substantial since March 2008. External reserves which peaked at US$ 174 billion in March 2008 continued to decline to US$ 163.5 billion in February 2009 and then showed a recovery. Meanwhile, stock market prices (SGS-ST Price Index) dropped significantly from the peak of 3192.62 in May 2008 to 1594 in February 2009. Exchange rate depreciated by nearly 5% in the third quarter of 2008 over the previous quarter and continued to exert pressure on the domestic consumer prices[19].

In the case of Chinese Taipei, the financial account balance remained volatile, and by the third quarter of 2008, direct and portfolio investment showed net outflows. For the first time, after the fourth quarter of 1990, residents' portfolio investment abroad turned into a net inflow of US$ 4.17 billion in Q3 2008 as residents liquidated their investment in foreign financial products amidst the global financial turmoil. Non-residents' portfolio investments hit the largest quarterly net outflow on record during this quarter primarily because foreign institutional investors slashed their holdings of local stocks and government bonds to inject funds into their parent companies or to meet redemption pressures from their investors. Other investment category showed a net inflow, as the private sector withdrew overseas deposits and the banking sector brought in funds from their overseas branches.

As the final outcome of these sizable foreign capital inflows, Chinese Taipei's foreign exchange reserves which grew by an average rate of nearly 4% during 2005-2007 period[20], increased substantially in the first half of 2008 to reach a peak of US$ 291.4 billion by end of June 2008. The outstanding amount, trended generally downward in the third quarter. However, the decline was short term and reserves reached US$ 291.7 billion by the end of 2008. It further increased to US$ 348 billion by the end of 2009 which was quite sufficient to meet economy's commitments on trade and foreign debt service payments.

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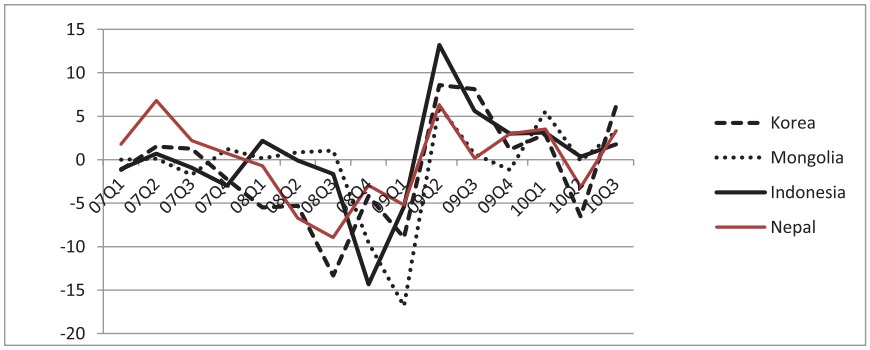
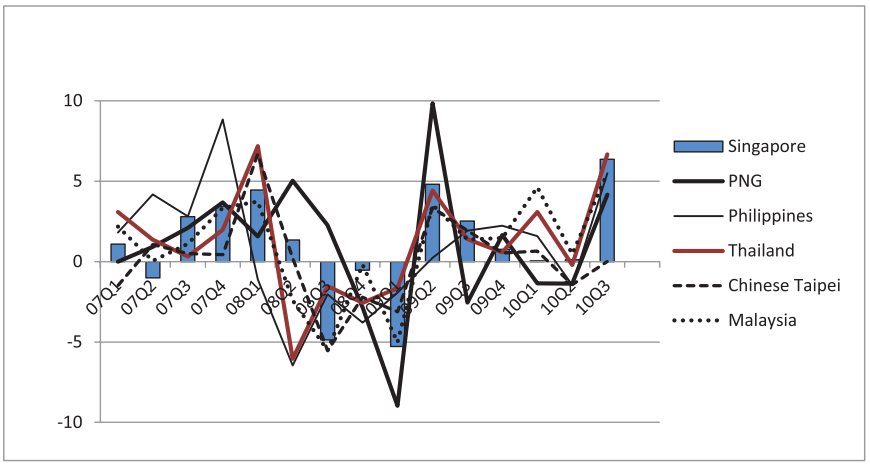
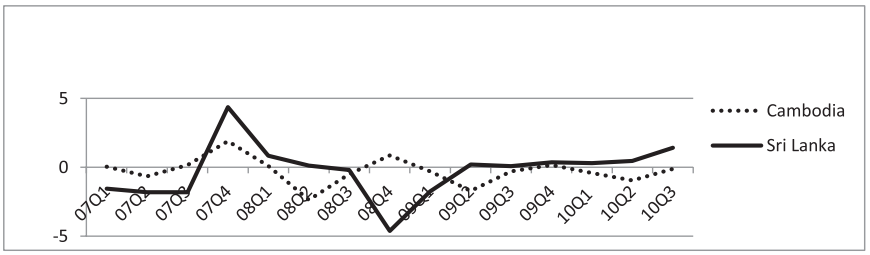
19. Data source :MAS official Website (www.mas.gov.sg/data_room/msb/Monthly_Statistical_Bulletin.html#indicators)

20. Annual average growth rate during 1998-2007 was 12.9 % due to large net inflows experienced during 2001- 2004 period.

Figure 4
Changes in Exchange Rates
(% Change Over Previous Quarter)







Thailand, which has relatively a higher degree of capital controls than in Singapore, Korea and Chinese Taipei, follows a managed floating exchange rate system. Its foreign reserves which were gradually built up since the recovery from the East Asian crisis was hit by the crisis since the second quarter of 2008. The currency depreciated continuously over four quarters since Q2 2008 while the current account deteriorated and recorded deficits during Q2 and Q3 2008 but remained marginally positive in 2008. Foreign reserves which declined since April 2008, showed early recovery since September 2008. Foreign reserves reached US$ 135 billion by end 2009. Export earnings began to decline from Q3 2008 and the decline continued until Q3- 2009. Imports also followed the same trend but showed signs of recovery since Q2 2009. Thailand experienced a negative growth during the period from Q4 2008 to Q3 2009 following the negative growth in industrial production during the Q3 2008 to Q3 2009 period. However, the recovery began since Q2 2009[21]. In the case of Thailand, the economic down turn was largely explained by a shrink in world import value rather than financial linkages.

Malaysia, which exceeded the foreign reserves of US$ 100 billion mark in 2007, recorded a relatively smaller drop of US$ 9 billion in 2008. The exchange rate depreciated by about 13% during the four quarters from Q2 2008 to Q1 2009. Foreign reserves built up thereafter reaching US$ 95.4 billion by end 2009. The Malaysian real economy which suffered during early 2009 due to lower demand for its exports and low level of production turned into a recovery during the latter half of 2009. In both Mongolia and Sri Lanka, the exchange rates were under pressure to depreciate mainly due to high import bills and net outflow of short-term investments. In Sri Lanka, the exchange rate which depreciated by 6.5% from end June 2008 to end March 2009 recovered during the last 3 quarters in 2009. Both CBSL and BoM intervened in the foreign exchange market to reduce the fluctuations in their exchange rates. The intervention in the foreign exchange market weakened the holdings of international reserves of both economies. Sri Lanka, which had accumulated reserves up to US$ 4.2 billion by end August 2008, lost almost 70% of its reserves by March 2009[22] , and was left with reserves equivalent to only 5 weeks of imports. The international reserves in Mongolia too decreased from US$ 0.9 billion prior to crisis in August 2008 to US$ 0.52 billion by the end of 2008 which was equivalent to only 9 weeks of imports. In the case of PNG, the indirect impact of the crisis came through the low global demand for PNG's exports. Since both PNG's exports and imports accounted for more than 160% of its GDP and nearly 50%

21. Source: The National Economic and Social Development Board, Thailand

22. Gross official reserves were at US$ 1.37 billion as at March 2009.

Figure 5
Foreign Exchange Reserves

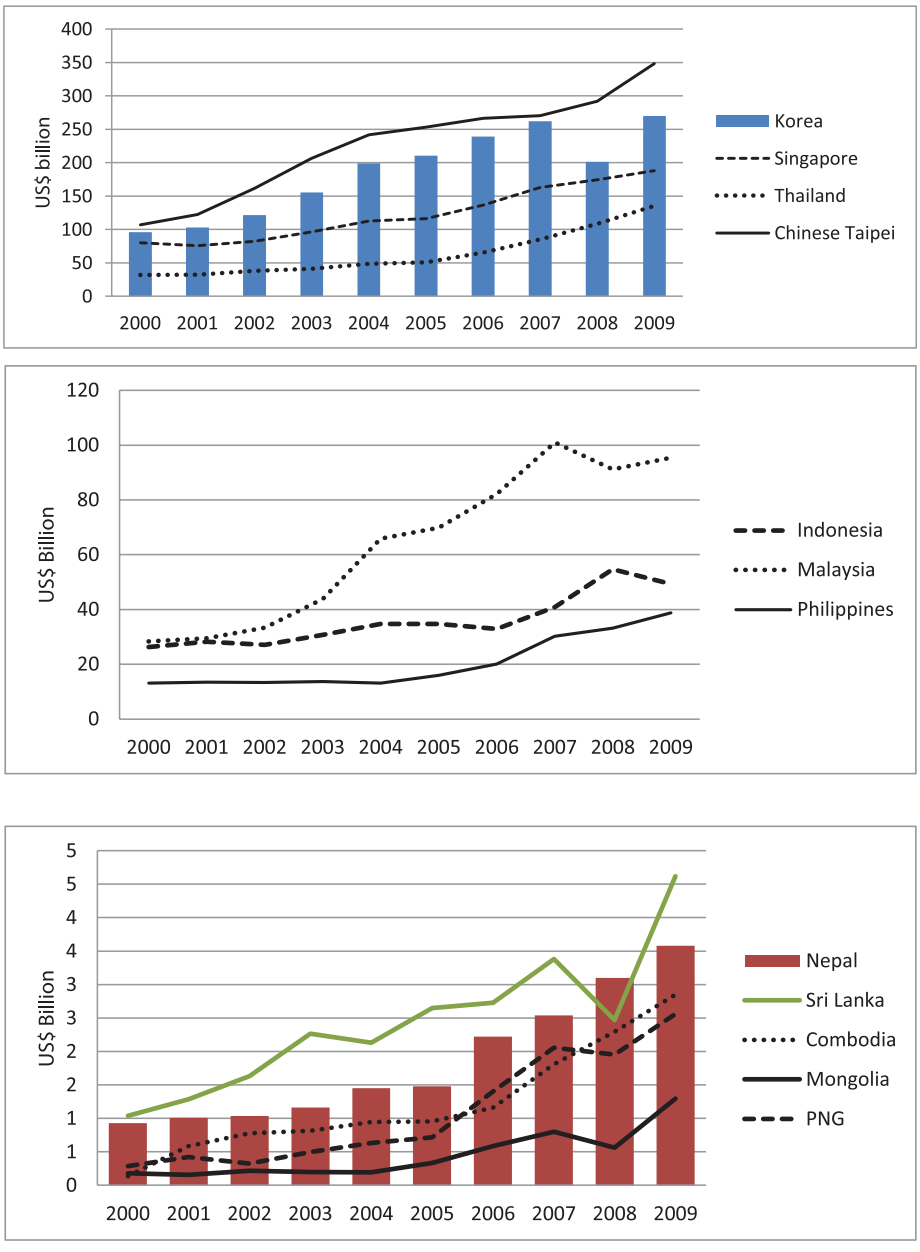


Table 3
Economic Openness and Impact of the Present Crisis on the External Sector

Category	Criteria	Economies	Depreciation (-)[23]	Reserve loss (-) % of GDP[24] (%)		Cum. loss (-) of exports (%)[25]	
				2008	2009	2008	2009
Fully Liberalised	Merchandise exports/imports was more than 100 % of GDP and the Chinn-Ito Index more than 2.0.	Singapore	-10.4	-2.3	11.8	2.6	-30.3
Highly Liberalised	Merchandise exports/imports were more than 100% of GDP and the Chinn-Ito Index between 1-2.	Chinese Taipei,	-10.5	11.9	28.4	-6.5	-30.4
		Cambodia,	-4.2	-2.3	26.1	-18.3	-9.7
		Malaysia	-12.6	-24.1	-8.4	9.3	-34.5
	Merchandise exports/imports was between 50- 100% of GDP and the Chinn-Ito Index between 0-2.	Mongolia,	-24.8	-46.5	51.0	12.0	-47.5
		Korea,	-33.9	13.6	29.7	-0.5	-28.5
		Philippines	-14.5	-5.3	14.7	-8.4	-27.8
		Indonesia	-20.4	13.0	-13.8	4.3	-28.4
		PNG	-11.6	-24.7	0.0	-8.5	-42.9
Partially Liberalised	Merchandise exports/imports was more than 100% of GDP and the Chinn-Ito Index is <0	Thailand,	-11.3	15.7	48.8	-4.2	-29.2
	Merchandise exports/imports less than 100% of GDP and the Chinn-Ito Index is between 0 and 1	Sri Lanka,	-6.5	-40.3	4.7	-7.3	-25.3
	Merchandise exports/imports less than 100% of GDP and the Chinn-Ito Index is < 0	Nepal	-22.4	0.5	12.9	-13.0	-5.9

Notes:
1. Classification is based on average share of exports/imports and the Chinn-Ito Index values for 2007 and 2008
2. In Korea and Indonesia trade dependence ratios were lower than 100% of GDP but those economies have large service and domestic sector and relatively high capital liberalisation.
3. The Chinn_Ito Index 2007 and 2008 were used as a guideline to measure the capital account openness of the economy.
4. According to World Bank none of these economics are categorised under "Small State" definition : http://go.worldbank.org/QLCDU7B8T0

Sources: IMF Direction of Trade Statistics 2007 and Statistical Year Book 2009 of Chinese Taipei.

23. Depreciation from peak to trough

24. Cumulative loss (%) over 2007 $\{(\text{Reserve/GDP})_{08} - (\text{Reserve/GDP})_{07}\}/ (\text{Reserve /GDP})_{07} *100$ and $\{ (\text{Reserve/GDP})_{09} - (\text{Reserve/GDP})_{07}\}/ (\text{Reserve /GDP})_{07} *100$

25. Cumulative loss (%) over 2007 $(\text{Export growth } 2009/08)_{09} - (\text{Export Growth } 2007/06)_{07}$ and $(\text{Export growth } 2008/07)_{08} - (\text{Export Growth } 2007/06)_{07}$

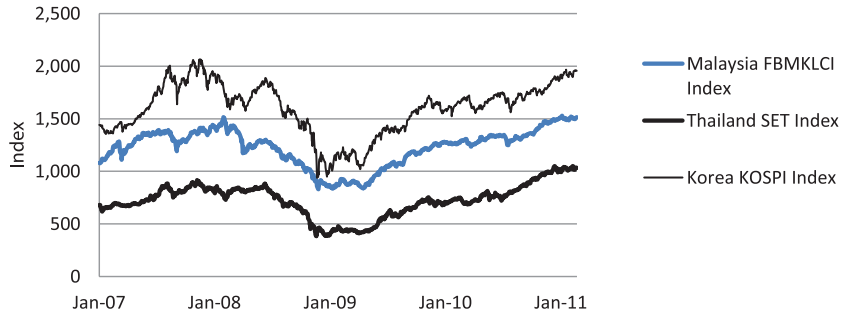
of exports sent to the advanced economies, the lower demand for exports resulted in a current account deficit in 2009. The current account deficit was, however, more than offset by a huge financial and capital account surplus generated by inflows of direct and other investments largely in the mineral sector. As a result, PNG recorded an overall BOP surplus of US$ 627 million as against a deficit in 2008.

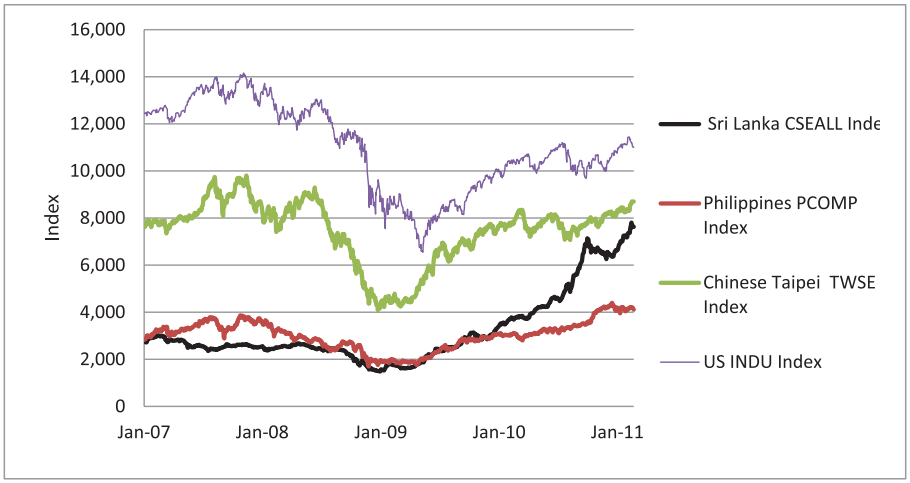
Table 3 which gives summary indicators explaining the impact of the crisis on exchange rate and foreign reserve management, shows that the higher the financial integration, the higher is the impact on exchange rate but the economies with sound economic fundamentals and high built up of reserves like Singapore and Chinese Taipei were able to manage with a lower rate of depreciation. The impact on reserves was felt immediately. The impact of the crisis on exports was felt on economies a little later than the time taken on the exchange rate and reserves but it was still severe on all economies except Nepal, which was relatively less dependent on exports to the advanced economies.

3.2.2 Impact of the Crisis on Stock Markets

Net outflows of investment from emerging markets during the global crisis led stock market prices to drop substantially. Following the downward trend in stock markets in the US and other developed economies, share markets in Asia too experienced a declining trend in their share prices. As shown in Figure 6, most of the major markets showed declining trends from 2007 Q4 and others followed. However, the recovery started from Q1 2009 onwards in all markets. In Sri Lanka, the All Share Index of the Colombo Stock Exchange reached the recorded highest level in 2010, particularly benefitting from peace dividends.

Figure 6
Stock Market Trends

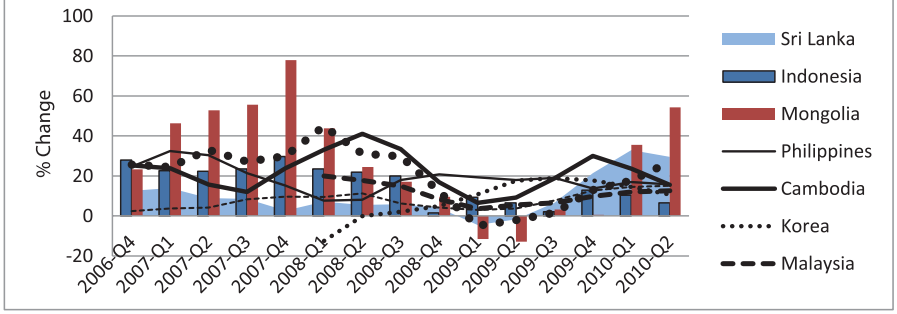




3.2.3 Impact of the Crisis on Market Liquidity

The market liquidity, measured in terms of M1 in the SEACEN economies, too was affected by the global financial crisis and experienced a decline in liquidity positions. This was attributable to large outflows of foreign exchange from the economies as well as interventions by the monetary authorities in the domestic foreign exchange market. As shown in Figure 7, growth in narrow money in all SEACEN economies started to slow down from Q1 2008 and reached the lowest level during the Q4 2008 – Q3 2009 period due to liquidity shortfall, absorption of liquidity by monetary authorities as an outcome of their supply of foreign exchange to the domestic market, lower demand arising from low economic activities and cautious lending by the banks. In the eve of the crisis, the SEACEN economies i.e. Sri Lanka, Mongolia, Cambodia, Indonesia, Nepal and Philippines, were experiencing high inflationary pressures and central banks were pursuing tight monetary policy stances. The contraction in M1 and M2 may be partly attributable to the monetary policy actions in place. However, the liquidity shortfall in the domestic financial markets was reflected in the short term interest rates in all SEACEN economies during this period. Perhaps in a number of economies, the liquidity shortfall in the money market was rather temporary, as reserve losses were either small or recovered fairly quickly. Together with effectiveness of precautionary measures implemented by the policy makers, economic recovery in export markets and particularly steady inflow of remittances in almost all SEACEN economies showed improvement in liquidity positions towards 2010**.**

Figure 7
M1 Growth



Sources: Respective Central Banks

3.2.4 Impact of the Crisis on Financial Institutions

Direct impact of the financial crisis on the stability of the financial institutions was very minimal in the SEACEN economies as most of the financial institutions in those economies had limited direct exposure to sub-prime market and other related complex financial derivatives. Financial institutions in Nepal, Sri Lanka, Thailand, PNG and Mongolia which are economies with relatively higher degree of capital controls than other SEACEN economies, were hardly exposed to such instruments as their investments abroad remained at a low level due to exchange controls. Although Chinese Taipei, Philippines and Korea have relatively low degrees of capital controls, there were no investments in such securities as investors of these economies had access to many alterative investment avenues in their own economies or other neighbouring economies. Although capital account controls on Indonesian banks and financial institutions were minimal, they were rather conventional in their investment decisions and had minimum exposure to troubled foreign securities. Before the crisis, risk factors associated with political uncertainty in Thailand affected business confidence and created uncertainty in government policies. Many local and foreign firms delayed their investment plans while Thai financial institutions' cautious approach to credit due to the lessons from the East Asian crisis, prevented a rapid expansion in credit markets particularly that of mortgage loans and complicated structured products. Against this background, the impact of the financial crisis on the domestic credit market was also not significant in Thailand. The global financial crisis did not have a direct adverse impact on the PNG economy as well because banks and other financial institutions in the economy have had little exposure to the troubled financial institutions abroad. In addition, the SEACEN economies have regularly updated and strengthened supervisory and surveillance systems

developed after the financial crisis experienced in 1997/98 period. As a result, the overall soundness of the financial institutions in SEACEN economies has strengthened as reflected in strong indicators in their balance sheets even before the beginning of the financial crisis. However, all SEACEN economies have recognised the need for structuring the financial systems on a strong base to be compliant with adequate international norms and best international practices. SEACEN economies have committed to implement financial reform programmes as one of the major components of their economic reform programmes in both pre-and post crisis periods.

3.3 Second Round Effects

The central banks together with their governments swiftly took actions to mitigate the adverse implications of the financial turmoil on their economies, but many still faced the second round effects of the crisis on exports, employment and output. In general, the impact on many economies was felt particularly in the third quarter of 2008 with some exceptions while the severity of the impact varied from economy to economy. Similarly, some economies reacted to the prudent policy initiatives implemented by their authorities and to the gradual recovery in advanced economies. Many economists argue that countries that had stronger pre-crisis fundamentals and strong vulnerability indicators experienced less severe output constraints while the countries that faced the crisis with more policy space and less binding financing constrains were able to respond with fiscal and monetary policy stimulus (IMF, May 2010).

3.3.1 Impact of the Crisis on Export Growth

The dependence on international trade was one of the main factors that determined the size of the effects of the crisis on many SEACEN economies. In Singapore, exports as a percentage of GDP was higher than 150% while in Malaysia, it was over 75% in 2007, before the crisis affected the world economy. In several other SEACEN economies like Cambodia, PNG, Chinese Taipei and Thailand, this ratio was above 50% of GDP. Except Nepal, exports of the rest of the SEACEN economies, have accounted for more than 20% of GDP. In general, economies that are highly dependent on exports were more adversely affected by the financial crisis, but the implications varied due to the differences in the direction of their exports. Economies such as Cambodia, Indonesia, Malaysia, the Philippines, Singapore, Sri Lanka and Thailand, which had more than 50% of their exports to advanced economies, were highly affected by the recession in the Western world due to the sharp fall in demand for imports from advanced economies. As shown in Figure 8, imports too followed a similar pattern

making all eleven economies, except Nepal, vulnerable to economic downturn in western economies.

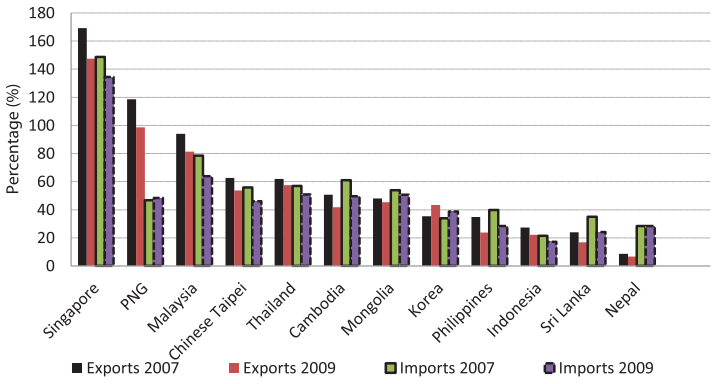
Imports of USA which grew by an average annual rate of 7.2% during the period of 2001-2007, further increased by 7.3% in 2008 but declined by 26% in 2009. Similarly, total imports of advanced economies other than US, too declined by 22% in 2009. Singapore which exported more than 46% of its exports to advanced economies and about another 27% to emerging and developing Asia in 2007 recorded a decline of 20% in exports in 2009 over that of 2008. Mongolia and Nepal which exported relatively lower shares of their products to advanced economies, particularly US, were less affected by the crisis. Nepal exports of which grew by an annual average rate of 4% during 2001-2007, experienced a decline of 5% in its exports in 2008 and reported only an increase of 2% in 2009.

Table 4
Economic Vulnerability: Trade Exposure to Western Markets

Category	Criteria Criteria	Economies		
		Exports	Imports	Trade
High	More than 50% of merchandise exports/imports going to the US and other advanced economies.	Cambodia, Indonesia, Sri Lanka, Philippines, Thailand, Malaysia	Indonesia, Philippines, Thailand, Malaysia, PNG,	Cambodia, Indonesia, Philippines, Thailand, Malaysia, PNG, Sri Lanka
Medium	25-50% of merchandise exports/imports going to the US and other advanced economies.	PNG, Mongolia, Nepal, Singapore, Korea, Chinese Taipei	Cambodia, Mongolia, Singapore, Korea, Chinese Taipei, Sri Lanka,	Mongolia, Singapore, Korea, Chinese Taipei
Low	Less than 25% of merchandise exports/imports going to the US and other advanced economies.		Nepal	Nepal
Note: Classification is based on average share of exports/imports of 2006 and 2007 Sources: IMF Direction of Trade Statistics 2007 and CIA World Fact Book 2009 (Only for Chinese Taipei)				

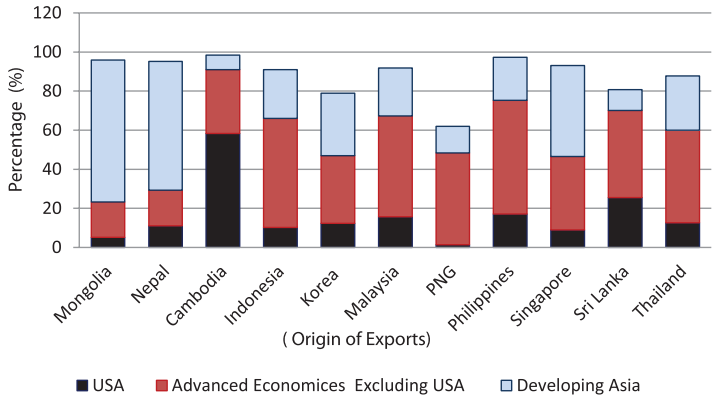
Not only exports but the dependence on imports too creates vulnerabilities to importing economies during a recession. Most of the SEACEN economies depend heavily on imports. In Singapore, imports account for more than 100% of GDP, while Malaysia's imports account for more than 75% of its GDP. Imports of Mongolia, Cambodia, Thailand and Chinese Taipei account for about 50% of their GDP. Except for Indonesia, imports of the rest of the SEACEN economies account for over 20% of GDP.

Figure 8
External Trade as a Percentage of GDP



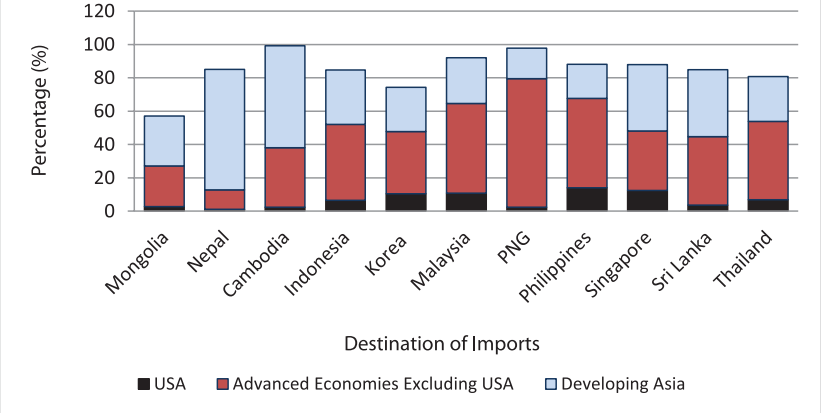
Source: IMF 2010

Figure 9
Direction of Trade - 2009



Source: IMF Direction of Trade Statistics 2009

Figure 10
Direction of Trade - 2009



Source: IMF Direction of Trade Statistics 2009

Although dependence on imports from the US was lower in many SEACEN economies, except for Cambodia, Mongolia and Nepal, all the other SEACEN economies imported more than 50% of their imports from the crisis affected advanced economies. Accordingly, most of the SEACEN economies were highly vulnerable for any kind of external shocks that originate from advanced economies, either in the form of a commodity price boom, supply shock or demand shock due to high dependence of these economies on both exports and imports. As shown in Figure 8, the crisis reduced the dependence of most of these economies on both imports and exports albeit marginally. Although it is premature to comment on this shift, the lesson to be learnt is that diversification of destinations of exports and origins of imports is one way out for reducing the vulnerabilities of external shocks.

When comparing the average export growth rates of selected SEACEN economies during 2001-2007, Cambodia and Mongolia, recorded higher rates of over 20% while Indonesia, Malaysia, Korea, PNG, Singapore and Thailand recorded growth rates over 9%. Except for Nepal and the Philippines, other SEACEN economies reported export growth over 5%. Except for Cambodia, Philippines and Nepal, others recorded positive growth rates in 2008 since the high growth rates achieved during the first half of 2008 were more than sufficient to offset the decline in exports reported towards the latter part of 2008. Since most of those economies reported large shortfalls in exports in 2009 compared to 2008, all economies shown in Figure 11, reported huge cumulative export

losses compared to their average growth during the period 2001-2007. Although Mongolia was less exposed to the advanced economies, since its export growth during 2001-2007 was substantially high, significant export losses were, nonetheless, experienced during 2008 and 2009.

Figure 11
Export Growth 2001 - 07 Vs Cumulative Shortfall in Exports 2008-09

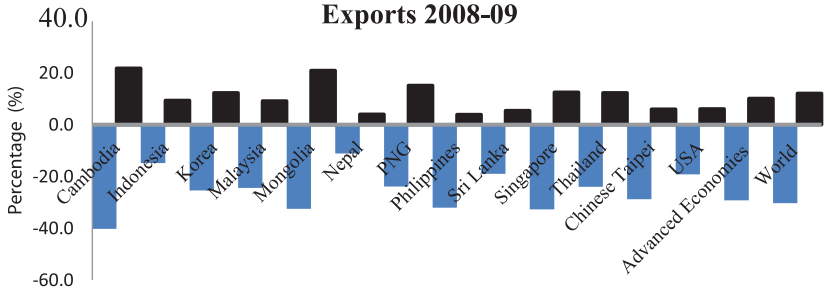


Table 5
Growth in Exports and Imports (%)

	Exports			Imports		
Country	**2001-07**	**2008**	**2009**	**2001-07**	**2008**	**2009**
Cambodia	21.9	-2.5	6.1	21.2	22.8	-17.2
Indonesia	9.3	18.3	-14.4	12.8	36.9	-27.3
Korea	12.3	13.6	-14.3	12.7	22.0	-25.8
Malaysia	9.2	18.9	-24.9	9.2	11.7	-24.8
Mongolia	20.9	34.4	-25.1	19.9	70.8	-41.1
Nepal	4.1	-5.0	2.1	10.3	8.5	15.4
PNG	15.2	20.4	-13.9	9.0	17.9	9.3
Philippines	3.9	-2.4	-21.8	6.7	4.7	-24.1
Sri Lanka	5.5	5.0	-13.0	9.0	23.3	-26.8
Singapore	12.6	12.7	-20.2	10.9	21.3	-23.1
Thailand	12.4	12.9	-12.1	12.7	27.0	-24.8
Chinese Taipei	6.0	3.6	-20.3	5.4	9.6	-27.5
USA	6.2	11.9	-18.8	7.2	7.4	-26.0
Advanced Economies	10.1	10.5	-19.5	10.0	11.1	-21.8
World	12.1	14.2	-20.2	11.7	14.6	-20.6

Source: IMF World Outlook Database 2010 October and IFS Data

3.3.2 Impact of the Crisis on Remittances

As most of the economies in the SEACEN region receive a significant proportion of their foreign exchange earnings through foreign remittances sent by the migrant workers, loss of jobs in crisis affected economies had an adverse effect on the recipient economies. However, the impact varied depending on the "destination" or "origin" economy which generates most part of these remittances. (Glennies and Chappel 2009). As shown in Table 6, most of the SEACEN economies, i.e., Indonesia, Korea, Malaysia, Thailand, Mongolia and PNG, reported negative growth in inward remittances in 2009 while others reported positive but slower growth rates in 2009 compared to high growth in 2008. As shown in Table 7, all the economies which were severely affected by the crisis received a large share of their remittances from advanced economies. Some developing economies in the SEACEN group which showed resilience for remittances during the crisis, had diversified sources of origins than their counterparts in the SEACEN region. For example Sri Lanka, which showed steady growth in inward remittances both in 2008 and 2009, received 49% of its remittances from the Middle East economies. Another 6% was received from developing Asia. The source of income in these economies is mainly worker remittances but the remittances from Australia (6%), Canada (8%), UK (7%) are mostly transfers from permanent emigrant Sri Lankans in those countries. In contrast, Malaysia, which recorded more than 15% and 16% declines in its inward remittances in 2008 and 2009 respectively, received 93.5% from advanced economies, out of which 72% was from Singapore. Other major origins are Australia (8%), Brunei Darussalam (5%), UK and USA (4% each). These factors show that the economy of origin of remittances and sector of work have been the factors that affected the drop in remittances.

Remittance flows to developing economies are estimated to have increased by 6% in 2010 showing a healthy recovery from a 5.5% decline recorded in 2009[26]. Most of the SEACEN economies expected a faster recovery than the expected average recovery of a developing country in 2010.

26. Migration and Development Brief 13.

Table 6
Remittances[27]

Economy	Inward (US$ mn)						Inward (% change)					
	2005	2006	2007	2008	2009	2010	2005	2006	2007	2008	2009	2010
Cambodia	200	297	353	325	338	364	13.0	48.5	1 8.9	-7.9	4.0	7.7
Indonesia	5,420	5,722	6,174	6,794	6,793	7,139	190.5	5.6	7.9	10.0	0.0	5.1
Korea	848	994	866	2,774	2,522	2,738	6.0	17.2	-12.9	220.3	-9.1	8.6
Malaysia	1,117	1,365	1,570	1,329	1,110	1,576	39.3	22.2	15.0	-15.4	-16.5	42.0
Mongolia	180	181	194	200	194	211	-11.3	0.6	7.2	3.1	-3.0	8.8
Nepal	1,212	1,453	1,734	2,727	2,986	3,513	47.3	19.9	19.3	57.3	9.5	17.6
PNG	13	13	13	13	12	14	-18.8	0.0	0.0	0.0	-7.7	16.7
Philippines	13,566	15,251	16,302	18,642	19,766	21,311	18.3	12.4	6.9	14.4	6.0	7.8
Sri Lanka	1,991	2,185	2,527	2,947	3,363	4,116[28]	25.2	9.7	15.7	16.6	14.1	7.4
Thailand	1,187	1,333	1,635	1,898	1,637	1,788	-26.8	12.3	22.7	16.1	-13.8	9.2
World (US$	274.9	317.9	385	443.2	416	440.1	16.0	15.6	21.1	15.1	-6.1	5.8
	Outward (US$ mn)						Outward (% Change)					
	2005	2006	2007	2008	2009	2010[29]	2005	2006	2007	2008	2009	2010
Cambodia	184	173	186	230	215	428	42.6	-6.0	7.5	23.7	-6.5	-
Indonesia	1,179	1,359	1,654	1,971	2,702	310	29.1	15.3	21.7	19.2	37.1	-
Korea	3,336	4,314	1,441	3,109	3,120	2033	33.6	29.3	-	115.8	0.4	-
Malaysia	5,679	5,597	6,412	6,786	6,800	5663	12.1	-1.4	14.6	5.8	0.2	-
Mongolia	40	77	-	-	-	12	-18.4	92.5				-
Nepal	66	79	4	5	12	1583	3.1	19.7	-	25.0	140.0	-
PNG	135	-	-	-	-	165	9.8					-
Philippines	15	20	35	44	58	477	-11.8	33.3	75.0	25.7	31.8	-
Sri Lanka	257	283	314	385	435	724	8.9	10.1	11.0	22.6	13.0	-
Thailand	-	-	-	-	-	2051	-	-	-	-	-	-
World (US$	185	214	255	296	283	-	10.3	15.3	19.4	15.9	-4.5	

Source: Migration and Remittances Fact Book 2011.

27. Migrant remittances are considered as workers' remittances, compensation of employees and migrants' transfers.

28. Revised data from Central Bank of Sri Lanka

29. Based on sending country data given in Table 4: Bilateral Remittance Estimates for 2010 based on Migrant Stocks, Host Country Incomes, and Origin Country Incomes (millions of US$) of Migration and Remittances Fact book 2011.

Table 7
Remittances (By Receiving Economy)

(Percentage share)

Sending Economy (Across)	SEACEN[30]	Advanced Economies	Developing Asia	Middle East
Receiving Economy (Down)				
Cambodia	5.7	94.3	5.2	0.0
Indonesia	55.3	31.6	49.0	14.1
Korea	0.3	96.4	0.3	0.0
Malaysia	77.2	93.5	6.0	0.1
Mongolia	34.1	97.5	0.0	0.0
Nepal	4.9	29.3	31.8	34.5
PNG	1.2	83.1	2.5	0.0
Philippines	4.6	77.6	4.1	17.1
Singapore	0.0	0.0	0.0	0.0
Sri Lanka	1.8	43.5	6.0	49.4
Thailand	23.2	74.3	20.9	2.4
SEACEN	14.6	69.5	13.0	15.5
Advanced Economies	1.0	82.2	1.0	0.3
Developing Asia	10.9	63.3	11.0	23.1
Middle East	0.0	57.7	0.1	24.6
World	4.6	70.6	4.6	11.7

Source: Author's calculation based on data from Migration and Remittances Fact Book 2011[31].

3.3.3 Impact of the Crisis on Foreign Direct Investment

The global financial crisis severely affected the capital flows to SEACEN economies disturbing the surge in private capital flows that were experienced by those countries during 2003-2007. In 2008, foreign direct capital flows to the SEACEN economies fell to US$ 57 billion from a historic high level of US$ 77.7 billion in 2007. Though SEACEN economies showed a sign of recovery during the later part of 2009, none of them could achieve pre crisis level of foreign direct investment levels.

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30. All 16 SEACEN economies are included under the category of either advanced economies or developing Asia based on the IMF classification. Therefore, the SEACEN column should be read independently to avoid duplication.

31. Table 4: Bilateral Remittance Estimates for 2010 using Migrant Stocks, Host Country Incomes, and Origin Country Incomes (millions of US$).

Figure 12
Foreign Direct Investment in SEACEN Economies

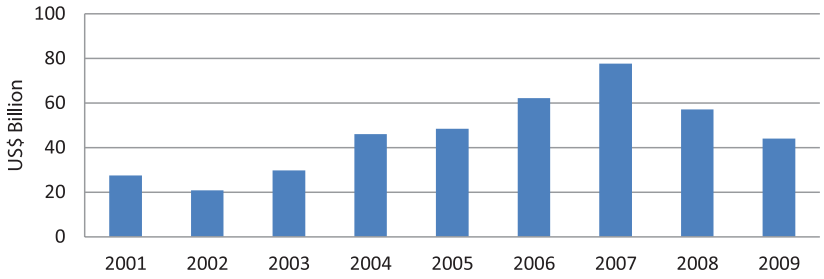


Table 8
Foreign Direct Investments

	2006	2007	2008	2009	2006	2007	2008	2009
	US$ Billion				% Change			
Singapore	29.06	35.78	10.91	16.81	87.9	23.1	-69.5	54.0
Thailand	9.52	11.36	8.54	5.95	18.0	19.3	-24.8	-30.4
Malaysia	6.06	8.54	7.32	1.38	49.1	40.9	-14.3	-81.1
Indonesia	4.91	6.93	9.32	4.88	-41.1	41.0	34.5	-47.7
Korea	4.88	2.63	8.41	5.84	-30.8	-46.2	219.9	-30.5
Philippines	2.92	2.92	1.54	1.95	57.6	-0.2	-47.1	26.2
Cambodia	0.48	0.87	0.82	0.53	26.8	79.5	-6.0	-34.7
Sri Lanka	0.48	0.60	0.75	0.40	76.5	25.7	24.7	-46.3
Mongolia	0.19	0.36	0.68	0.44	3.1	88.4	89.6	-35.9
PNG	-0.01	0.10	-0.03	0.40	-120.5	1494.1	-131.7	1403.9
Nepal	-0.01	0.01	0.00	0.04	-368.5	189.9	-82.8	3715.6
SEACEN	62.16	77.67	57.15	43.99	28.4	24.9	-26.4	-23.0
World	1459.1	2100.0	1770.9	1114.2	48.0	43.9	-15.7	-37.1

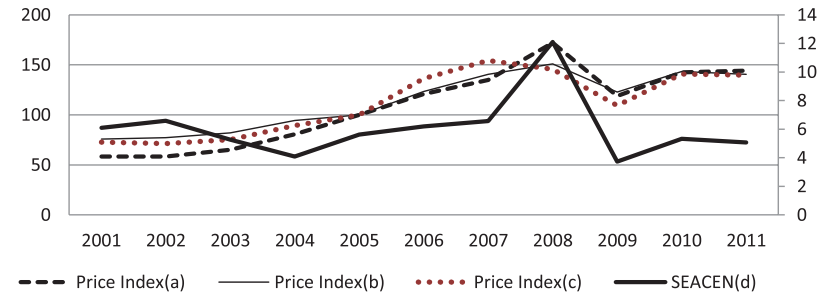
Source: UNCTAD (UNCTAD Stat).

3.3.4 Impact of the Crisis on Inflation

All SEACEN economies are largely dependent on exports and imports. Therefore, they are highly vulnerable to fluctuations in international commodity prices. The commodity price boom in 2006-2008 which emerged after nearly three decades of a declining trend in commodity prices was considered as one of the longest and broadest of the post World War II period. Strong and sustained economic growth in the world economy, weak dollar, fiscal expansion and relaxed monetary policy in many economies, influenced the price boom on one hand while on the other, adverse weather conditions, the diversion of some food

commodities to the production of bio-fuels and some fiscal policy measures such as export bans and prohibitive taxes brought down global stocks of many food commodities. As a result, prices of all major commodities including energy, metal, food and other major raw materials increased and eventually reached their peak in July 2008. The reversal of these conditions jointly with the financial crisis and the subsequent global economic downturn caused sharp price declines across most commodities thereafter.

Figure 13
World Commodity Prices and Inflation in SEACEN Economies

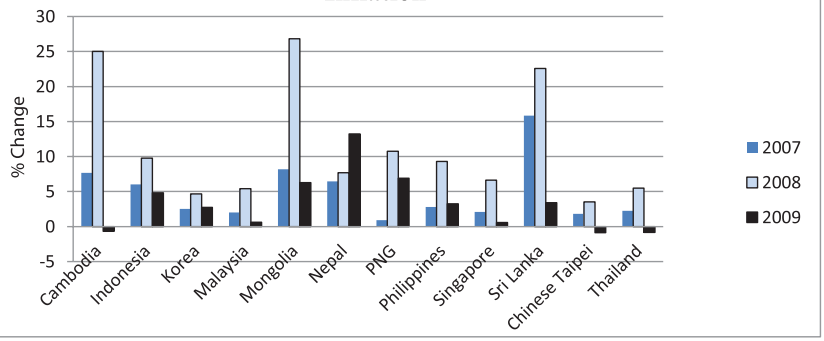


Notes:
a. Commodity Price Index includes both Fuel and Non-Fuel Price Indices, 2005=100, IMF 2010.
b. Commodity Non-Fuel Price Index includes Food and Beverages and Industrial Inputs PriceIndices, 2005=100, IMF 2010.
c. Commodity Industrial Inputs Price Index includes Agricultural Raw Materials and Metals Price Indices, 2005=100, IMF 2010.
d. Average inflation rate for SEACEN economies, Author's calculation based on IMF, average inflation and consumer prices.

The commodity price boom helped net exporting SEACEN economies to gain immensely and build up their foreign reserves, while net importers suffered due to balance of payments difficulties. As a result, out of 12 SEACEN economies under review, PNG, Singapore, Indonesia, Korea, Malaysia, which are net exporters, benefitted from the commodity price boom in 2006-2008 while others (net importers) were affected adversely.

However, without an exception, all economies, though in different magnitudes, suffered due to high inflationary pressures fuelled by high commodity prices. As shown in Figure 13, the average inflation rate of SEACEN economies closely followed the trends in world commodity prices.

Figure 14
Inflation



High Inflation Economies (Average inflation in 2007 & 2008 were ≥ 5%)	Sri Lanka, Mongolia, Cambodia, Indonesia, Nepal and Philippines
Low Inflation Economies (Average inflation in 2007 & 2008 were < 5%)	PNG, Singapore, Thailand, Malaysia, Chinese Taipei and Korea

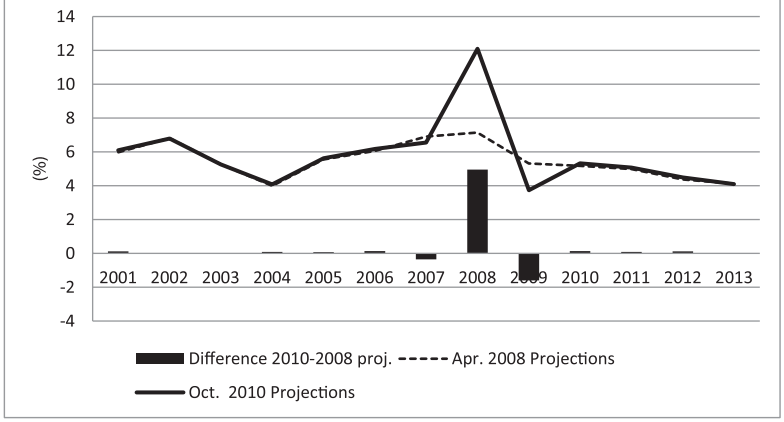
Source: World Economic Outlook Database, October 201

Cambodia, Mongolia and Sri Lanka experienced inflation rates of over 20% in 2008 while Indonesia, the Philippines and PNG reported inflation rates of around 9 -10%. Although inflation rates of other member economies were at single digit level, all recorded exceptionally higher rates than in 2007. The benefits from declining commodity prices, slow down in credit utilisation, contraction in investment and economic activities resulted in a downward turn in inflation. Except for Nepal, inflation in all other economies declined significantly in 2009.

Assuming that world leading forecasters' projections would have been realised in the absence of the crisis, the forecasts done at two different periods for SEACEN member economies by the IMF were compared to assess the impact of the crisis. Figure 15 shows projections published in April 2008, on the verge of the climax of the commodity boom with an expected upward trend in 2008. However, in magnitude, the forecast was well below the realised inflation. The projections published in October 2010 showed that the 2008 April projection for 2008 was 5% lower than the actual and for 2009, was 1.6% above the actual.

Bearing in mind that the 2008 high inflation was mainly due to commodity price boom, the 2009 and 2010 numbers could be considered as the forgone inflationary pressure due to the crisis, if the IMF projection would have been realised in the absence of the crisis. The crisis which resulted in slowing down in economic activity has exerted downward pressures on commodity prices and hence on inflation.

Figure 15
Changes in Inflation Forecasts



Source: Author's calculation based on IMF 2009 and 2010

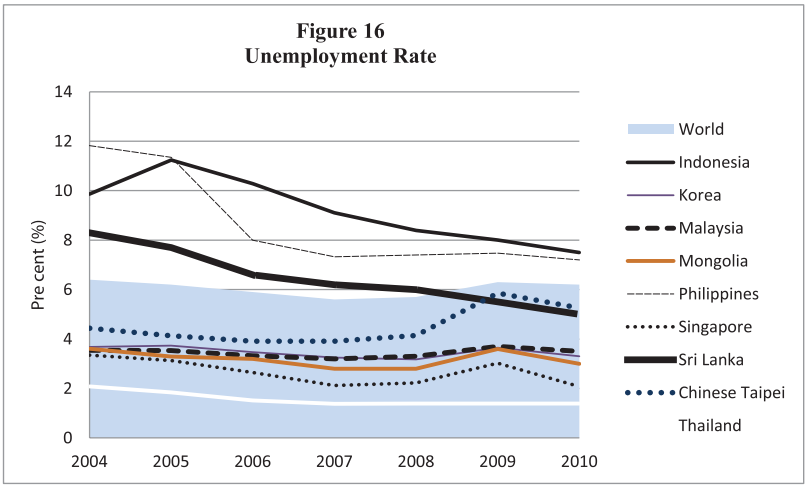
3.3.5 Impact of the Crisis on Employment

On 20 October 2008, Juan Somavia, Director-General, International Labour Organization (ILO) said on the basis of ILO's preliminary estimates that the "number of unemployed could rise from 190 million in 2007 to 210 million in late 2009." Somavia added that "the number of working poor living on less than a dollar a day could rise by some 40 million – and those at 2 dollars a day by more than 100 million" emphasising the severity of the financial crisis on the employment and poverty around the globe. The ILO publication "Global Employment Trends -2009 indicated that global unemployment in 2009 could increase over the year 2007, by a range of 18 million to 30 million workers, and more than 50 million if the situation continues to deteriorate. The ILO report also stated that in this last scenario, some 200 million workers, mostly in developing economies, could be pushed into extreme poverty. Based on November 2008

IMF forecasts, the report projected that the global unemployment rate would rise to 6.1% in 2009 compared to 5.7% in 2007, resulting in an increase of the number of unemployed by 18 million people in 2009 in comparison with 2007. The latest 'Global Unemployment Trends-2011" reveals that persistently high levels of unemployment exists in the world today, in contrast to the recovery seen in several key macroeconomic indicators of global GDP, consumption, world trade and many equity markets in 2010, surpassing pre-crisis levels. Despite rapid economic growth in 2010, the global unemployment rate stood at 6.2% against 6.3% in 2009 which is well above the 5.6% in 2007 after continuous efforts of policy makers over the last two and half years.

Unemployment rates of Thailand, Chinese Taipei, Korea, Malaysia, Mongolia, and Singapore were lower than the world average both in the crisis period and pre crisis period. When the economies of Indonesia, Philippines and Sri Lanka were in the midst of the global crisis, they reported higher unemployment rates than the world average. Sri Lanka's unemployment rate was higher than the world average until 2008 but declined continuously despite the temporary loss of employment in some sectors, such as tourism since new employment opportunities emerged after the end of the long standing conflict. Indonesia's unemployment rate too followed a declining trend although it was above the world average. Indonesia experienced temporary laying off of employees during Q1 2008 to Q3 2009 since export dominant manufacturing sectors were affected due to low international demand and pressure from the global crisis compelling several companies to make changes in their operations and upgrade business efficiency. Consequently, some factories were closed or began laying off workers, driving down purchasing power even further in 2008. Total workers who had been temporarily laid off were 10,306 until December 2008. Bank Indonesia's analysis using the Indonesian Input Output Table shows that for each 1% decline in Indonesian exports, there would be a 0.42% reduction in industrial employment. Unemployment in the Philippines increased in 2008 but both economies showed signs of recovery in 2010. SEACEN economies which showed high unemployment rates in 2009 than 2008 were Mongolia and Chinese Taipei. Employment opportunities in Malaysia and Korea were too affected in 2009 but all these four economies recorded gradual improvements.

Figure 16
Unemployment Rate



Note:
1. According to IMF database Mongolia's unemployment rate for 2009 was 11.6 % but official rate was 3.6 % as reported by the member of the research team.

Sources: World Development Outlook October 2010 and Global Employment Trends-2011.

According to the IMF database, Mongolia recorded the highest unemployment rate in 2009 among the SEACEN economies. The official figure of 3.6% published by the Labour Bureau of Mongolia for 2009 is widely recognised as an underestimation as it did not take the informal sector employment into consideration and excludes those who are not registered at the Employment Office but actively looking for work or available for work immediately. In the last four years, the proportion of the working age population was consistently around 62% of the total population. The revised rate of unemployment may be as high as 9 to 12% of the labour force. A recently commissioned survey on the informal sector shows that the effects of the economic slowdown had a widespread social and poverty impact in Mongolia.

3.3.6 Impact of the Crisis on Output

The global financial crisis affected both advanced and developing economies in several ways resulting in a sharp slowdown in output growth. The world real GDP growth declined from 5.3% in 2007 to 2.8% in 2008 and recorded a negative growth of 1.6% in 2009. The aggregate growth rate of advanced economies too declined from 2.7% in 2007 to 0.2% in 2008 and further to a negative rate of 3.2% in 2009. Singapore, Korea and Chinese Taipei, which are classified under the advanced economies according to the IMF definition, reported much lower rates than the drop in the aggregate rate for advanced economies

in 2008 and 2009. In the other nine SEACEN economies under review, of which eight are reported under developing Asia, reported growth rates in 2008 and 2009 were well below their respective growth rates in 2007. Furthermore, the drop was steeper than the average rate of the developing Asia group. Overall, out of the 12 economies, 6 recorded positive growths in 2009 albeit at a lower rate than in 2007 and 2008.

To measure the effect of the financial crisis on the output growth of the 12 SEACEN economies, the average growth over the period 2001-2007 was compared with growth in 2008 and 2009. Table 9 shows a short fall of 0.6 % in 2008 and 4.6% in 2009.

Figure 17
Cumulative Shortfall in GDP Growth
2001-07 Vs 2008-2009

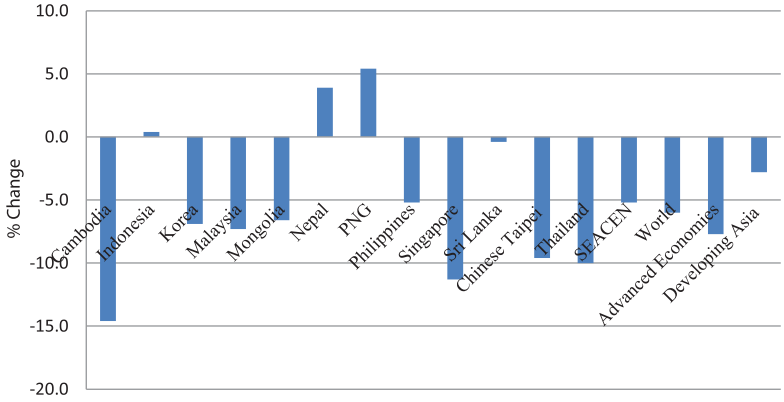


Table 9
GDP Growth in SEACEN Economies

	GDP Growth Rates (%)			Difference from 2001-07 Average Growth Rates (%)		
	2001-07	2008	2009	2008	2009	Cumulative Loss
Cambodia	9.7	6.7	-2.0	-3.0	-11.6	-14.6
Indonesia	5.1	6.0	4.5	0.9	-0.5	0.4
Korea	4.7	2.3	0.2	-2.4	-4.5	-6.9
Malaysia	5.2	4.7	-1.7	-0.5	-6.9	-7.3
Mongolia	6.9	8.9	-1.6	2.0	-8.6	-6.6
Nepal	3.5	6.1	4.9	2.6	1.3	3.9
PNG	2.9	6.7	4.5	3.8	1.6	5.4
Philippines	5.0	3.7	1.1	-1.3	-3.9	-5.2
Singapore	5.9	1.8	-1.3	-4.1	-7.2	-11.3
Sri Lanka	4.9	6.0	3.5	1.0	-1.4	-0.4
Chinese Taipei	4.2	0.7	-1.9	-3.5	-6.1	-9.6
Thailand	5.1	2.5	-2.2	-2.6	-7.3	-10.0
World	4.1	2.8	-0.6	-1.3	-4.7	-6.0
Advanced Economies	2.4	0.2	-3.2	-2.1	-5.6	-7.7
Developing Asia	8.7	7.7	6.9	-1.0	-1.8	-2.8
SEACEN Economies	5.3	4.7	0.7	-0.6	-4.6	-5.2

Source: World Economic Outlook Database October 2010

Among the SEACEN economies, the highest deceleration for GDP growth during the crisis period was reported for Cambodia. The substantial drop in exports to the US, EU and Canada, the major export destinations of Cambodia together with the contraction in tourist earnings and construction sector were the major contributory factors for this slowdown. However, the economy has started to pick up since late 2009.

In 2009, about 75% of garment production in Cambodia was exported to the US and 20% to EU economies. In addition, the removal of restrictions on China by the US at the end of 2008 also intensified competition and limited growth of this sector. The garment sector contracted by 4% in 2008 due to falling orders, and continued to contract by 3% in 2009. While there were other factors, heavy dependence on a single product and high concentration on a few markets which were adversely affected by the crisis, made Cambodia vulnerable to the impact of the crisis.

Although most of the economies reported output losses mainly in 2008 and 2009, PNG reported a gain in GDP growth during the crisis period compared to the annual average growth during the 2001-2007 period. Even compared with the IMF growth forecasts in October 2008, PNG performed better in 2008 and slightly lower in 2009 than the projected growth. The GDP growth in PNG was much lower until 2006 when the country benefitted from the commodity boom and was able to achieve a growth of 7.2% in 2007. Export earnings accounted for more than three fourth of the GDP in 2007. Although export prices declined[32] and demand was affected as a result of crisis conditions in the major markets, PNG was able to achieve a higher growth during the crisis period benefiting from the diversified trade base of petroleum, gas and mineral products along with agricultural exports which include coffee, cocoa and tea and well managed fiscal conditions. Contrary to other economies in the SEACEN group, Nepal's exports are not highly exposed to the advanced economies and its share of exports as a percentage of GDP was around 10-12% during 2007-2009 period. Therefore, the impact of suppressed demand for imports from the advanced economies had limited effect on Nepalese economy. Despite many internal problems in Nepal, GDP growth remained positive albeit less than the original projections.

For removing any anomalies in the 2001 -2007 period and to examine the real output loss by the SEACEN economies, which would have otherwise achieved the growth estimates made by the IMF in April 2008 before the bankruptcy of Lehman Brothers was declared, those forecasts were compared with the latest forecasts of the IMF published in October 2010[33]. The comparison given in Table 10 shows that the average GDP growth for the 12 SEACEN economies was 0.8% lower in 2008 and 4.8% lower in 2009 when compared with the original forecast.

32. PNG's kina export price index declined by 32% in December 2008.

33. Similar method was used by Dolphin and Chappell (2010 September) to measure the effect of the crisis on emerging economies and developing countries using different sets of IMF forecasts.

Table 10
Shortfall in GDP Compared to 2008 April Estimates

Economies	2008	2009	2010	2011	2012	Cumulative Loss 2008-09	2008-12
Cambodia	-0.5	-9.0	-2.4	-0.3	-0.6	-9.5	-12.8
Indonesia	-0.1	-1.8	-0.5	-0.5	-0.2	-1.8	-3.0
Korea	-1.9	-4.2	1.3	-0.3	-0.5	-6.0	-5.5
Malaysia	-0.3	-7.0	0.7	-0.7	-0.8	-7.3	-8.0
Mongolia	0.3	-9.7	-4.3	-7.4	-0.1	-9.4	-21.2
Nepal	2.1	0.4	-2.0	-1.5	-1.7	2.5	-2.7
PNG	0.9	-0.2	3.9	2.0	0.6	0.7	7.2
Philippines	-2.1	-4.8	1.0	-1.6	-1.7	-6.9	-9.2
Singapore	-2.2	-5.8	9.3	-1.2	-1.2	-8.0	-1.0
Sri Lanka	-0.5	-2.0	1.0	1.0	0.5	-2.5	0.0
Chinese Taipei	-2.7	-6.0	4.7	-0.3	-0.3	-8.7	-4.7
Thailand	-2.8	-7.8	1.6	-2.0	-1.8	-10.7	-12.8
SEACEN economies	-0.8	-4.8	1.2	-1.1	-0.6	-5.6	-6.1
World	-0.9	-4.3	0.0	-0.7	-0.4	-5.2	-6.3
Advanced Economies	-1.1	-4.6	0.0	-0.9	-0.4	-5.6	-7.0
Developing Asia	-0.5	-1.5	0.3	-0.4	-0.4	-2.0	-2.5

Sources: Author's calculations based on IMF 2008 and 2010

Figure 18
Real GDP in SEACEN Economies
2001=100

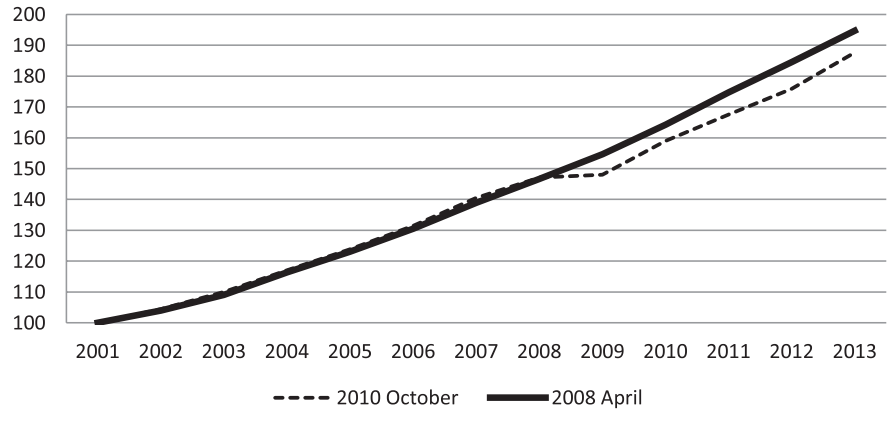


Table 11
The Effect of Financial Crisis on Nominal Output (2008-09)

Economies	Lost Output (US$ Millions)
Cambodia	1.1
Indonesia	26.5
Korea	-308.4
Malaysia	-14.6
Mongolia	-0.7
Nepal	3.6
Papua New Guinea	2.9
Philippines	-31.8
Singapore	-11.8
Sri Lanka[34]	8.7
Chinese Taipei	-71.2
Thailand	-30.3
12 SEACEN Economies	-425.9
World	-4,432.8
Advanced economies	-3,366.6
Developing Asia	1,111.6

Source: Author's calculations based on IMF 2008 and 2010

When it is assumed that the forecast of IMF in April 2008 could have been achieved, unless the crisis occurred, the already realised growth of 2008 and 2009 suggests that possible loss of nominal GDP in 12 SEACEN economies under review in 2009 was likely to be around US$ 402 billion. The cumulative loss during 2008-2009 is likely to be US$ 426 billion.

The analysis shows that the loss of nominal output in the SEACEN economies was lower than the global output loss but higher than the developing Asia. The cumulative loss during 2008-2009 has already been experienced and cannot be reversed but bringing the economies to the potential growth path is still open for policy makers.

Although the forecast has been revised slightly upward in comparison to the April 2010 forecasts, the IMF latest projections show that the potential growth path has been reduced by about 0.6 to 1.1% on average for the 12 SEACEN

34. Sri Lanka may reflect peace dividend which was not taken into account in the forecast.

economies under review due to the impact of the crisis. This was between 0.4 and 0.9 for the advanced economies. The IMF believes that the potential growth path of advanced economies has been permanently lowered as a result of the crisis due to weakened financial systems which need time to be restored. The IMF also believes that less funds will be available for investments and innovations (IMF 2009: 68).

4. The Relative Effectiveness of Policy Choices

The impact and the consequences of the global financial crisis were felt by the economies in various dimensions and in different magnitudes while policy makers were cautious and took precautionary measures to minimise the negative effects on their economies. Although most SEACEN economies showed a certain degree of resilience at the early stage of the crisis, when the crisis intensified towards the latter part of 2008, these economies experienced large short term capital outflows affecting both the financial markets and equity markets. Stock prices fell and fluctuated sharply, while almost all currencies depreciated against the US dollar. In many cases, central banks intervened in the domestic foreign exchange market to meet excessive foreign exchange demand creating heavy liquidity shortages in the domestic currency markets. Foreign exchange reserves declined substantially in some economies, causing balance of payments difficulties. Although the governments and central banks took actions to mitigate the adverse implications of the financial crisis on their economies, many faced the second round effects of the crisis which were felt on exports, employment and output.

In general, central banks influence economic activity through monetary policy by controlling the cost and availability of money. The effect of the monetary policy is transmitted to prices, employment and real output through different channels such as interest rate, bank credit, wealth, relative asset price and exchange rate. Banks and financial institutions play an important role in this process as monetary policy is transmitted through financial intermediaries to achieve its objective of price stability. The financial innovations coupled with financial liberalisation have increased interconnectedness among financial markets which in turn, increased the importance of financial system stability in achieving the macroeconomic stability and sustainable economic growth. Therefore, central banks usually have both price stability and the financial system stability as their prime objectives.

During normal times, policy makers often have space and flexibility to use policies impacting on macroeconomic stability and sustainable economic growth but in crisis situations, issues could be quite different from those under normal

conditions. Firstly, policy makers have limited options with regard to choice of policies and to implement them within a short period of time to address critical conditions and to see the outcome. For example, if the need is meeting a sudden shortage of liquidity in the forex market, it must be addressed both by providing liquidity to the banking system and restoring the market confidence. Secondly, the degree of effectiveness of the policies that have been adopted could also be different when compared with the results that have been achieved through the same set of policies under normal circumstances. The outcome also may change from country to country as well as conditions under which such policies are adopted. For example, the policies used in the Asian crisis in 1997/98 may not be effective in 2008/09 as the nature of the crisis was different. Thirdly, the normal monetary transmission mechanism may not be effective in a situation of market failure or lack of market confidence. Further, conventional policies may not suit or will have limited success in a particular sector which needs special attention during a crisis. Therefore, choosing effective policies to handle a crisis situation and to obtain an effective outcome in a short period of time, is a great challenge that the policy makers are faced with in a crisis situation.

Against this backdrop, policy makers have resorted to conventional monetary policy instruments such as policy interest rates, statutory reserve ratios etc. together with non-conventional measures such as quantitative easing, provision of credit to selected sectors, providing liquidity to non-bank financial institutions and buying private securities and assets etc. to address the issues emanating from the financial crisis. In coordination with central banks, most authorities in the SEACEN region introduced fiscal stimulus packages to support aggregate demand by increasing private and public consumption and investment to compensate for declining external demand. Some economies introduced policy packages that were more comprehensive while others focused on well targeted specific segments of the economy. Coordination among regional monetary and fiscal authorities as well as the communication and transparency of policies adopted by the economies were significant in addressing the situations emanating from the crisis.

The policy measures adopted by central banks and respective authorities in the 12 SEACEN economies covered in this study are discussed in the following sections.

4.1 Policy Choices during the Crisis

4.1.1 Monetary Policy Measures

Table 12
Monetary Policy Framework (MPF) vs Exchange Rate System (ERS)

(ERS) / (MPF)	Fixed Exchange Rate System	Managed Floating System	Free Floating
Exchange Rate Targeting		Singapore, Cambodia	
Monetary Targeting Framework	Nepal (against Indian Rupee only)	Malaysia, PNG, Chinese Taipei and Mongolia	Sri Lanka
Inflation Targeting Framework		Thailand(2000)	Korea (1998) Philippines (2000) Indonesia (2005)

The year in which the inflation targeting framework commenced is given in parenthesis.
According to IMF classification, in Sri Lanka de-facto monetary anchor is US dollar.
Source: Classified by the Author using information from SEACEN Members (2007 & 2010).

4.1.1.1 Liquidity Interventions

In the initial stage of the financial crisis which began in late 2007, central banks responded to the drying up of liquidity in the interbank money markets in many advanced economies. Money market activities in the emerging economies were also condensed due to conserved liquidity positions and the sudden foreign exchange outflows. Initially, some central banks resorted to conventional monetary policy measures such as reducing the Statutory Reserve Requirement (SRR) and policy rates to relieve the pressure in the short term money market but it was quite clear that traditional monetary policy instruments alone were not sufficient in improving the money market conditions.

When the stress in the short term market spilled over to the broader financial markets, central banks responded to the emerging situation in two phases. First, central banks increased liquidity provisions to the banking system mainly through the call money market. Some banks eased the limits placed on the reverse repurchase (reverse repo) facility temporarily to ensure availability of funds and to preserve confidence in the banking system. Sri Lanka, Indonesia, Malaysia, Chinese Taipei, Korea and the Philippines took steps to ease the restrictions on reverse repo facilities using various techniques such as increasing the number of times that a bank can borrow within a given period of time under the Reverse Repo facility of the central bank (Sri Lanka), expanding eligible instruments for

collateral (Korea, Chinese Taipei , Philippines) for open market operations, broadening the list of counterparties eligible for re-purchase transactions by extending liquidity facilities beyond banks (Korea, Malaysia, Chinese Taipei) and extending the term of repo facility for longer periods (Indonesia, Thailand) to provide market access to longer term liquidity, etc. Some central banks shortened the maturity of securities used for the monetary operations allowing more flexibility in managing liquidity (Malaysia). Cambodia introduced an overdraft facility for banks to provide required liquidity. The Philippines also started a US dollar Repo facility to increase the dollar liquidity in the market and address any temporary tightness arising from the prevailing market conditions. This measure was taken to ensure the availability of funding for imports and other related transactions, enabling the foreign exchange market to function in an orderly manner. The Philippines liberalized its rediscounting regulations to support the financial market. Mainly, the Philippines increased the budget for rediscounting from Philippine Peso 20 billion to 60 billion in two steps November 2008 and February 2009 while increasing the loan values of the all eligible rediscounting papers to help the liquidity conditions.

Most of these economies started reversing some measures taken to address the liquidity crunch created by the global financial crisis towards the second quarter of 2010 while some measures were still continued.

4.1.1.2 Statutory Reserve Requirement (Ratio)/ Required Reserve Ratio

An instrument to ease liquidity constraint is reducing the SRR on deposits held by commercial banks. However, in early 2008, it was neither warranted due to high inflation nor required as liquidity constraint emerged mainly in the second half of 2008 by which time the strong indicators of easing inflationary pressure emerged. Accordingly, even in the midst of high inflation, Mongolia and Sri Lanka lowered the SRR on their domestic currency deposits to ease the liquidity pressure on the domestic markets. Malaysia, Chinese Taipei, Philippines and Indonesia, lowered their SRR on domestic currency deposits to provide space for easing liquidity shortages emanating from the prevailing international market conditions during the period Q3 2008 to Q1 2009. Indonesia lowered the SRR on foreign currency deposits from 3% to 1% on 23 October 2008 to increase USD liquidity availability to be used by banks in their transactions with customers.

However, there were exceptions. Cambodia used the SRR to tighten market conditions during the second quarter of 2008. Cambodia increased SRR on foreign currency deposits from 8% to 16% in July 2008 to reduce inflationary pressure.

Inflation reached a decade high of 35.6% in May 2008. However, an overdraft facility for banks was eventually introduced to provide liquidity to the banking sector. When inflationary pressure eased, the SRR was reduced to 12% while the 15% limit imposed on credit to the real estate sector was removed later in 2009.

It is important to note that Cambodia is a highly dollarised economy where around 90% of bank transactions are denominated in US dollars which naturally introduces constraints in the implementation of independent monetary policies. It also limits the impact of price changes that are the consequence of fluctuations in the exchange rates. Nepal also raised its SRR from 5% to 5.5 % in October 2008 to address inflationary concerns.

The direct intervention in the short term market and use of SRR as the policy instrument were preventative measures to ensure that the interbank market would continue to function orderly and to safeguard the market against the possibility of liquidity or credit tightness coming from the global liquidity crunch. While the money market was progressing together with other measures towards stability, central banks in the second phase, resorted to various other monetary policy measures to address the credit crunch.

4.1.1.3 Policy Rates

The policy makers were cautious in their policy decisions in view of the inflationary pressure in their economies which were felt strongly during the first half of 2008. It is clear from Figure 14 (Section 3.3.4) and Table 13 that the economies were faced with severe inflationary pressure forcing them to increase their policy rates or continue with tight monetary policy during the first three quarters of 2008. The impact of the crisis was felt largely after its intensification in Q3 2008 with the collapse of Lehman Brothers. Since then, most economies reduced their policy rates except for Nepal, Sri Lanka and Mongolia, with the view to address the negative developments in the domestic financial markets and to encourage private consumption and investment by facilitating bank credit. Nepal was an exceptional case as it experienced initially more remittances than usual as an outcome of the crisis and hence the liquidity problem was not felt as in other SEACEN economies.

Sri Lanka experienced increasing inflationary pressure, expanding budget deficit and continuing price increases in food commodities and oil in early 2008. The inflation in Sri Lanka rose to a high of 28.2% in June 2008. The CBSL

maintained its policy rates unchanged throughout 2008. The country felt the impact of the crisis in Q3 2008 and since then measures were taken to deal with issues arising from the crisis, which included the downward revision of SRR, easing of quantitative restrictions on access to Central Bank funds and adjusting of the penal rate, a de-facto policy rate applicable when commercial banks exceeded the number of times per month that they were allowed to access funds at the usual policy rate. By early 2008, more strong measures were in place to address inflation, which remained high due to higher commodity and food prices, the easing of which towards the latter part, provided an additional comfort for CBSL to ease the measures to deal with the crisis. The inflation rate dropped to 14.4% by end December 2008. The CBSL reduced its policy rate from 12% to 8.5% gradually on seven occasions during January 2009 to August 2010, to support credit growth and to stimulate economic activity. Moreover, the penal rate of interest charged on Reverse Repurchase transactions with CBSL when participating institutions exceeded their monthly quota of access imposed on December 2007, was reduced from 19 % to 17% per annum by 200 basis points in January 2009. This was further reduced on four occasions to 13% in April 2009 and removed altogether with effect from May 2009. The decelerating trend in inflation continued in 2009 and reached the five year low of 0.7% by September 2009.

Nepal too followed a similar policy stance by keeping the policy rate unchanged until July 2009 and increasing it by 25 basis points as a measure to contain inflation. The average annual inflation in Nepal reached 13.2% in 2009. However, it was expected to bring down inflation to 7% level by 2010/2011.

Prior to the crisis, Mongolia's inflation was under severe pressure due to non-sustainable increases in public wages and social welfare expenditure, increased bank lending and sharp increase in food, mainly meat and fuel prices. By end 2008, the CPI inflation rate reached 22.1%. The BoM used its policy rate to address the emerging economic issues consistent with the prevailing economic conditions.

In March 2008, BoM increased the policy rate from 8% to 9.75% considering the increasing inflation pressure, rising demand with expanding budget deficit and a future expectation of increasing food and oil prices. Given a sudden price increase of 30 % in oil products in August 2008, which intensified the risk of raising inflation, the policy rate was further increased to 10.25% in September 2008. Prices of main export commodities declined and the economies of main trading partners slowed down during the last quarter of 2008. BoM lowered its policy rate in November 2008 to 9.75% in order to encourage

Table 13
Summary of Changes in Policy Rates

Economies	Period	Changes in Rate	No of Occasions	Basis points
Chinese Taipei	Sept. 2008 -Feb. 2009	3.625%-1.25%	7	-237.5
Indonesia	April 2008-Sept. 2008	8.0%-9.5%	6	150
	Dec. 2008 - August 2009	9.5% to 6.5%	9	-300
Korea	Oct. 2008 - Feb.2009	5.25%-2%	6	-325
Malaysia	Nov. 2008 – Feb. 2009	3.5% to 2.0 %	3	-150
Mongolia	March 2008	8.4%-9.75	1	135
	Sept 2008	9.75%-10.25%	1	150
	Nov. 2008	10.25%-9.75%	1	-50
	March 2009	9.75%-14%	1	425
	May 2009-Sep 2009	14%-10%	3	-400
Nepal	July 2009	6.25%-6.5	1	+025
Philippines	June 2008-August 2008	5.00%-6.00%		+100
	Dec. 2008 - July 2009.	6.00%-4.00%	6	-200
Sri Lanka	Jan. 2009-August. 2010	12%- 9.0% (reverse repo rate)	7	-300
	Dec 2007- April 2009	19%-13% (penal rate)	4	- 600
Thailand	July 2008-Oct. 2008	3.25%-3.75%	2	+50
	Oct.2008 -April 2009.	3.75%-1.25%	4	-250
	July 2010-March 2011	1.25%-2.50%	5	+125

Sources: Based on information provided by research team and SEACEN (2010).

domestic economic activities. It seemed that authorities were more concerned on the stability of the forex market as the majority of transactions were denominated in USD.

During the latter half of 2008, Mongolia's foreign exchange market became highly unstable. Sudden outflows of foreign capital and decelerating inflows of foreign currency together with weakened trade balance increased the demand for foreign currency, pressurizing the togrog to depreciate. The BoM's intervention in the foreign exchange market weakened its holdings of international reserves, thus creating a liquidity shortage in both domestic and foreign currency markets. Against this background, the BoM raised its policy rate to 14% from 9.75% sharply in March 2009 and resorted to conducting foreign exchange auctions twice a week, which also supported the revival of confidence in togrog and stability in the domestic foreign exchange market.

The BoM's tightening of monetary policy too helped stabilise money markets, restore confidence in the local currency and prevented rapid depreciation of the currency. These positive conditions brought about an opportunity to ease the tight monetary stance during the second half of 2009. The sharp drop in the inflation rate since March, as well as the stabilisation of the currency in recent

months, has given the BoM room to cut policy rates. Accordingly, the BoM cut the policy rate from 14 % to 12.75% in May, and again, to 11.5%, in June, and to 10% in September 2009 signaling a softer monetary policy stance for the rest of the year.

Indonesia increased its policy rate from 8.0% in April 2008 to 9.0% in September 2008 with a view to curtail inflation despite the pressure on the overnight interest rate, and yields of government bonds. In line with the downward trend in economic growth, inflation also declined from 9.0% in 2008 and to 4.8% in 2009. Lower than expected growth together with growing financial stability concerns required Indonesia to ease the monetary policy stance. Before making a downward adjustment to the policy rate, the interest rate corridor for the standing deposit facility was narrowed twice in September 2008 to reduce excessive volatility in the interbank money market. The policy rate was later reduced gradually from 9.5% to 6.5% during December 2008 to August 2009 in nine steps.

The Philippines too focused on reducing inflationary pressures during the first three quarters of 2008 and increased the policy rate by 100 basis points. The Philippines was experiencing an average inflation of more than 9% in 2008 which, however, declined to well below 4% in 2009. The diminishing inflationary pressures allowed Bangko Sentral ng Pilipinas (BSP) to use a series of policy rate reductions to mitigate the impact of global financial turmoil. Recognising the continued weakening of economies of advanced countries and the risks it posed to domestic economic activity through its impact on trade, investment and consumption, policy rate was reduced by 50 basis points each in December 2008 and January 2009. Though accommodative policy stance was to ensure greater availability of credit and reinforce market confidence, money market remained highly liquid. In light of this, policy rates were trimmed by 25 basis points in March 2009. Though signs of improvement were observed, the policy rate was reduced on another three occasions by 25 basis points each during April to July 2009 to ease credit conditions further and provide additional support for domestic demand and bolster market confidence.

Thailand also increased its policy rate during Q3 2008 on two occasions to address the high inflationary pressure. However, the policy rate was subsequently lowered from 3.75% in August 2008, cumulatively by 250 basis points to a historic low of 1.25% in April 2009 in 4 steps to boost up the credit demand. The rate continued to remain unchanged until July 2010. Bank of Thailand (BOT) raised its policy rate to 2.5% in March 2011 for the fifth time during the past eight

months in an attempt to curb inflation resulting from surging oil and commodity prices and increasing demand pressure.

PNG which enjoyed an exceptionally high economic growth due to metal and commodity price booms and rapid growth of its main trading partners, China and India, maintained a neutral monetary policy stance from September 2005 to June 2008 by keeping its policy signaling rate (Kina Facility Rate) at 6% throughout the period. Inflation was under control until mid 2008. Although capital inflows into PNG were affected by the crisis initially, exerting downward pressure on the local currency amidst higher demand for foreign exchange, PNG was more concerned about bringing the inflation down from a high of 13.5% in Q3 2008. Hence, it tightened monetary policy by increasing the policy rate progressively from 6.0% in June 2008 to 8.0% by December 2008, and has maintained it at that level for most of 2009. Supported by the choice of correct policy directions to mitigate the inflationary pressure, all other economies under review except for Nepal, were able to bring the inflation rate down in 2009.

Economies which were experiencing low inflationary pressure when the crisis hit were able to use the policy rate to address issues relating to low credit growth and slow economic growth immediately. Chinese Taipei cut its discount rate from 3.625% to 1.25% gradually in 7 steps during the period of September 2008 to February 2009. Malaysia, slashed its policy rate on three occasions bringing it down from 3.5% in November 2008 to 2.0% by February 2009 while Korea reduced its policy rate from 5.25% to 2% during October 2008 to February 2009 in 6 steps.

The way that the authorities have used their policy rates in addressing the issues in their respective economies during the crisis period clearly shows that they were able to identify their priority areas of concerns correctly, and use appropriate policies in a timely manner. In most of the cases, policy makers adjusted their policy rates on several occasions within a short period. It shows that they used the policy instruments cautiously, monitoring the developments in the economy and responding to developments in an appropriate manner.

4.1.1.4 Other Non-Conventional Monetary Policy Measures[35].

Among the policy choices that the monetary authorities implemented during the crisis period, non-conventional policies too played a role in bringing the economy back into shape as well as bolster market confidence. Most of these

35. Policy measures mainly aimed at financial sector stability will be discussed under Section 4.1.4

non-conventional policies were used to increase the access of banks and other financial institutions to open market operations and improve the liquidity conditions of the short term financial market while others were to boost consumption, investment and other economic activities by improving the utilisation of credit facilities.

Most central banks in the region attempted to protect vulnerable sectors of the economy by easing the regulations or providing additional incentives to direct credit facilities to those sectors. Korea expanded financial support to vulnerable sectors by increasing the credit ceiling, making one time interest payment on required reserves and supporting credit promoting institutions. Nepal lowered the refinance rate for export credit by 1.5 percentage points in two steps. Malaysia encouraged banks to reduce monthly loan repayments on floating rate loans. It also looked into the interest of aged citizens who depend on interest income for their livelihood and allocated RM 2 billion to ensure a high return on their investments. Indonesia issued regulations to support the rupiah and the balance of payments by mandating export payments for certain products to use letters of credit (LCs) in domestic banks. Sri Lanka introduced several measures while further tightening the margin requirement against LCs for importation of motor vehicles introduced in 2004 and bringing in imports of a range of goods under margin requirement to safeguard and stabilize the forex market against pressures on the rupee to depreciate with low reserves, as a direct impact of the financial crisis on the economy. These measures were removed in 2009, with the reversal of capital flows thereby, strengthening the stability of the forex market.

4.1.2 Fiscal Policy

Figure 19
Fiscal Deficit as a% ofGDP

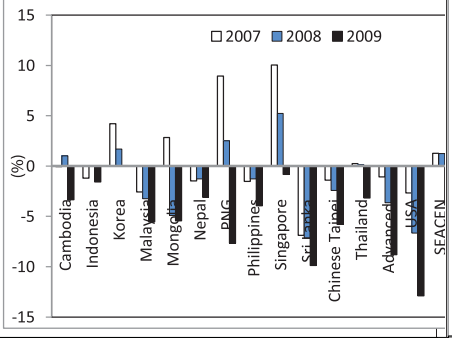
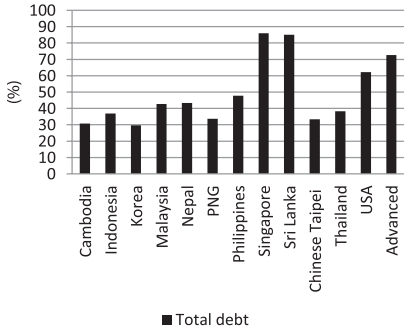


Figure 20
General Government Gross Debt as a %
of GDP -2007



Economies with strong fiscal space (Average fiscal balance in 2007 was ≥ -3% and debt stock was < 50% of GDP)	Korea, Mongolia,PNG, Singapore, Thailand, Cambodia, Chinese Taipei, Indonesia, Philippines, Nepal and Malaysia
Economies with low fiscal space (Average fiscal balance in 2007 was < -3%)	Sri Lanka

Singapore debt stock consists of domestic debt.

Source: IMF, World Economic Outlook Database, October 2010[36]

Unlike the East Asian crisis in 1997/98 which hit the SEACEN economies and disrupted financial markets in their own region, the recent global financial crisis hit the SEACEN economies mainly through financial and trade channels. As discussed in Section 3, the impact of the fall in external demand and world trade hindered growth in these economies which are highly dependent on exports. The substantial drop in exports, which reached its highest in Q4- 2008 and Q1-2009 affected export based industries, employment and pulled down invester and consumer confidence, reduced investment and consumption. While the monetary authorities were left with expansionary monetary policies to boost credit growth at the potential cost of inflation, governments were under pressure to stimulate their respective economies to improve aggregate demand through fiscal policies at the cost of high fiscal deficits and debt burden on future generations. However, as shown in Figure 19, most of the SEACEN economies under review had relatively healthy fiscal conditions compared with those in the advanced economies.

In 2007, Korea, Mongolia, PNG, Singapore, Thailand operated with fiscal surpluses while Cambodia, Chinese Taipei, Indonesia, Philippines and Nepal recorded fiscal deficits of less than 2%. Malaysia was only marginally higher

36. In fiscal balances reported by ADB, Key Indicators for Asia and the Pacific 2010 are different from IMF data, probably due to different definitions. However, IMF data are used in this analysis unless otherwise indicated.

at 2.6% of GDP. Accordingly with the exception of Sri Lanka, the other 11 SEACEN economies under review have had fairly reasonable fiscal spaces that enabled them to introduce fiscal stimulas policies to address concerns of the evolving recession. The government debt stock of each of the 10 SEACEN economies stood at a level less than 50% of GDP in 2007, whereas debt/GDP ratios were significantly high in the US and other advanced economies. However, Singapore has virtually no external debt while the external debt position relative to GDP in Sri Lanka is in line with other economies in the region. Sri Lanka has very litle fiscal space due to the high budget deficit. The prudent fiscal policies adopted in the past gave most economies in the region a relatively high degree of fiscal freedom and lower debt/GDP ratios highlighted low risk of debt sustainability. In order to boost demand and accelerate the recovery process, almost all SEACEN economies introduced fiscal stimulus packages with variations in the size, instruments, target groups and timing.

Table 14
Fiscal Stimulus Packages and Impact on the Budget

	Amount		Fiscal Deficit as a % of GDP		
Economies	(US$ Billions)	As % of GDP	2007	2008	2009
Cambodia			0.0	1.0	-3.3
Indonesia	6.1	1.2	-1.2	0.0	-1.6
Korea	86.0	12.8	4.2	1.7	0.0
Malaysia	18.1	10.0	-2.6	-3.2	-5.5
Mongolia	1.35		2.8	-4.9	-5.4
Nepal	..	..	-1.5	-1.3	-3.1
PNG			9.0	2.5	-7.7
Philippines	6.5	4.6	-1.5	-1.3	-3.9
Singapore	13.8	10.7	10.0	5.2	-0.8
Sri Lanka	0.2	0.6	-6.9	-7.2	-9.9
Chinese Taipei	17		-1.4	-2.4	-5.8
Thailand[37]	3.3	1.2	0.2	0.1	-3.2

Sources: IMF World Economic Outlook Database October 2010 and Appendix Table 2

As shown in Table 14, out of 12 economies under review, Korea's stimulus package was US$ 86 billion or 12.8% of GDP and the largest among the 12 economies. Singapore and Malaysia too implemented stimulus packages higher than 10% of their GDP. Even the economies with space for fiscal stimulus before the crisis affected their economies, found it difficult to manage the high cost of stimulus packages due to shortfalls in revenue, reducing the space available.

37. Thailand allocated US$ 42 billion on "Thai Kehm Khaeng" programme for the 2010-2012 period which is not included in this table.

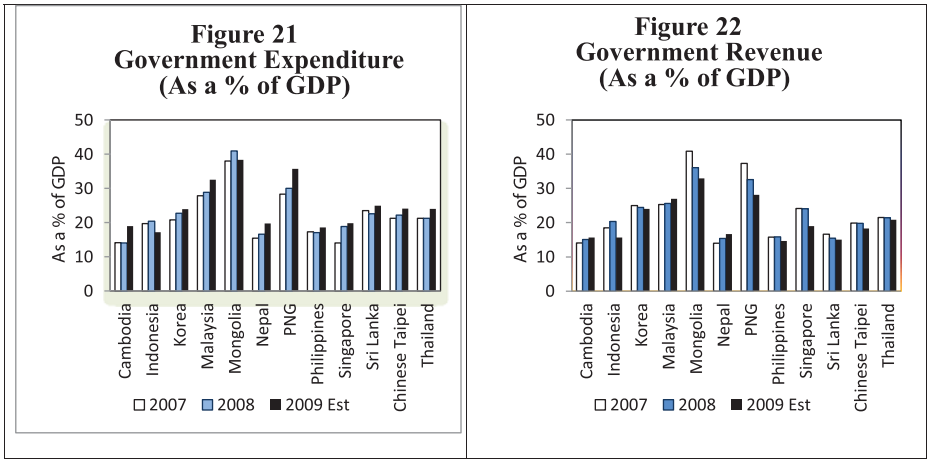


Figure 19 shows that fiscal deficits in 2009 were higher than those in 2007 and 2008 in most of the SEACEN economies. Most economies that had fiscal surpluses in 2007 and 2008 have suffered deficits in 2009. All 12 economies under review have shown some degree of deterioration in their fiscal performance, due to both revenue shortfalls and increased expenditure.

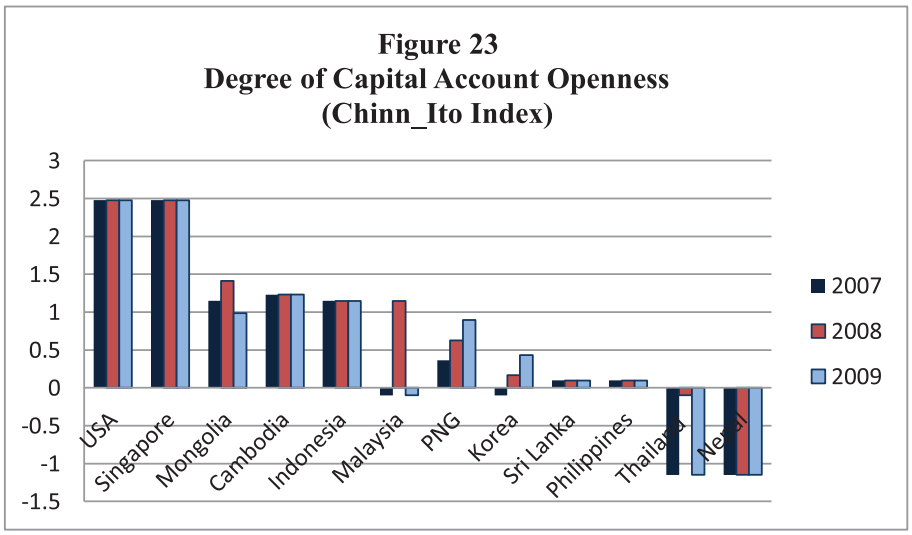
Most of the stimulus packages were aimed at safeguarding the existing employment levels and increasing job opportunities or providing relief to households by ensuring sufficient income to wage earners. Economies such as Chinese Taipei, Korea and Singapore in particular launched special programmes for job creation while Chinese Taipei, Korea, Malaysia and Indonesia paid special attention to provide direct relief to vulnerable segments of the population. Some of those programmes were linked to infrastructure development projects which have medium term horizons. Some were targeted to provide direct hand outs or reduce direct taxes on their income. Other programmes aimed directly at businesses and production oriented sectors. Tax measures taken by Chinese Taipei, Indonesia, Korea, Malaysia, Philippines and Sri Lanka were aimed at providing relief to the industrial and business community to improve investment and for households to maintain or increase their consumption. Chinese Taipei, Korea and Malaysia introduced programmes particularly to improve investment through the financial sector in their respective economies. Although, different in magnitudes and subject to resource availability in each economy, such programmes were focused on securing employment and consumption levels, increasing production and regaining the growth momentum experienced before the crisis. Most of the expenditure programmes were confined to 2008 and 2009 but Singapore, Chinese Taipei, Korea, Malaysia and Thailand initiated medium term plans aimed at infrastructure development.

4.1.3 External Sector Policies

By the time the financial crisis hit the global economy, all the SEACEN economies' current account transactions were fully liberalised. Capital account transactions were fully open in Singapore while there were only a few restrictions on such transactions in Chinese Taipei, Mongolia, Cambodia, Indonesia, PNG and Korea (Table 2 in Section 3). According to the Chinn-Ito index, Malaysia's openness improved significantly in 2007 as it has liberalised most of the foreign exchange administration restrictions that existed on licensed onshore banks for foreign currency deposits and opening foreign branches, investment banks, residents and resident corporations for foreign currency transactions, non-residents for property transactions, etc., in April 2007. Korea also relaxed some capital account restrictions to encourage overseas direct investment and property ownership and overseas investments by individuals and corporations in 2007. Chinese Taipei, Korea, Sri Lanka, PNG and Philippines maintained some limited restrictions and limits on certain transactions while Thailand and Nepal exercised relatively high controls. According to the Chinn-Ito index, updated for 2009, Mongolia, Thailand and Malaysia became more restrictive in 2009 than in 2008, possibly reflecting the impact of the financial crisis of 2008-09. However, Korea increased its degree of openness in 2009. Against this backdrop, the SEACEN economies used the exchange rate policy under different regimes in their respective economies to address the issues that evolved with the financial crisis.

Singapore was one of the first SEACEN economies to fall into a recessionary situation from the recent financial crisis. Given its exposure to the global export market and strong links with the US and European financial markets, the impact of the global economic crisis got transmitted directly to its economy. The Monetary Authority of Singapore (MAS) follows an exchange rate targeting framework for conducting monetary policy where the exchange rate is the intermediate target of monetary policy. It also follows a managed floating exchange rate system in which the exchange rate is allowed to fluctuate within a pre determined band.

Figure 23
Degree of Capital Account Openness
(Chinn_Ito Index)



The band is periodically reviewed to ensure that it remains in line with the economic fundamentals. Against the backdrop of a weakening external economic environment and continuing stresses in global financial markets, MAS shifted to a zero per cent appreciation of the S$NEER policy band in October 2008, taking into account the moderation of inflation from its peak in mid-2008[38]. MAS maintained the zero per cent appreciation of the S$NEER policy path until it re-centered the exchange rate policy band at the prevailing level of the S$NEER in April 2010. The Singapore economy has rebounded from the downturn and is expected to continue its firm recovery path given improved global economic outlook.

Except for Nepal, the exchange rate policies of other SEACEN economies have been to allow the value of the local currency to be determined by market forces, while intervening in the domestic foreign exchange market to smoothen any large volatility. As a result, central bank's intervention in the foreign exchange market was evident in the early stage of the crisis causing deterioration of external reserves. This has limited the ability of maintaining the exchange rate stability during the crisis period for economies with limited reserves.

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38. Since April 2004, MAS has maintained the policy of a modest and gradual appreciation of the Singapore dollar nominal effective exchange rate (S$NEER) policy band. In October 2007, the policy was tightened through a slight increase in the slope of the band. The gradual appreciation of the S$ exchange rate over the past few years has helped to mitigate inflationary pressures.

In addition, Singapore, Korea, Indonesia and Sri Lanka signed currency swap agreements with major central banks to provide sufficient foreign exchange liquidity in the market. With the expansion of the Chiang Mai Initiative, regional monetary authorities worked together to strengthen the regional crisis management frameworks.

4.1.4 Financial Sector Policy

The SEACEN economies were not directly affected by the financial squeeze in the US and other advanced economies as they have not invested in crisis affected financial derivatives on the one hand and inherited a relatively sound and resilient financial systems on the other. Learning from the lessons of the Asian crisis in 1997/98, and earlier crisis episodes (i.e. Philippines -1983/89, Nepal -1988, Thailand-1983), SEACEN economies have developed strong prudential regulatory frameworks to protect their financial systems from undue swings. SEACEN economies generally maintained higher capital ratios, better quality of capital and more rigorous corporate governance in their financial sectors. Nevertheless, the financial sectors of these economies were badly affected indirectly through large foreign capital outflows and slower inflows, depreciation of currency, reduced exports and declines in real output and employment opportunities.

When the banking system and the economy were severely hit by the capital outflows and liquidity shortages, monetary authorities quickly resorted to counteractive policy measures. The SEACEN economies were able to prevent any extensive bank failures. The US banking crisis caused the number of banks on the Federal Deposit Insurance Corporation (FDIC)'s "problem list" to increase to 884 in the fourth quarter of 2010. In contrast, except for Mongolia and Indonesia, none of the economies under review reported a bank failure. According to the new database of Systemic Banking Crisis for the period 1970-2009 (Laeven and Valencia 2010), out of the 12 SEACEN economies under review, only Mongolia was classified under the economies which experienced a systemic banking crisis during the 2007-2009 period. Although Mongolian banks had no direct exposure to "foreign toxic assets" and only a little exposure to foreign credit, with a low level of non-performing loans (NPL), the economic slowdown in major export markets, sluggish economic growth and decline in business turnover in the face of the evolving crisis, gave rise to credit risk of the banking system. As a result, NPL rates of the banking system increased 2.8 fold in 2009 and reached 17.4 % of total loans.

Furthermore, the high degree of dollarisation in Mongolia made its banking system more vulnerable to exchange rate shocks. Highly dollar denominated foreign currency loan portfolios of the banking system made the situation worse in a fragile exchange rate system. Loan quality, in particular of the private sector, with a drastic increase in recorded NPLs, deteriorated markedly over this period. Therefore, addressing the fundamental vulnerabilities that surfaced during the recent crisis remains a high priority for the authorities, bank management and shareholders. In November 2008, regulators were compelled to take over Anod Bank, one of the top five banks, and several board members were detained amid fears that the bank's loans were higher than reported. This not only deteriorated the public's trust on the banking system, but also resulted in a loss of confidence in interbank lending since banks were unaware of the exposure of the Anod Bank to other banks. In general, liquid assets of the banking system have been increasing since October 2008, showing its unwillingness to extend new credit facilities.

In order to restore confidence in its banks and to prevent a sudden withdrawal of deposits from the banking sector or a run on banks, the Mongolian Parliament passed "The Law on Guaranteeing the Deposits in Banks" on 25 November 2008. The Act provided provisions to assure blanket guarantee for all deposits (current accounts and savings deposits) liabilities of the licensed banks for the four-year period ending in 2012. Since such a comprehensive guarantee on all deposits may induce some banks and creditors to take excessive risks and create moral hazard, the deposit guarantee law was amended on March 6, 2009 to cover only current or transactional accounts of households and other entities. This policy measure helped bring back the confidence on the banking system, aiding bank deposits to reach the pre-crises level of MNT 2.5 trillion. However, in November 2009, Zoos Bank, the second bank was taken into receivership under the BoM. According to the Laeven and Valencia (2010) analysis, the failure of Zoos Bank is categorised under systemic banking crisis. Compared to the total fiscal outlay of restructuring Avod Bank which was 3% of GDP [39], the liquidly support[40] provided for this bank was 9.4% of GDP and recapitalisation and other restructuring cost was 3.0 % of the GDP. Extending the March 6, 2009 amendment unlimited coverage to all deposits was guaranteed. However, it is argued that the collapse of Zoos Bank did not negatively affect the overall confidence of depositors[41].

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39. Laeven and Valencia 2010.

40. Percentage point increase in central bank claims on financial institutions over deposits and foreign liabilities.

41. Chapter 4 on Mongolia.

Although the quality of surveillance in the financial sector in Indonesia was sound and the banks were well disciplined in following prudential regulations, the tight liquidity in the money market emanating from the financial crisis made it difficult for banks to manage their financial resources. In October 2008, three state banks requested liquidity support of approximately US$ 1.36 billion from the government. Medium and small banks also had more severe problems as depositors moved their funds to bigger banks assuming possible bank liquidations as experienced in 1997. Under the circumstances, banks competed to attract deposits by offering high deposit interest rates. In turn, lending rates also increased. These conditions led to a decrease of the banks' Capital Adequacy Ratio to its lowest level and NPL ratio to increase to its highest in the recent past, during the last quarter of 2008 and the first half of 2009, respectively.

Only one domestic bank, namely Bank Century was singled out for avoiding a systemic bank failure while Bank Indover were closed. However, this situation did not generate a significant shock within the banking industry. Century Bank was recapitalised at the end of 2008 at a cost of Rp. 6.7 trillion (0.69 bn US$) or 0.14% of GDP. Compared to the Asian Crisis of 1997, the global recession in 2008/09 did not cause a major bank run in Indonesia as the government increased the deposit guarantee in line with other Asian economies. However, the main objective of increasing the amount of deposits in the banking system guaranteed by the government from IDR 100 million to 2 billion on 13 October 2008 was not necessarily due to concerns of domestic bank runs, but rather to prevent capital outflows from domestic banking institutions.

As observed in Mongolia and Indonesia, the most popular among the measures to protect the banking system from any possible risk of failures was providing full or partial guarantees on bank deposits to improve the depositor confidence in the banking system. Malaysia and Chinese Taipei also introduced full deposit guarantee on bank deposits. On October 16, 2008, the Singapore government announced a guarantee on all Singapore dollar and foreign currency deposits of individuals and corporate customers in banks, finance companies and merchant banks until end-2010. Thailand also introduced a blanket deposit guarantee and a credit guarantee scheme for SMEs.

In addition to deposit guarantee schemes, Malaysia set up special funds to help SMEs with viable business opportunities to obtain easy financing facilities. Malaysia also entrusted several institutions to address general inquiries relating to banking services and credit issues of the individual and business community. It also introduced several schemes to help individuals, corporates and SMIs to

restructure their debt and repayment plans to overcome the distress caused by inability to meet debt obligations on time.

Furthermore, some economies targeted NPL ratios while others adjusted capital adequacy ratios of the commercial banks. The Philippines increased the ceiling of NPL ratio requirement to ten percentage points above the prevailing industry average in February 2009. Earlier it was set at two percentage points above the industry average. With the economic recovery, it reverted to the NPL ratio requirement of the pre-crisis level in March 2010. Mongolia reduced the capital adequacy ratio of commercial banks from 12% to 10%, providing more room for commercial banks to grant loans.

4.1.5 IMF Assistance to Crisis Affected Economies

The International Monetary Fund (IMF) took early action to provide financing to emerging markets and developing economies affected by the crisis to provide much needed finance to thwart further instability and support the recovery process. Out of the12 SEACEN members under review, only Mongolia and Sri Lanka resorted to Stand By Arrangements (SBA) with the IMF. The international reserves of Sri Lanka deteriorated to a low level of US$ 1.4 billion by March 2009. In order to build up reserves to a comfortable level and as balance of payments support, Sri Lanka requested for the SBA facility with exceptional access from IMF. However, capital inflows had recommenced well before the approval of SBA with the end of the internal conflict in May 2009. On 24 July, 2009, IMF approved SBA facility of US$ 2.6 million (SDR 1.65 billion) for Sri Lanka. Sri Lanka has received seven out of ten tranches by April 2011 totaling US$ 1.7 million.

On 1 April 2009, IMF approved an 18-month SBA for the amount equivalent to USD 229.2 million (SDR 153.3 million) to restore macroeconomic stability through fiscal, monetary and financial sector policies in Mongolia. The programme aimed to assist in a re-alignment of the monetary framework to a quantity based framework, where reserve money is the operational target. Mongolia has utilised SDR 122.6 million by 31 January 2010. The IMF assistance helped both economies to rebuild investor confidence and improve their balance of payments positions.

4.2 Analysis of Policy Responses

The East Asian Crisis in 1997/98 was domestically generated in some SEACEN economies and basically, none of these economies could escape its

consequences. Since the current crisis originated in the US, financial exposure to the US was the key propagation mechanism of the crisis (Claessen et.al. 2010). Therefore, the impact of the first round effects of the crisis were limited in many SEACEN economies due to the low exposure of the financial systems in these economies to securitised instruments, associated with the crisis. Several other factors including (a) high foreign reserves build-up after the East Asian crisis to meet emergency foreign exchange shortages, (b) improved resilience in the financial systems due to continued financial sector reforms and (c) timely policy actions taken by respective economies to minimise the adverse implications helped to mitigate the consequences of the crisis. When the exposure to the international capital markets was low, the economies were less affected at the early stages of the crisis. However, since most of these economies were exposed to the export markets in the West and the US, they were badly affected indirectly through the collapse of the export markets and subsequent declines in domestic production, rising unemployment and lack of remittance inflows etc.

The effectiveness of policy choices depends on several factors. Selecting the most appropriate set of policy measures in a timely manner is important. At the same time, the fundamentals that prevailed in the economy at the time of the crisis, have an important bearing on the success of the policies that were implemented in response. Subsequently, it is widely argued that economies that had stronger pre-crisis fundamentals and vulnerability indicators at comfortable levels experienced less severe output constraints and economies that faced the crisis with more policy space and less binding financing constraints had the ability to implement fiscal and monetary policy stimulus (IMF May 2010).

4.2.1 Comparison between 1997/98 Crisis and 2007/08 Crisis: Impact on Output

The East Asian crisis started in Thailand with the collapse of the Thai baht following the decision of the Thai government to float the baht, terminating its peg to the US$. This action was partly associated with the need for addressing the problem of severe financial expansion in the Thai real estate sector. As the crisis spread, most of South East Asian economies and Japan experienced a major financial crises which caused widespread bank insolvencies, sharp currency depreciations and declines in gross domestic production. Many crisis-affected economies needed bank restructuring and other major financial sector reforms. It was a banking crisis followed by a financial crisis. Out of the 12 SEACEN economies, Korea, Thailand and Indonesia were severely affected while Malaysia and the Philippines were also hurt by the slump. Chinese Taipei and Singapore were less affected although all suffered from losses in

demand and confidence. Sri Lanka, Nepal, Mongolia and Cambodia did not suffer serious impacts.

The recent global financial crisis that emanated from the collapse of US housing bubble, triggering a liquidity shortfall in the US banking system in 2008 is considered by many economists to be the worst financial crisis since the Great Depression of the 1930s. The recent financial crisis was much broader in scale than the East Asian crisis. The large bank insolvencies in the US and other countries, declines in credit availability, loss of investor confidence caused by the crisis affected global stock markets. Instability in the world financial markets created large outflows of foreign capitals from Asian economies, causing currency depreciation and liquidity shortages in both the domestic foreign currency and local currency financial markets. Advanced economies suffered a setback in growth and demand for imports declined. Slumps in international trade caused both developed and developing economies to suffer economic downturns. However, banks and the financial sector of almost all SEACEN economies were free from major bank insolvencies or any other systemic failures.

Since quarterly data series are not available for all economies, annual data are first used for comparison purposes. Wherever quarterly data are available, analysis is done using the methodology of Harding and Pagan (2002) as adopted by Hong, Lee and Tang (2009), which use estimates for the duration, amplitude and the cumulative losses arising from the crisis to measure the impact of the crisis. Duration refers to the length of the recession[42] while amplitude pertains to the peak to trough fall in output growth. The cumulative loss is computed as the sum of all the losses from the peak output value for the duration of the recession. A summary of selected statistics are given in Table 16[43].

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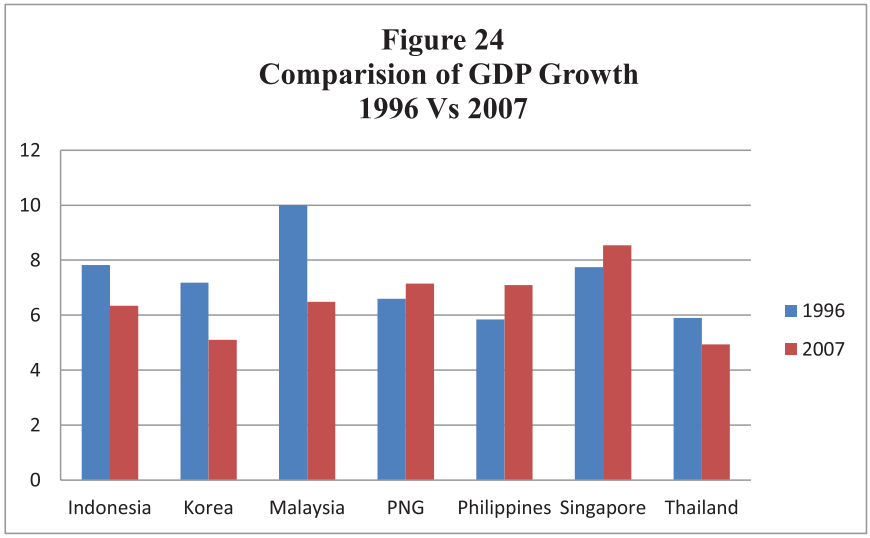
42. Harding and Pagan (2002) define a recession as the period beginning after the peak of a cycle to its trough. For quarterly data x_t, a peak exists if $x_t > x_t+k$, for k=-1, -2, 1, 2, while a trough is present when $x_t < x_t+k$, for k=-1, -2, 1, 2.

43. There may be some differences between the values given in Part I and by individual researchers in Part II as some researchers used slightly different data series (example instead of monetary growth, money stock or instead of quarter end policy rates, quarterly average rate, etc.) or different sources.

Figure 24
Comparision of GDP Growth
1996 Vs 2007



Since the Asian crisis in 1997/98, the region has regained growth momentum and was approaching or above the pre crisis growth rates by 2007, just before the recent global crisis reached the SEACEN economies (Figure 24). Except for Nepal, which had an output gain during the recent crisis period, the other 11 economies suffered as a result of the 2008/09 crisis. Cambodia, Sri Lanka, Mongolia, Chinese Taipei and Nepal were not significantly affected by the 1997/98 crisis. The economic performance in these five economies during the East Asian crisis period was relatively healthier and favourable than the other economies in the region. Therefore, the comparison would be restricted to the economies for which the 1997/98 crisis had an impact.

Although the impact of the East Asian crisis on PNG economy was significant, the impact of recent financial crisis was not immediately felt due to the boom in the mineral sector while the impact of the East Asian crisis was immediate compounded by the prolonged drought in 1997 and subsequent deterioration of PNG's external positions. The impact of the global recession on PNG was limited to 2 quarters and the economy was able to recover very soon due to resilient gold prices, export recovery and ability to build up reserves continuously, helping to correct imbalances in the foreign exchange market and anchor inflation.

The impact of the current crisis on Indonesia's economic growth was substantially smaller both in duration and amplitude compared to the 1997/98

crisis. Although the impact of the 2007/08 crisis in terms of growth loss was smaller than the 1997/98 crisis, Malaysia's cumulative loss and amplitude were much higher than all the other SEACEN economies.

Table 15
Economic Recession 1997/98 vs 2008/09

Economies	Cumulative Output loss (%) compared to previous peak	
	1997-98 (compared to 1996)	2008-09 (compared to 2007)
Sri Lanka	3.5	-4.1
Mongolia	2.8	-13.1
Cambodia	-0.2	-15.7
Chinese Taipei	-2.1	-13.1
Nepal	-2.5	4.1
Philippines	-7.1	-9.4
Singapore	-9.0	-16.6
Korea	-14.3	-7.7
PNG	-14.9	-3.1
Malaysia	-20.0	-10.0
Thailand	-23.7	-9.6
Indonesia	-24.1	-2.1

Source: Author's calculation based on IMF Economic Outlook Database October 2010.

Based on the Harding and Pagan definition of recession as given in Table 16, out of the economies which recorded higher output losses during the 2008/09 period, the Philippines experienced a longer recession of 9 quarters falling from the peak value of 8.3% in Q2-2007 to a trough of 0.2% in Q3-2009. This was against the 6 quarter recession fall from the peak growth of 6 % in Q2-1997 to a contraction of 2.4% in Q4-1998. The cumulative loss was lower (28.6 %) during the East Asian crisis than in the global financial crisis (44.5%). Chinese Taipei was the other SEACEN economy to fall into recession since Q4-2007. Chinese Taipei recorded a much higher cumulative growth loss of 40.2% during the 6 quarters beginning Q4-2007 as against the 4 quarter recession experienced during Q1 1998- Q4-1998 due to the East Asian crisis. The impact of the global financial crisis was much deeper with an amplitude of 15.6%. Singapore recorded an economic contraction for 4 consecutive quarters beginning Q2-2008 and suffered a high cumulative loss of 41.1% over 4 quarters. Following a growth

of 10.1% in Q3 2008, Mongolia's economic downturn was particularly severe with a duration of 4 quarters from Q4 2008 and the decrease by an amplitude of 13%. GDP growth had been negative for 3 quarters (-2.3% in Q1 2009, -0.6% in Q2 2009 and -2.9% in Q3 2009). The most affected sector was mineral following the decline in copper prices starting in 2007, which had contracted for 8 quarters from Q4 2007. Sri Lanka fell into a recession in Q1 2009 after recording a 7.6 % GDP growth in Q4 2008 and reached the trough of 1.6% in Q1 2009. Reported amplitude of 6% and cumulative loss of 12.5% was considerably lower than those in the other economies in the region except for Indonesia. Since more than 80% of Cambodia's exports were aimed at the US and other Western economies, the Cambodian economy dipped due to the contraction in exports and industrial output in the latter part of 2008 and the whole of 2009.

The Nepalese economy recorded a positive but lower GDP growth in 2009. Although quarterly GDP data are not available, two key sectors i.e. exports and foreign remittances showed a declining trend since Q4 2009. Exports which grew at 25.6% in Q3 2008, contracted by 16.8% in Q3 2009. The growth rate in remittances dropped from 67.3% in Q3 2007 to 9.6% in Q1 2010.

When the SEACEN economies are taken together, the Asian financial crisis was more of a regional phenomenon and Korea, Malaysia, Thailand and Indonesia were the worst affected. However, the impact was relatively smaller in scale and duration for the other economies during 1997/98 since the spillover effects were less compared to the globalised systemic shock experienced during 2008/09. During the 1997/98 crisis, the main export markets of these SEACEN economies were not in a recession as in the global crisis. In contrast, all these economies had to face weakened trading partners during the recent crisis. However, it appears that countries that were more badly affected during 97/98 crisis were able to recover more quickly with relatively less output loses at recent crisis. This may perhaps attribute it to strong reforms introduced following 97/98 crisis by these economies to improve the resilience.

Table 16
Economic Recession

Economies	1997/98 East Asian Crisis				2008/2009 Global Financial Crisis			
	Quarters		Basis points		Quarters		Basis points	
	Duration	Period	Amplitude	Cum. loss	Duration	Period	Amplitude	Cum. loss
Chinese Taipei	4	Q1 1998-Q4 1998	360	1040	6	Q4 2007 Q1 2009	1560	4020
Indonesia	8	Q1 1997-Q4 1998	2850	11520	3	Q4 2008-Q2 2009	220	490
Korea	5	Q3 1997-Q3 1998	1447	4307	5	Q1 2008-Q1 2009	982	2353
Malaysia	6	Q1 1997-Q2 1998	4960	15010	4	Q2 2008-Q1 2009	3310	6560
Mongolia					4	Q4 2008-Q3 2009	1300	4110
PNG					2	Q12009-Q2 2009	5	6
Philippines	6	Q3 1997-Q4 1998	850	2860	9	Q3 2007-Q3 2009	810	4450
Singapore	4	Q4 1997-Q3 1998	1604	4314	4	Q2 2008-Q1 2009	1640	4109
Sri Lanka					5	Q1 2008-Q1 2009	600	1260
Thailand	7	Q4 1996-Q2 1998	2097	7345	4	Q2 2008-Q1 2009	1339	2743

Sources: Author's estimates based on data provided by Research team (Philippines, Indonesia, Chinese Taipei, Sri Lanka and Mongolia), Bank Negara Malaysia, Haver Analytics database and Bank of Thailand Official Websites.

4.2.2 Communication and Transparency

"Increased willingness to share the central bank's own assumptions about future policy with the public has increased the predictability of policy, in ways that are likely to have improved central bank's ability to achieve their stabilisation objectives (Michael Woodford 2005). The relative success of innovations in the US and inflation targeting economies in efficient communication with the markets about the future conduct of policy over the past two decades encouraged policy makers to use communication and transparency as a tool of converting policy decisions into practice in a more effective manner during the recent crisis. In the light of the worldwide movement towards greater transparency and increased communication on the part of central banks, policy makers in the SEACEN economies took the challenge of communicating policies by the timely disclose of information and decisions, signaling policy objectives and directions. The Federal Reserve Bank of the US pointed out that it is the people's confidence that make paper devices serve money. Belief (i.e., "credit") is what keeps the system going. Psychology is everything.

All central banks in the region recognise the importance of managing expectations and perceptions to build confidence among the stakeholders in a crisis situation. In the case of Indonesia, Thailand, Korea and Philippines which follow an inflation targeting monetary policy framework, communication policy is in place and dialogue between the authorities and stakeholders are much stronger than in other economies. However, when the subprime mortgage market in the US deteriorated into a global crisis, other central banks in the region (eg. CBSL and Bank Negara Malaysia (BNM)) clearly committed to using communication as an instrument[44] of policy to convey the developments in the international financial markets and their possible implications on the domestic economy to the public by providing a wide range of information through their web sites, press releases and news briefings via electronic and print media. Central banks analysed the risks of the crisis on different sectors of the economy and relevant macroeconomic indicators were communicated to the stakeholders. The way in which the central banks deal with situations and their ability to face the emerging challenges are matters of interest to the public. Central bank communications allow the public, business and financial market participants to be aware of the policies undertaken by their respective central banks, and to strengthen their confidence and trust on the central banks' abilities to address crisis situations. For example, responding to the bankruptcy of Lehman Brothers, to alleviate uncertainty among depositors on the stability of banking institutions, in a public hearing of the Senate Committee on Banks, the Governor of the BSP informed that Philippine-based banks' exposures to Lehman Brothers was limited only to 0.3% to 0.4% of the banking system's total assets. It was emphasised that this involved only a limited number of banks and the instruments held by banks did not have sub-prime mortgages as underlying assets. Similarly, the Governor of CBSL too made a press briefing in October 2008, giving the background, possible impact, economic resilience, policies in place and strengths of the central bank in facing the situation and concluded with a strong remark that "We are confident that we can face this challenge". In critical situations, strong commitments of policy makers make the public feel confident in the ability of the authorities to overcome challenges. Such disclosures helped to ease the anxiety of depositors and contributed to calming down of the financial markets. Recently, in response to speculations created by the media predicting that the liquidity crisis affecting Korea's Mutual Savings Banks (MSB) will lead to more bank failures, the Korean authorities issued a statement to reassure investors over the stability of the economy's financial system after suspending operations of four MSBs on 19 March 2011.

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44. Some countries (eg. Sri Lanka) have already started using communication as a policy tool well before crisis hit the economies

In the same manner, central banks in the region used various channels of communication such as interviews, speeches, various publications such as monetary policy statements (MPS), to communicate policy changes in a timely manner. They also highlighted the basis or justifications for such policy changes and the expected outcome. The key messages in the MPS were also further explained and supported by interviews and question and answer (Q&A) sessions during press conferences etc. Special policy measures were immediately communicated to the public and their responses were monitored regularly. Effective communication policies of central banks would enhance public alertness and aid in the correct use of information and remain calm in the face of rumours and misinterpretations.

The transparency and the communication of the policy measures by the authorities opened forums for professional and business communities to have more fruitful discussions and provide feedbacks. Learning from the experience of other economies is more effective and quicker. In the case of Malaysia, the blanket deposit guarantee in October 2008 was announced simultaneously with Singapore and Hong Kong to avoid speculation. Indonesia too increased the deposit guarantee following other economies in the region. It was helpful in avoiding undue withdrawals of deposits, and possible bank runs. Except for Indonesia and Mongolia, no other economies in the region experienced any bank runs and residents did not move their FX-denominated assets offshore in a significant way unlike during the East Asian crisis. Even in Indonesia and Mongolia, authorities were able to minimise bank failures by taking timely and corrective actions as well as efficiently managing the public perception of the risks of bank runs through effective communication.

Many economies took measures to strengthen the communication links and coordination between central banks and institutions such as ministries in charge of finance, labour, trade, etc., to share information and improve the policy implementation process. These were effective implementation of fiscal stimulus packages and assessment of the economic impact of such measures. Nepal, Indonesia, Korea and Chinese Taipei were among the economies which used such measures during the crisis period. Sri Lanka and Nepal made use of road shows and campaigns through foreign missions in addressing the diaspora for raising funds and increasing remittances effectively as the economies were in need of foreign exchange reserves. Most importantly, transparency and effective communication policies adopted by the SEACEN economies helped them to build public confidence to avoid undue panic unlike the 1997/1998 crisis.

4.2.3 Monetary Policy

The monetary policy measures used during the recent crisis period were by and large similar to those used in the past crisis episodes. Firstly, liquidity pressures were contained by providing liquidity support and introducing guarantees on bank liabilities. Secondly, the issues arising from the credit crunch and drawbacks in the real economy were addressed. Most of the conventional and non-conventional policy instruments used during the crisis were common to all SEACEN economies. Use of bank holidays or deposit freezes as containment tools was not recorded during this period.

Many economies in the region were confronted with high inflation in early 2008 while the crisis hit the economies mostly during the second half of 2008. As a result, except for Korea, Thailand and Chinese Taipei, other economies either increased or maintained their policy rates (Sri Lanka, Nepal) in 2008. Cambodia and Nepal increased the SRR during the second and third quarters of 2008 to curtail inflationary pressures. The impact of the crisis was not serious enough to warrant a policy rate cut since Nepal did not have a liquidity problem. Sri Lanka responded to the liquidity issue by reducing the SRR and raising the number of times per month a bank could access the reverse repo at the CBSL. With the choice of correct policy mix, supported by a sharp decline in global commodity pricing economies in the SEACEN region other than Nepal, successfully reduced inflation towards late 2008 and in 2009. The benign inflation outlook brought about an opportunity to ease the tight monetary stance beginning from the third quarter of 2008. Some economies lowered the policy rate while others reduced the SRR or both. In addition, accommodative policy instruments were introduced from the fourth quarter of 2008 to facilitate liquidity requirements and to address the credit crunch faced by economies.

4.2.3.1 Domestic Market Liquidity Management

In addressing the liquidity crunch, central banks first increased liquidity provisions for the banking system mainly through the call money market. They have used a large number of instruments to ease access for banks and sometimes non-bank institutions to obtain funds from respective central banks and to preserve confidence in the banking system. Central banks in the region introduced deposit guarantee schemes and recapitalisation programmes simultaneously. It was found that in the past, it took nearly one year to implement comprehensive recapitalisation measure, after liquidity support was provided. However, during

the current crisis, recapitalisation measures were implemented more quickly, around the same time that liquidity support became extensive (Laeven and Valencia 2010).

During the current crisis period, financial systems in Indonesia, Korea, Thailand and Malaysia which were severely affected by the 1997/98 crisis, were more sound and prudentially managed than in the previous crisis episode. The reserve positions of these economies were strong and, therefore, they were able to regain the stability in the exchange rate within a shorter period of time by injecting foreign exchange liquidity into the market to ease the tight liquidity situation. In the case of Korea, it took a longer time horizon for the recovery due to the relatively large stock of capital outflows in addition to low inflows resulting from adverse developments in export destinations. Mongolia, Singapore, Sri Lanka, Philippines and Cambodia suffered a greater impact on liquidity during the current crisis than in the 1997/98 crisis. As discussed in the previous section, Sri Lanka, Mongolia, Nepal and Cambodia were not significantly affected by the 1997/98 crisis due to low exposure to East Asian financial and export markets. However, the current crisis was significant as these economies had relatively developed and fairly open capital markets than in the previous episode resulting in larger capital outflows and they were also severely affected by the set back in their export destinations.

Table 17
Domestic Currency Liquidity

Economies	1997/98 East Asian Crisis				2008/2009 Global Financial Crisis			
	Quarters		Basis points		Quarters		Basis points	
	Duration	Period	Amplitude	Cum. loss	Duration	Period	Amplitude	Cum. loss
Chinese Taipei	2	Q2 1997-Q3 1997	350	520	3	Q2 2007-Q4 2007	450	810
Cambodia					5	Q1 2008 – Q1 2009	5670	17490
Indonesia	4	Q3 1998-Q2 1999	15040	37080	4	Q4 2008-Q3 2009	2520	5680
Korea	7	Q4 1998-Q2 2000	2470	11090	9	Q3 2008-Q3 2010	640	2880
Malaysia	4	Q1 1998-Q4 1998	2120	5940	4	Q3 2008-Q2 2009	940	1840
Mongolia	3	Q2 1998-Q4 1998	3580	7840	4	Q1 2008-Q4 2008	6180	14760
PNG	1	Q4 1998	820	820	5	Q1 2008-Q1 2009	1860	4840
Philippines	6	Q4 1997 -Q1 1999	1640	6350	4	Q2 2007-Q1 2008	2550	6540
Singapore	4	Q3 1997-Q2 1998	250	430	4	Q3 2007-Q2 2008	1610	4160
Sri Lanka	2	Q2 1998-Q3 1998	380	4 10	5	Q4 2007-Q4 2008	1320	4510
Thailand	6	Q4 1998-Q1 2000	1110	4640	3	Q3 2009-Q1 2010	1570	4460

Sources: Authors estimates based on IFS Data (Sri Lanka (M1), Thailand, Korea, Singapore, Nepal, PNG(M3) and Cambodia). Data provided by Research Team (Philippines, Indonesia (credit growth), Chinese Taipei and Mongolia) and Bank Negara Malaysia.

However, during both financial crises, the impact on Chinese Taipei, was relatively smaller than other member economies. To address the crisis conditions in Chinese Taipei during the 1997/98 crisis period, Central Bank, Chinese Taipei (CBC) introduced a flexible exchange rate system in mid October 1997. Although the impact was relatively higher and the duration was longer during the recent crisis, CBC promptly took action to prevent undue fluctuations in the exchange rate and to mitigate speculative attacks in the foreign exchange market. It also used monetary policy measures by providing short term liquidity and lowering the required reserve ratios and discount rates to mitigate the impact of the crisis. The economic fundamentals such as foreign reserves, current account surplus, budget surplus and the sound financial system enabled Chinese Taipei to recover sooner than many other crisis affected member economies in both crisis periods.

4.2.3.2 Policy Rate and Lending Rates

During the recent global crisis, Chinese Taipei, Indonesia, Korea, Malaysia, Mongolia, Philippines, Sri Lanka, PNG and Thailand used the policy rate either to signal a monetary policy tightening to address inflation or to reduce the cost of funds based on the economic conditions prevailing in the market. During

the 1997/98 crisis period, almost all economies maintained high interest rates in the beginning to contain capital outflows, before reducing the policy rate. Policy rates, therefore, started to scale downwards in mid 1998. During the 1997/98 crisis, it took a longer duration for policy rate adjustment in crisis affected economies of Malaysia, Korea, and Thailand. Table 18 which shows the impact of policy rate reduction during the current global crisis, reveals that the duration taken to reduce the rate vary from 2-4 quarters. Although the economies slashed the rate within a shorter period, they continued lowering the rate further down 3-5 quarters without increasing it. Since the policy rate was kept low for a longer period after reaching the trough, it made the average effective period (given in brackets) longer than the duration from peak to trough. This trend was seen in some economies during the 1997/98 crisis as well.

Table 18
Policy Rates[45]

Economies	1997/98 East Asian Crisis				2008/2009 Global Financial Crisis			
	Quarters		% points		Quarters		% points	
	Duration[46]	Period	Amplitude	Slope	Duration	Period	Amplitude	Slope
Chinese Taipei	3 (6)	Q3 1998-Q1 1999	0.75	0.25	3 (7)	Q3 2008-Q1 2009	2.375	0.79
Indonesia	6	Q4 1998-Q1 2000	57.73	9.62	3(8 Contd..)	Q1 2009-Q3 2009	2.75	0.92
Korea	16	Q2 1998 Q1 2002	20.85	1.30	2(7)	Q4 2008-Q1 2009	3.25	1.625
Malaysia	24 (29)	Q3 1998-Q2 2004	8.30	0.35	2 (5)	Q4 2008-Q4 2009	1.50	0.75
Mongolia	7	Q3 1998-Q1 2000	25.00	3.57	2 (4)	Q2 2009-Q1 2010	4.00	2.00
Philippines	2	Q4 1997 - Q1 1998	7.5	3.70	3 (8 Contd..)	Q1 2009-Q3 2009	2.00	0.67
Sri Lanka	7	Q3 1998-Q1 2000	3.10	0.44	4(8 Contd..)	Q1 2009-Q4 2009	2.25	0.56
Thailand	6(9)	Q1 1999-Q2 2000	9.50	1.58	3 (7)	Q4 2008-Q2 2009	2.50	0.83
	8.875 (10.25)		16.57	1.87 (1.62)	2.75 (6.75)		2.57	0.93 (0.38)

Sources: Authors calculations based on data provided by participating researchers and Central Bank websites .

45. There may be slight differences in policy rates as some economies used quarterly average rate while others used the rate applicable at the end of quarter .

46. Duration refers to the peak to trough but the period including interest rates remained at the lowest level (trough) after reaching the lowest (given in brackets).

On average, the duration taken by SEACEN economies to move the policy rate from peak to trough during the 1997/98 crisis was much higher at 8.875 quarters compared to 3.75 quarters in the current crisis period. The duration taken by lending rates in Korea, Malaysia and Thailand to move from peak to trough during the 1997/98 crisis was much higher at 21-29 quarters than the 4-6 quarters in the current crisis period[47] (Appendix Figure 1).

Table 19
Lending Rates[48]

Economies	1997/98 East Asian Crisis				2008/2009 Global Financial Crisis			
	Quarters		% points		Quarters		% points	
	Duration	Period	Amplitude	Slope	Duration	Period	Amplitude	Slope
Chinese Taipei	3 (7)	Q3 1998-Q1 1999	0.253	0.08	3	Q1 2009-Q3 2009	1.875	0.625
Indonesia	9	Q4 1998-Q4 2000	18.07	2.01	8 (Contd..)	Q1 2009-Q4 2010	2.29	0.29
Korea	29	Q2 1998-Q2 2005	11.75	0.41	6	Q1 2009-Q2 2010	2.00	0.33
Malaysia	29	Q3 1998-Q3 2005	7.61	0.26	5	Q4 2008-Q4 2009	1.11	0.22
Mongolia	10	Q3 1998-Q4 2000	13.89	1.39	1	Q1 2009	2.65	2.65
Philippines	2	Q1 1998-Q2 1998	7.5	3.75	6	Q2 2009-Q3 2010	1.80	0.30
Sri Lanka	8	Q4 1998-Q3 2000	1.11	0.14	8 (Contd…)	Q1 2009-Q4 2010	5.33	0.67
Thailand	21(28)	Q3 1998-Q3 2003	9.75	0.46	4 (7)	Q4 2008-Q3 2009	1.40	0.35
	13.875 (15.25)		8.74	0.62	5.125 (5.50)		2.31	0.45

Sources: Authors calculations based on data provided by participating researchers and Central Bank websites.

This may be due to several reasons. The 1997/98 crisis was internally generated and countries were having weaker financial systems than in the current crisis period. Hence, authorities had to be very cautious in reducing rates. At the present crisis, rates were already at peak and had a larger scope for reducing the policy rates.

47. Direction of required changes in policy rates under two crisis were different. Countries responded to the earlier crisis by raising rate initially though that action became controversial subsequently.

48. Some statistics are slightly different from the statistics provided in project papers due to the differences in data sources and use of average data instead of point data etc.

Lending rates of Singapore, which uses the exchange rate as intermediate target, and Nepal, which did not adjust its policy rate, have not changed during the crisis period. Lending rates of Cambodia, which is a highly dollarised economy, showed minor fluctuations. PNG too did not adjust policy rates during the crisis period as the accommodative monetary policy already in place was able to improve the demand for credit. As shown in Figure 25 and 26, lending rates of all other economies which used policy rates to ease the liquidity crunch and to ensure greater availability of credit and reinforce market confidence, showed gradual convergence of policy adjustment to lending and deposit rates.

Figure 25
Lending Rates

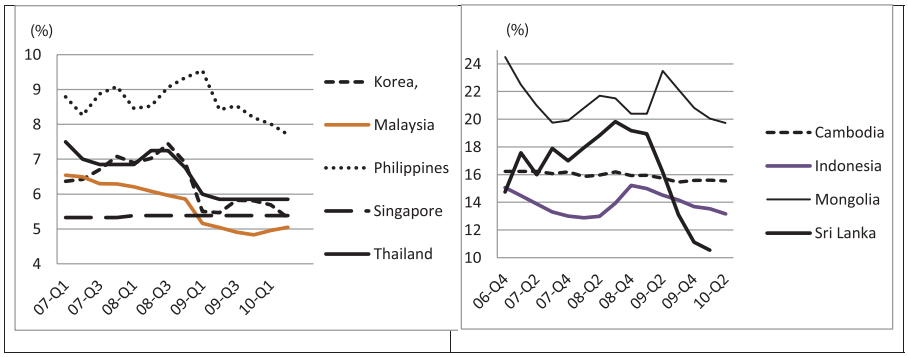

Figure 26
Deposit Rates

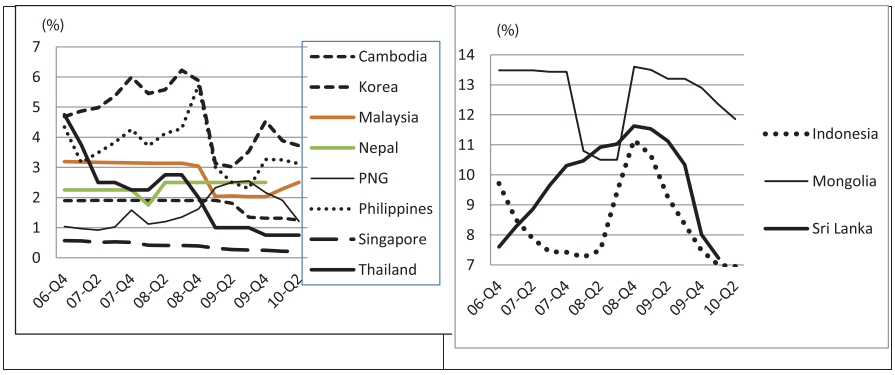

Table 20
Comparison between Average Policy Rate and Average Lending Rate

	1997/98		2008/09	
	Duration	**Slope**	**Duration**	**Slope**
Policy Rate	8.875	1.87	2.75	0.93
Lending Rate	13.875	0.62	5.125	0.45
Ave. duration for convergence[49]		2.96 Quarters		2.1 Quarters

Tables 18 and 19 compare the policy and lending rate reductions in selected SEACEN economies during the 1997/98 Asian financial crisis and the 2008/09 global crisis. They reveal that the current monetary policies have been more aggressive in terms of duration as it took only 2.75 months on average to bring interest rates to their troughs as compared to 8.875 months in the 1997/98 episode. The longer duration of the troughs in the 1997/98 crisis was mainly demonstrated by the economies severely affected by the East Asian crisis. During this period, interest rates were reduced sharply but within a longer period as the purpose was different from the current crisis. For the economies which were less affected during the 1997/98 crisis, current policies were more aggressive. This is most notable in the cases of Sri Lanka and Chinese Taipei in which the slopes (ratio of amplitude to duration) were much steeper in comparison to the 1997/98 Asian financial crisis. It appears that the pass-through of policy rates to lending rates has improved in the current crisis as lending rates have fallen sharper and within a shorter time span during 2008/09 crisis responding to policy rates. This was more evident in Chinese Taipei, Mongolia and Sri Lanka. Convergence speed of Indonesia and Thailand too showed some improvement. These results are in line with the findings of Hong and Tang (April 2010) and the empirical findings of IMF (2009b) that rejects the claim that the transmission of policy rates to lending rates has weakened during the current crisis. This situation is further elaborated in Table 21 where the spread between the policy rate and lending rates are much smaller during the current crisis period.

During both of crisis periods, a wider spread between lending rates and policy rate compared with that in non-crisis periods was experienced. Except in the case of Sri Lanka, where the spread between the policy rate and lending rates was much higher during non-crisis periods preceding the 2008/2009 crisis, all other 6 economies in the sample showed a similar trend. This smaller gap between lending and policy rates in Sri Lanka during the recent crisis period is

49. Slope of policy rate/slope of lending rate

a reflection of the continued efforts of CBSL to bring down the margins. Evidence from other six economies shows that monetary policy is more effective during non-crisis periods than in a crisis periods as transmitting the direction of the policy rate to lending rates is faster during the non-crisis periods.

Table 21
Average Spread between Policy Rate and Lending Rate[50]

	Non-Crisis	Crisis
1997/98	4.7	9.0
2008/09	4.6	4.9

The factors contributing to lending rate movements include the cost of funds, profit and risk premium which tends to rise during the crisis. Furthermore, risk premium in the economy was still perceived to be high and there were indications that the banking industry preferred to maintain their profit margins. All of these contributed to reduce the power of policy rate pass through to lending rates during crisis period. However, the spread between 2008/2009 crisis period and the period preceding the crisis was much smaller than the spread between 1997/98 crisis and the period preceding the crisis period. This may simply be a reflection of improvement in efficiency over the decade due to changes that have occurred in the banking system and also relatively lower risk associated with the lending as most of the economies introduced deposit guaranty schemes during this period. However, Hong and Tang (April 2010) argues that "it is possible that lower interest rates are passed to borrowers, but this does not necessarily translate into higher levels of bank lending. Despite uncertainty and weak business and employment prospects faced by borrowers, it is encouraging to note that there has not been a widespread collapse of bank lending."

Bank lending declined during both crisis periods as expected[51]. However, in Malaysia, Korea, Thailand and Indonesia, the drop was much steeper during the East Asian crisis**.** Obviously it can be expected as it was a currency crisis followed by a banking crisis. Although credit volumes declined, they remained

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50. Chinese Taipei, Indonesia, Malaysia, Mongolia, Sri Lanka, Thailand and Philippines are included. The crisis period covers the duration (period covering peak to trough) and non-crisis period included 4 quarters immediately before duration including peak quarter.

51. Please refer Table 8 and 9 at page 38 of Hong and Tang (April 2010).

positive in those economies during the current crisis period. In Singapore and Chinese Taipei, credit growth was in the positive region on both occasions. As evident from Hong and Tang (April 2010), credit growth remained in the positive territory and is holding up well when examined in a longer-term perspective. This bears little similarity to the credit crunch of the 1997/98 Asian financial crisis. These evidences show that aggressive monetary policy strategies through reductions in the policy rate and the SRR, and other non-conventional policy measures as discussed in Section 4.1.1 could increase lending, thereby creating a conducive environment for economic recovery.

4.2.4 Fiscal Policy

Except for Sri Lanka and Mongolia, other SEACEN economies under review have maintained fairly comfortable fiscal spaces to introduce fiscal stimulus packages to help their economies to revive from the economic downturn, provide job opportunities and allow the general populace to live sufficiently comfortably. Cambodia spent little funds while Nepal did not use fiscal stimulus. Sri Lanka and Mongolia were constrained by high fiscal deficits but attempted to target the most vulnerable sectors with limited allocations. All 12 economies experienced at least negative growth for 2 quarters while the Philippines recorded a longer period of recession. Singapore, being the economy with fiscal surplus of more than 10 % of GDP and US$ 163 billion of external reserves in 2007, recorded a huge output loss in 2009. Fortunately, these economies had sufficient space to introduce generous fiscal packages. However, without exception, all SEACEN economies experienced higher fiscal deficits or lower fiscal surpluses in 2009 than in 2007 due also to the indirect impact of the recession such as lower export earnings, corporate and private sector earnings etc. Using the methodology used by Elmendarf and Furman (2008), the effectiveness of the fiscal policy is evaluated in terms of whether it was timely, targeted and temporary.

As claimed by almost all SEACEN economies, the stimulus packages were introduced at appropriate times but in general, it took a relatively longer time for the fiscal stimulus measures to be planned and implemented compared to monetary policy measures. In most cases, funds were released immediately after announcing the packages and government spending was frontloaded to the first half of 2009. The Economic Resiliency Plan of Philippines, Consumption Vouchers and Employment Promotion Schemes of Chinese Taipei, Public Fund Operation Plan of Korea, Incentives for the export sector in Sri Lanka and first Incentive Package Targeting Consumers and SME of Thailand were some programmes to name a few. These timely programmes helped to mitigate the effects of the

crisis which were felt in 2009. However, in some cases, utilisation of funds or implementation was delayed due to various constrains inherent to the system. One of the problems in the fiscal stimulus packages was the under utilisation of funds due to tight regulations, structural barriers etc. In the case of Indonesia, up to October 2009[52] only 52.1% of fiscal stimulus plan was realised mainly due to the inability of the regional governments to implement their budgets on time. Lack of socialisation, frugal spending and slow implementation of regulatory measures led to the low absorption of the fiscal stimulus.

The latest figures show that under the Thai Khem Khaeng economic stimulus programme, only 43 billion baht or 26% of the first stimulus package of 160 billion baht has been disbursed by March 2010. For the second package amounting to 150 billion baht, about 82 billion baht has been allocated and 42 billion baht disbursed. As a result, the Thai government was considering to extend the original plan by one more year to 2013. According to Deputy Prime Minister Trairong Suwankhiri, approximately, 70-80 billion baht from the two packages are expected to be cut and shifted to finance other projects that are ready for implementation[53]. In general, most of the short term stimulus packages targeted at consumers, wage earners, SMEs and focused groups were effective and timely but the medium term infrastructure projects which required more planning and commitment and efforts and also involved regulatory and legal procedures, were lagging behind the time targets.

As shown in Appendix Table 2, most of the stimulus packages were well targeted to achieve the defined goals. Most economies used both direct expenditure programmes and tax measures to reach their targets. Tax measures were to safeguard the exporters and industrialists or to boost consumption. The most common tax measure was to increase the tax exemption limit for both personal and corporate sectors. Some economies (Chinese Taipei), lowered estate tax and gift tax rates to improve investments as well as import duty (Indonesia) to reduce the cost of imported goods. Short term expenditure programmes in many economies targeted consumers or wage earners to assist them in maintaining their living standards or improve consumption (Chinese Taipei, Korea, Singapore, Sri Lanka, Thailand) and education (Philippines, Malaysia, Thailand). Most economies used their short term expenditure programmes and tax benefits to aid the most vulnerable production sectors such as exports (Sri Lanka), small and medium enterprises (Indonesia, Malaysia), fisheries, agriculture (Cambodia,

52. For certain programmes utilisation data are available for December 2009.

53. "Thai Khem Khaeng economic stimulus extension likely until 2013", Thailand Business News, 08 March 2010.

Sri Lanka). These programmes were aimed at saving existing jobs or creating new job opportunities (Chinese Taipei, Korea, Singapore) as well. Economies like Thailand, Korea, Singapore, Malaysia and Chinese Taipei, with sufficient fiscal room, allocated substantial volume of funds, targeting medium term infrastructure development plans. In addition, some economies allocated funds to safeguard their financial institutions (Korea, Malaysia, Mongolia, Indonesia) and build up business confidence through deposit guarantee schemes.

Except for medium term infrastructure projects introduced by Thailand, Korea, and Chinese Taipei, other short term programmes were of temporary nature and limited to the funds allocated for specific purposes. Most of these programmes were supported by surplus funds or by raising domestic or foreign debt. Since the opportunities for raising funds were limited, these economies were compelled to limit their expenditures to original levels. However, except for Malaysia which had given some timelines for tax incentives, tax measures implemented by the other economies did not give a specific time line for their tax incentives. Therefore, revenue foregone due to these tax exemptions cannot be considered as temporary. Some incentives such as restoration of the value added tax exemption for senior citizens in the Philippines and other social safety measures introduced by other economies are not likely to be removed immediately due to political and social considerations. In such cases, governments need to formulate clear exist strategies to minimise the fiscal burden while managing social and political concerns.

In general, financing of the stimulus packages were implemented through the government budgets mainly in 2009. Indonesia availed unutilised excess funds from the previous year's budget to finance part of the stimulus package and raised funds through issuing bonds to meet the balance of the funding requirement. Due to the temporary nature of the package, Indonesia does not expect a burden on future budgets but current borrowings may have an effect on the debt stock. As announced in the budget speech 2009, Singapore "will not have to borrow to fund our response to the crisis". Singapore has decided to use its savings (reserves) to finance the excess expenditure of the financial stimulus package. The revised overall budget balance for FY2009 was a deficit of $8.7 billion, which is 3.5% of GDP while all other economies funded their stimulus packages through borrowings with the risk of rising fiscal deficits. Except for the economies which used their own savings, others are faced with the challenge of heavy debt burdens on future generations.

4.2.5 External Sector Policies

Except for Nepal, the other eleven economies under review implemented a market driven exchange rate policy, allowing the value of the local currency to be determined by market forces, while intervening in the market to contain excessive volatility to reduce its adverse consequences on the economy. Central banks in the region intervened in the foreign exchange market in the early stages of the crisis, albeit in different magnitudes. This resulted in a deterioration of their external reserves. In addition, some economies used a series of other policies to influence foreign exchange transactions to ease pressure and to mitigate excessive volatility in the exchange rate. Economies with fully or highly liberalised capital accounts are always faced with a 'dilemma' - a choice between foreign exchange stability and monetary policy autonomy. The eleven SEACEN economies, that exclude Nepal, pursue either a managed float or a free floating exchange rate regime. In general, managed floating exchange rate regimes require a large array of capital controls since large volumes of flows either way can make exchange rate management difficult and challenging. However, economies with exchange rate targets and well-disciplined macro policies like Singapore were able to manage their exchange rates effectively while keeping their capital accounts fully opened. Economies with high external reserves such as Singapore, Chinese Taipei, Malaysia, Thailand and Indonesia were able to tackle the challenges of the crisis successfully, thanks to prudent policy frameworks. Except for Korea, which was affected by external factors in the form of the global credit squeeze and the massive de-leveraging (Choongsoo Kim), other economies with high external reserves were able to maintain reasonable exchange stability after a 3-4 quarters of a depreciation trend, with rates bouncing back to pre-crisis level within 4-6 quarters. Korea which began to feel the impact of the crisis earlier than the other economies, also showed signs of recovery along with the other economies since Q2 2009, but it took a little longer for it to reach the pre-crisis level, given the severity of the impact. The reserves of Singapore, Thailand and Chinese Taipei recovered early, recording higher levels by end 2008 in comparison to end 2007. Korea's reserves which depleted substantially in 2008, regained their pre-crisis level by end 2009. Malaysia started to recover towards the last quarter of 2009 and reached full recovery by Q3 2010. The reserves of the Philippines and Indonesia reached pre-crisis levels by end 2009. It is clear that economies with little reserves had a limited capacity to maintain the stability of the exchange rate during the crisis period at the risk of depletion of external reserves. For example, both Mongolia and Sri Lanka sought the IMF support's to improve reserves and re-establish confidence. Sri Lanka, Mongolia and PNG experienced sharp declines in their reserves in 2008 but reserves recovered towards late 2009.

Exchange rates of these economies, except for Cambodia, entered the recovery path in Q2 2009 and continued to improve but, they were (as at Q1 2011) yet to reach the pre-crisis levels. Owing to a series of policy actions such as abandoning the exchange rate peg and raising nominal interest rates, together with a surge in copper and gold prices, the nominal exchange rate has stabilised in Mongolia as of Q2 2009. The stabilisation of the exchange rate has allowed the BoM to rebuild its foreign-exchange reserves which have been increasing at a stable rate. Since then, this analysis shows that even with relatively similar policy frameworks, economies with sufficient external reserves were able to stabilise their exchange rates within a shorter period of time than the economies with lower reserves.

Table 22
Impact of Exchange Rate vs External Reserves

External Reserves			Exchange Rate		
Level of External Reserves (2007)	Economies	Reached /not reached pre-crisis level of Reserves until Q1 2011	Period (Exchange rate depreciated)	Magnitude (% change peak to trough)[54]	Recovery period (Starting point/period)
>US$ 200 bn	Korea	Reached (Q4 2009)	Q4 2007 – Q1 2009 (6 Quarters)	-33.9%	Q2 2009
	Chinese Taipei	Reached (Q4 2008)	Q3 2008 -Q 1 2009 (3 Quarters)	-10.5%	Q2 2009 - Q4 2010 (7 Quarters)
US$ 100 bn-US$ 200 bn	Singapore	Reached (Q3 2009)	Q3 2008 -Q1 2009 (3 Quarters)	-10.4 %	Q2 2009 -Q3 2010 (6 Quarters)
	Malaysia	Reached (Q3 2010)	Q2 2008 – Q1 2009 (4 Quarters)	-12.6%	Q2 2009 – Q3 2010 (6 Quarters)
US$ 50 bn-US$ 100 bn	Thailand	Reached (Q4 2008)	Q2 2008 –Q1 2009 (4 Quarters)	-11.3%	Q2 2009 – Q3 2010 (6 Quarters)
US$ 10bn-US$ 50bn	Indonesia	Reached (Q4 2009)	Q2 2008 - Q1 2009 (4 Quarters)	-20.4%	Q2 2009 -Q1 2010 (4 Quarters)
	Philippines	Reached (Q4 2009)	Q1 2008 -Q1 2009 (5 Quarters)	-14.5%	Q2 2009
<US$10 bn	Cambodia	Upward trend continued	Q2 2008 - Q3 2010 (10 Quarters)	-5.4%	Q4 2010
	Mongolia	Reached (Q4 2009)	Q4 2008 -Q1 2009 (2 Quarters)	-24.8%	Q2 2009 (with volatility)
	Nepal	Reached (Q4 2009)	Q1 2008 – Q1 2009 (5Quarters)	-22.3%	Q2 2009
	PNG	Reached (Q4 2009)	Q4 2008 -Q1 2009 (2Quarters)	-11.6%	Q2 2009 (with volatility)
	Sri Lanka	Reached (Q3 2009)	Q3 2008 –Q1 2009 (3 Quarters)	-6.5 %	Q2 2009

Sources: Author's calculation using External Reserves data from IMF World Economic Outlook Database and end period exchange rates from IFS Data

54. Depreciation may be higher if quarterly averages or daily rates are compared.

4.2.6 Financial Sector

The financial sectors of the SEACEN economies were not directly affected by the sub-prime mortgage crisis or the failures of the financial institutions in the West but indirectly affected through large outflows of foreign exchange, and low inflows of export proceeds and remittances and subsequent credit crunch. However, the economies with very good prudential regulatory frameworks to safeguard their financial systems from undue swings, were able to overcome the impact of the crisis through timely and successful policy measures. Except for Mongolia and Indonesia, the SEACEN economies were free of any bank failures. Both Mongolia and Indonesia were able to minimise losses by bringing the weak banks under government control and introducing deposit guarantee schemes to restore confidence in the banking system and thereby preventing bank runs. Other economies such as Malaysia and Chinese Taipei, Singapore, Sri Lanka and Thailand introduced deposit guarantee schemes, albeit with slightly different features. These were able to safeguard the banking system from the possible risk of bank failures and improve depositor confidence on the banking system. In some economies (Malaysia), although the rate of increase in deposits declined, it remained positive even during the crisis.

Other measures to ensure the continuous smooth functioning of the credit markets included the setting up of special funds to oversee vulnerable sectors as well as special institutions to help the business community and customers with crisis related banking issues, debt restructuring and repayment plans (Malaysia), adjustment of regulatory requirements on NPL ratios and capital adequacy ratios (Philippines, Mongolia). These helped to sustain economic activities thereby promoting the stability of the financial system. Even during the crisis, some economies (Philippines) had capital adequacy ratios which remained far above the BIS standard of 8% while banks' profitability was preserved with the return on assets and return on equity ratios remaining positive. All twelve economies in the region experienced deteriorations in the loan and asset quality of their balance sheets during the crisis period but recovered towards 2010 and have continued improving thereafter. Overall, the policy measures taken during the crisis for safeguarding the financial sector were effective in the SEACEN economies. The financial sectors in these economies were able to face the crisis with a relatively minimal damage than in advanced economies due to strong and continual upgrading of the prudential policy frameworks in the wake of the East Asian Crisis of 1997/98.

Indonesia and Mongolia extended recapitalisation facilities to the four banks brought under government control. This measure increased the central banks'

claims on financial institutions on deposits and foreign liabilities by 9.4% of GDP in Mongolia while restructuring costs amounted to 3% of GDP. All deposits are guaranteed by the BoM. The recapitalisation cost for Indonesia's Century Bank was Rp. 6.7 trillion (0.69 bn US$) or 0.14% of GDP. Korea also introduced liquidity support at a cost of 2.1% of GDP and gross restructuring expenditure amounting to 0.8% of GDP. This package included asset purchases, guarantees and support for the SME sector. Payment guarantees for Korean banks' external debt was subject to a $100 billion cap.

In addition to the monetary policy actions taken, most economies were able to introduce large fiscal stimulus packages to increase consumption and investment using their fiscal space built up over the years. Both monetary and fiscal policy measures were more effective during the current crisis period than in the East Asian crisis episode. Economies with fully or highly liberalised external transactions were more vulnerable to the crisis while economies with sound macroeconomic fundamentals were able to recover sooner than those with weaker fundamentals. More specifically during this crisis period, policy instruments have been put in place faster than in earlier crisis periods (Valencia 2008 and Valencia and Laeven 2010).

5. Relative Effectiveness of Policy Choices –Econometric Model

5.1 Relative Effectiveness of Monetary and Fiscal Policies: Major Approaches and Methodologies

The relative effectiveness of monetary policy and fiscal policy in economic stabilisation has been excessively debated among monetarists and fiscalists over the last six decades. The monetarists believe that monetary policy has played a more significant role than fiscal policy while the Keynesians argue that fiscal policy is more powerful than monetary policy. The monetarists believe that unanticipated change in money supply affect output and growth through an increase in consumption and investments via lower interest rates. The controversy of whether an expansionary monetary policy or fiscal policy would increase output started from the basic Keynesian model. Keynes who introduced the concept of liquidity trap clearly demonstrated that if real interest rate falls to such a level that liquidity trap occurs, then an increase in money supply will not reduce the interest rate further. Therefore, an increase in money supply would not accelerate output and growth because investments will not increase due to interest rate insensitivity.

According to the Keynesian view, as long as the economy remains in liquidity trap, an increase in government expenditure will have the full effect of the fiscal multiplier on income since interest rates do not rise at all and there is no crowding out of private investments to offset any of the effects of the increase in government expenditure. Hence, an increase in government expenditure will boost output. Monetarists who argue against the Keynesian view, point out the extreme unlikelihood of a liquidity trap and the lack of evidence that it has ever occurred. Accordingly, the general theoretical framework accepted by Keynesians indicates that if the economy is not in a liquidity trap and there is some sensitivity of investment to interest rate, monetary policy would affect output.

Most Keynesians who claim that monetary policy cannot raise income advocates stimulating demand as the appropriate action to curtail recession and lackluster demand. In response to Keynes, Robert Mundell (1971) advocates monetary policy if the purpose is to control inflation that is inflation targeting while fiscal policy should be assigned to stimulate employment and enhance potential output through fiscal measures such as increase in government expenditure, tax concessions, transfer payments etc.

There have been a large number of empirical researches examining the impact of fiscal and monetary policy in developed and developing economies. The seminal work of Andersen and Jordan (1968) on the relative importance of fiscal and monetary policy for output stabilisation based on the St. Louis Equation raised many debates among economists over several decades. They ran a single equation model testing the relative importance of monetary versus fiscal policy on nominal GNP and concluded that monetary policy is effective and fiscal policy is ineffective on output stabilisation. This finding attracted a wide range of criticisms and debates while many economists examined the relative effectiveness of these two policies by employing the St. Louis single equation mainly for the US, Gramlich (1971), Carlson (1978), Chowdhury (1988) and for other economies, Jayaraman (2002) for South Pacific Island economies, (Masood and Ahmed (1980)), Saqib and Yasmin (1987) for Pakistan, Upadhyaya (1991) for Asia, Rahman (2005) for Bangladesh. These studies conclude that monetary policy has a greater impact on output than the fiscal policy. Batten and Hafer (1983) estimated the St. Louis equation for Canada, France, Germany, Japan, UK and US under flexible and floating exchange rate regimes and found that monetary policy has consistent and lasting impact on nominal income (GNP) growth for all countries. The impact was also stable under both exchange rate regimes. On the other hand, fiscal policy is significant only for the UK and France. However, they noted that the effect is not stable

in UK where fiscal policy seems to be effective only under the floating exchange rate regime. Recently Senbet (2011) argued that only economic activity is represented in the St. Louis Model by nominal output and the impact of monetary or fiscal policies on prices has not been given any attention. Hence, such models with nominal output as the dependent variable cannot address the question of how policy induce changes are split between a change in real output and a change in prices. Therefore, he investigated the relative impact of monetary and fiscal policies on US real economic activity, using quarterly data between Q1 1959 and Q2 2010 and concluded that monetary policy is relatively better than fiscal policy in impacting real output. On the other hand, some studies (such as Darrat (1984)), Hussain (1982), Latif and Chowdhury (1998), Ajisafe and Folorunso (2002) concluded that fiscal policy has a greater impact on output than monetary policy. According to Chowdhury (1988), the findings for different developed and developing countries have been ambiguous.

There have been many studies examining the Wagnerian-Keynesian views on the relationship between government expenditure and national income; Bird (1970), Beck (1979), Husnain (2011) and the monetarist-structuralist views on the relationship between money stock and prices and output mainly using a bi-variate approach which suffers from the omitted variable problem, or a single equation approach which suffers from the simultaneity problem. More recent studies frequently employ a simple vector auto regression (VAR), structural vector auto regression (SVAR), and vector error correction model (VECM) analysing the differences on long run and short run effects.

Ahamed (2004), who used a Structural VAR model[55] to examine the long run relationship between the output and the exchange rate, price level for Malaysia using data from 1973 to 1999 found a long run relationship between output and exchange rate, price level and money supply. Granger causality shows that the real exchange rate and domestic money supply play significant roles in the movement of Malaysian output (industrial production) and a one percentage change in money supply increases domestic output by 0.49%. However, the study observes that money supply has no significant impact in the short run. In this study fiscal policy is not considered as a determinant of output.

Hussain et al. (2007) utilised a structural Co-integrating VAR Approach to analyse the impact of monetary policy and fiscal policy on output, among five

55. The theoretical model initially developed by Kamin and Rogers (2000) on the contractionary devaluation hypothesis has been used as the basis for this model.

selected ASEAN economies, i.e. Indonesia, Malaysia, Philippines, Singapore and Thailand using data for the period 1974 to 2007. They used the co-integration technique of Johansen (1988) and Johansen and Juselius (1990) to identify the long run relationship and error correction model to evaluate the short-run effects of the dynamic model. They also used Granger causality and exogeneity tests in this analysis.

The evidence of Johansen and Juselius cointegration tests reveals one cointegrating vector indicating a long run relationship among the money, government expenditure, real exchange rate and foreign interest rate in each country. However, the paper produces mixed results for different economies. The long run relationship demonstrated a positive relationship between real money supply and output indicating that increase in money supply leads to increase in aggregate demand for Malaysia and Singapore. However, the real government expenditure elasticity was positive in Philippines and Singapore and this elasticity is negative for Indonesia, Malaysia and Thailand. In the short run, Granger causality between money supply and output have been found in Malaysia, Philippines and Singapore while there is no short run causality between government expenditure and aggregate demand in any country.

Ali et al., (2008) who used the autoregressive distributed lag model, a panel co-integration test and error correction model to analyse long and short run relationship between output and monetary and fiscal policy for South Asian economies of Pakistan, India, Bangladesh and Sri Lanka for the period 1990-2007 found their monetary policy is effective in both short and long run but fiscal policy is not effective in both long and short run.

Hong and Tang (April 2010, ADB) who examined the role of macroeconomic policies in recovery from GDP recessions and financial downturns among Asian economies, using data from 1961 to 2009 found that Asian economies[56] have been more dependent on fiscal policies than monetary policies as a means to counter recessions while OECD economies have used both fiscal and monetary policies effectively to counter recessions. During credit contractions, monetary policies appear to have been more important than fiscal policies in both Asia and OECD. They conclude that macroeconomic policies change counter-cyclically during economic downturns in both regions. This study estimated that short term fiscal multiplier as 2 against most previous studies. Previous studies typically find that the short-term fiscal multiplier is less than 1 (Barro and Redlick, 2009 and *OECD Economic Outlook*, 2009). According to authors, the large fiscal

56. This study includes nine out of 12 SEACEN economies under consideration.

multiplier might be due to the use of crisis period for estimation. They conclude that "since a demand stimulus can be effective only when there is slack in the economy, the fiscal multiplier may become greater during recession.

Palanivel (2009) highlights the fact that monetary policy was not enough to combat against the crisis and that economies also needed to deploy the fiscal policy arsenal to face the challenges. During the crisis, the uncertainty holds back lending, which reduces the effectiveness of monetary policy. However, fiscal stimulus is less effective in more open economies as some of the spending feeds through to imports, benefiting output and employment in other economies. In the meantime, Huer et al., (June 2010) attempted to assess the impact of fiscal stimulus on developing Asia's gross domestic product growth during the crisis and found that the stimulus had a significant positive impact and suggests that fiscal policy has helped the region cushion the adverse impact of the collapse in global trade.

As discussed above, except for only a few studies covering some of the SEACEN economies which attempt to examine the relative effectiveness of monetary and fiscal policies on output and other economic variables, neither the VAR approach nor the VECM approach has been applied to assess the relative effectiveness of the monetary and fiscal policies during the global financial crisis. In some economies such as Cambodia, Nepal, Mongolia, Sri Lanka and Chinese Taipei, similar studies could not be found. Given the non-availability of relevant literature, this study uses these widely applied approaches in the existing studies to analyse the relative power of fiscal and monetary policies to influence the selected economies i.e. Chinese Taipei, Indonesia, Nepal, Mongolia, PNG, Philippines and Sri Lanka individually. The Group data for the ten economies of Chinese Taipei, Indonesia, Korea, Nepal, Malaysia, Mongolia, Philippines, Singapore, Sri Lanka and Thailand will be used in the panel estimation. This study uses the Engle and Granger (1987) two step procedure which allows an explicit testing of co-integration and specification of the Error Correction Model (ECM).

5.2 Panel Cointegration Approach

The balanced panel that consists of annual data for the 10 selected SEACEN economies[57], namely Indonesia, Nepal, Chinese Taipei, Sri Lanka, Mongolia,

57. At the initial stage, data for all twelve economies were pooled and estimates were carried out. However, it was found that when Cambodia and PNG were included, short run equation produces less than -1 (such as -4 and -6) and highly significant error terms. Therefore, these two economies were removed from the model and re-estimated with other 10 economies.

Philippines, Malaysia, Korea, Singapore and Thailand for the period of 1990-2009 were used to measure the impact of monetary policy and fiscal policy on economic growth. The value data used in this analysis are denominated in US dollars and collated from the International Financial Statistics and World Economic Outlook Database of the International Monetary Fund.

5.2.1 Model Specification

Based on the empirical evidence provided by many authors as discussed above, to examine the relative effectiveness of monetary and fiscal policy on economic growth in selected SEACEN economies, the following empirical equation is used[58]. Assuming that all variables are endogenous, it is theoretically expected that both real money supply and real government expenditure have positive impacts on Real GDP.

$$RGDP = f(RM2, \quad RGEX)) \qquad (1)$$

Where

RGDP = Real GDP
RM2 = Real broad money supply
RGEX = Real government expenditure

5.2.2 Estimation Procedure

In order to investigate the possibility of panel cointegration, it was required to test the presence of unit roots in the data series. For the purpose of this study the Im, Pesaran and Shin (IPS) and Levin, Lin and Chu (LLC) panel unit root tests were used.

The next step was to test for the existence of a long-run cointegration between the real GDP and independent variables using appropriate panel cointegration tests. Although there are some statistical criteria for selecting the maximum lag length of the model, the sample used in this analysis consists of

58. At the initial stage, to represent economic growth, both nominal/real GDP and nominal/real GDP growth were used, to represent fiscal variable, both real and nominal government expenditure were used, government expenditure as percentage of GDP and fiscal balance were tested alternatively. In addition, the real exchange rate and price levels were also included and tested. The results from the statistically most significant variables are presented in this paper. All data were converted into natural logarithms.

only 20 observations for each economy which is a very short time span. Therefore, it is assumed that the maximum lag length is one or two[59]. To identify the number of cointegrating vectors, the Johansen Juselius cointegration test was carried out using the Maximal Eigenvalue and Trace Tests[60].

If there were evidences of a long-run relationship in the model, then in order to estimate the long run coefficients, the following long run model was estimated.

$$RGDP_{it} = \alpha + \beta_0 RM2_{it} + \beta_1 RGEX_{it} + \varepsilon_{it} \quad (2)$$

Where α is a constant term and β_0 to β_1 are estimated parameters in the model and *i* is a cross-section data for economies referred to, and *t* is a time series data and ε_{it} is an error term.

If the evidence of a long run relationship exists, the following equation is estimated for the short run coefficients[61].

$$\Delta RGDP_{it} = \alpha + \theta 1 \sum_{i=1}^{p} \Delta RGDP_{it-i} + \theta 2 \sum_{i=0}^{p} \Delta RM2_{it-i} + \theta 3 \sum_{i=0}^{p} \Delta RGEX_{it-i} + \lambda Zi_{t-1} \quad (3)$$

The error correction term λ in the model indicates the pace of adjustment reverse to long run equilibrium following a short run shock.

5.2.3 Empirical Results

The data series used in the analysis were transformed into natural logarithms. As a result, the coefficients of all variables were found to be elastic. Since the data set has only 20 observations, the optimum lag length is considered as one or two. To test whether the data series are stationary at levels, the IPS and

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59. Similar approach was used by Hussain at el. (2007)

60. In the Johansen testing, there are two test statistics; the trace statistics and the maximum eigenvalue statistic. The trace statistic tests the null hypothesis: "there are at most "*r* cointegrating relations"against the alternative of *m* cointegrating relations" (i.e., the series are stationary), *r* = 0, 1, *m* " 1. The maximum eigenvalue statistic test the null hypohesis: "there are *r* co-integrating relations "against the alternative" there are *r* +1 co-integrating relations" .Johansen, Søren (1991).

61. Autoregressive Distributed Lag Model proposed by Pesaran and Smith (1998), Pesaran and Shin (1999) and Pesaran et al(2001) is used

LLC panel unit root tests were carried out and statistics are given in Table 23[62]. Data were tested for stationarity allowing for a constant and constant plus time trend. In the presence of a constant and both constant and time trend, it was found that the null hypothesis of having panel unit root was rejected in all series at level form and various lag lengths. Therefore, it was concluded that all variables are non-stationary with and without time trend specifications at level.

Table 23 presents the results at first difference for the IPS and LLC tests with constant and constant plus time trend. The results of the panel unit root tests (LLC, IPS) support the hypothesis of a unit root for all variables across economies, as well as the hypothesis of zero order integration in first difference. All tests statistics for both, with and without trends confirm significantly that all series strongly reject the unit root null at1 % level. Hence, based on the IPS and LLC test statistics, all the series are ntegrated in the order of one I (1). Therefore, it is possible to apply the panel cointegration method to test for the existence of the stable long-run relation among the variables.

Table 23
Panel Unit Root Test Results

Variable	Level		First Order Difference	
	Constant	Constant and	Constant	Constant and
Levin, Lin and Chu t (LLC) Test				
LRGDP	-1.8365 (0.0331)	-0.8308 (0.2031)	-7.8319 (0.0000)	-6.5778 (0.0000)
LRM2	3.1314 (0.9991)	0.9992 (0.8412)	-7.9909 (0.0000)	-4.1921 (0.0000)
LRGEX	-2.4028 (0.0081)	-1.8163 (0.0347)	-8.1878 (0.0000)	-8.9261 (0.0000)
Im, Pesaran and Shin (IPS) Test				
LRGDP	-0.3700 (0.3557)	-0.3932 (0.3471)	-6.1491 (0.0000)	-4.3865 (0.0000)
LRM2	4.2012 (1.0000)	2.5450 (0.9945)	-6.5031 (0.0000)	-3.0345 (0.0000)
LRGEX	-0.2618 (0.3967)	0.1561 (0.5620	-6.8153 (0.0000)	-5.8188 (0.0000)

62. All test statistics are estimated using E-views -06.

For the second step, the Johansen Cointegration test was used to gauge the existence of cointegration. Since the variables were found to be integrated in the same order *I* (1), the panel cointegration tests, the Johansen Maximal Eigenvalue and Trace Tests were estimated and the summary of the results are presented in Table 24 and Table 25.

Table 24
Johansen Cointegration Test (Trace Test)

Economies	Null	Alternative	Statistic	Probability
Indonesia	*r=o*	*r=1*	31.4384	0.00
	r≤1	*r=2*	7.3314	0.22
Nepal	*r=o*	*r=1*	17.8543	0.05
	r≤1	*r=2*	8.951	0.12
Chinese Taipei	*r=o*	*r=1*	24.9208	0.00
	r≤1	*r=2*	4.7668	0.51
Sri Lanka	*r=o*	*r=1*	25.7401	0.00
	r≤1	*r=2*	3.4505	0.72
Mongolia	*r=o*	*r=1*	20.65	0.02
	r≤1	*r=2*	10.3828	0.07
Philippines	*r=o*	*r=1*	16.3342	0.08
	r≤1	*r=2*	6.2468	0.32
Malaysia	*r=o*	*r=1*	22.7816	0.01
	r≤1	*r=2*	14.5325	0.07
Korea	*r=o*	*r=1*	12.3603	0.27
	r≤1	*r=2*	5.9964	0.35
Singapore	*r=o*	*r=1*	20.1942	0.02
	r≤1	*r=2*	6.5437	0.29
Thailand	*r=o*	*r=1*	26.6965	0.01
	r≤1	*r=2*	11.6755	0.06

The test statistics showed that both the Maximal Eigenvalue and Trace Tests reject the null hypothesis of zero cointegration vectors accepting alternative hypothesis of at least one cointegrating vector. Both the Maximal Eigenvalue Test and Trace Test statistics for individual economies found one cointegrating vector for all econolmies except for Korea[63]. However, when the model is tested for at most one cointegration equation, both tests accept the null including Korea and the Philippines. Therefore, it is concluded that there is a long run cointegration between real GDP (cointegrates) and independent variables of real government expenditure and real broad money (M2) in the 10 selected SEACEN economies[64].

63. Philippines is significant only at 10 % level.

64. At the initial stage, the long run equation included real exchange rate, domestic price levels and proxy for foreign interest rate but were found insignificant for the long run co-integration equation.

Table 25
Johansen Cointegration Test (Maximum Eigenvalue Test)

Economies	Null	Alternative	Statistic	Probability
Indonesia	*r=o*	*r=1*	39.1124	0.00
	r≤1	*r=2*	7.6740	0.26
Nepal	*r=o*	*r=1*	27.6551	0.02
	r≤1	*r=2*	9.8009	0.13
Chinese Taipei	*r=o*	*r=1*	30.7021	0.01
	r≤1	*r=2*	5.7813	0.46
Sri Lanka	*r=o*	*r=1*	29.1913	0.01
	r≤1	*r=2*	3.4512	0.79
Mongolia	*r=o*	*r=1*	32.5128	0.00
	r≤1	*r=2*	11.8628	0.06
Philippines	*r=o*	*r=1*	22.6558	0.08
	r≤1	*r=2*	6.3216	0.40
Malaysia	*r=o*	*r=1*	43.2995	0.00
	r≤1	*r=2*	22.5179	0.07
Korea	*r=o*	*r=1*	19.3761	0.18
	r≤1	*r=2*	7.0158	0.32
Singapore	*r=o*	*r=1*	27.8568	0.02
	r≤1	*r=2*	7.6626	0.26
Thailand	*r=o*	*r=1*	31.2062	0.01
	r≤1	*r=2*	13.0615	0.06

The results of the long run relationship between RGDP and independent variables RM2 and RGEX for individual economies and the group of 10 SEACEN economies are given in Table 26.

The cointegration equation for the panel data given in Table 26 explains that both real government expenditure and money supply are important factors contributing to economic growth. The coefficient of RGEX indicates that in the long run, a one percentage point increase in RGEX and real broad money accelerate economic growth by 0.68 % and 0.21 %, respectively in the long run.

Table 26
Cointegration Equation

Economies	Constant	LRM2	LRGEX
Indonesia	5.9206	0.5651	0.5711
	(55.7651)	(5.1660)	(4.9822)
Nepal	3.9545	-0.4777	0.8126
	(8.2499)	(-3.4889)	(4.4803)
Chinese Taipei	4.8707	0.5148	0.2483
	(13.1247)	(3.3543)	(0.5506)
Sri Lanka	5.3094	0.4212	0.3826
	(8.5406)	(1.1711)	(1.9266)
Mongolia	1.3109	0.1546	0.0735
	(19.3074)	(2.5620)	(1.1688)
Philippines	6.0703	0.0082	0.9336
	(14.7374)	(2.9502)	(6.7687)
Malaysia	5.0717	0.3823	0.3614
	(23.7379)	(3.9327)	(2.0911)
Korea	5.6431	0.3813	0.3402
	(40.3467)	(4.7972)	(3.0779)
Singapore	4.9743	0.5724	0.2278
	(13.2398)	(3.5207)	(1.0674)
Thailand	4.4265	1.3798	-0.0080
	(10.8519)	(4.0591)	(-0.0346)
All Economies (Common Coefficients)	5.6098	0.2125	0.6781
	(59.6144)	(5.1903)	(11.8928)

Common coefficients : Adjt.R^2 0.8742 F Statistic : 692.6107
Cross section specific coefficients: Adjt.R^2 0.9968 F Statistic : 1852.6380
t statistic is given in parenthesis.

5.2.3.1 Long Run Effects

The long-run elasticity of real output with respect to money supply is positively significant for Indonesia, Chinese Taipei, Malaysia, Korea, Thailand and Singapore. In Singapore and Indonesia, this elasticity is high at 0.57, indicating that a one percentage point increase in the real money supply will increase real output by about 0.57%. This elasticity for Malaysia is 0.38. Hassain at el (2007) found a similarly positively significant elasticity for the Philippines, Malaysia and Singapore. In his study, the elasticity for Indonesia was greater than one while for Malaysia, this elasticity was 0.96. Ahmed (2004) also found that the elasticity was 0.49 for Malaysia.

The panel estimate for the group indicates that the effect of real government expenditure on real output is positive and significant. As a group of emerging economies, the share of capital expenditure in this group is a significant portion of the total expenditure. Therefore, depending on the share of investment in expenditure, it may have an impact on improving production capacity as well. The long-run elasticity of output (real GDP) with respect to real government expenditure of the Philippines, Indonesia, Korea, Nepal, Malaysia and Sri Lanka[65] were positive and significant. Except in the case of the Philippines[66], the results are in line with the observations made by individual researchers in Part II of this study. In Malaysia, Korea, Philippines and Indonesia, both money supply and government expenditure were to be found significant. These four economies have relatively large domestic economies where government expenditure would have played a greater role in economic development by increasing demand. These economies also implemented generous fiscal packages to stimulate the economy during the crisis. As shown in Table 1 in Section 3, all 4 economies under review had sound fiscal and other economic fundamentals which provided sufficient freedom for policy makers to use fiscal policy to stimulate economic activities. Hassain at el., (2007) also found similar positively significant elasticity with respect to money or government expenditure both for the Philippines. These results are consistent with the studies of Ram (1986), Holms and Hutton (1990).

In Sri Lanka, a major part of the large development projects were funded through the government budget but prior to 2010, a major part of expenditure was to meet recurrent expenditure and the impact, therefore, would have been slightly weaker on economic growth than Indonesia, Malaysia, Philippines and Korea. In Mongolia, a large part of the FDI were invested in the mining sector and government expenditure increased substantially before the crisis period. However, the impact is yet to be realised. In the past, Mongolia's government expenditure was closely related to revenues from the mining sector and it had a limited fiscal space in policy formulation. On the other hand, the elasticity of Singapore and Chinese Taipei are positive but insignificant. In these economies, FDI and the external demand play a major role in economic development while sound government financial conditions would have facilitated economic growth in the long run rather than the expenditure. Only in Thailand, was government expenditure elasticity found to be negative and insignificant. Barro (1990) also

65. Significant only at 10 % level.

66. Panel estimate suggests that both fiscal policy and monetary policy are effective in the Philippines but with fiscal policy playing a greater role. The country paper suggests that monetary policy dominates fiscal policy.

found a negative relationship between the size of government expenditure and economic growth. Hsing (2005) found insignificant elasticity for Singapore while Grier and Tullock (1989) established the negative relationship between the government size and economic growth using the pooled regression. Using pooled data for selected Asian economies, Hussain et al. (2007) also found a negative long run relationship between output and government expenditure for Malaysia and Thailand. The negative or insignificant relationship between economic growth and government expenditure may be due to the more efficient private sector participation in economic activities and the crowding out effect of investment. However, economies with large domestic economies found relatively stronger relationship between fiscal policy and the output.

5.2.4 Short-run Error Correction Models

Based on the cointegration equation, the short run dynamic specification is estimated for the panel data of the 10 selected SEACEN economies. Since the variables are cointegrated, a long run relationship is observed in the model. However, the variables cointegrated in the long run may not necessarily reflect a strong relationship in the short run. Therefore, the error correction model for analysing the short run relationship developed by the Engle and Granger (1987) was used to estimate the short run relationship. Since the variables are non-stationary at level, the first difference of these variables which are stationary and the lagged residuals from the cointegrated regression which is I(0) were added to the error correction model. The error correction term rectifies the short run disequilibrium and restores equilibrium towards the long run. The error correction term is expected to be negative and significant. The dummy variables of the East Asian Crisis (EAC) and Global Financial Crisis (GFC) were included in the short run analysis for capturing the effect of both crisis respectively. On the basis of the 'General to Specific" search procedure, Equation 3 was estimated and results given in Table 27.

The results support cointegration among the variables as given in equation 2. The feedback coefficient of the panel equation suggests that about 12% of disequilibrium is corrected in the current year. The results also suggests that in the short run, changes in the variable GEX have a positive significant impact on real GDP but money supply has an insignificant impact on economic growth. The previous year's real GDP growth was found to be insignificant although it reflects a positive impact on economic growth during the current year. The two dummy variables representing the impact of EAC and GFC on economic

growth were found to be negative while significant coefficients imply that both crises had a negative impact on economic growth, with the impact of EAC being more severe than GFC.

Table 27
Error Correction Model

Economies	DLRM2	DLRGEX	EAC	GFC
Indonesia	0.8630	0.1518	-0.0114	0.0289
	(7.6490)	(1.7686)	(-2.1749)	(0.8031)
Nepal	0.1790	-0.1528	0.0032	-0.0703
	(0.9816)	(-1.5656)	(0.0868)	(-1.7922)
Chinese Taipei	0.7338	0.1879	0.0033	-0.0646
	(2.0351)	(0.4859)	(0.0739)	(-1.4492)
Sri Lanka	0.5283	0.1738	0.0241	0.0212
	(2.1356)	(0.7504)	(0.6589)	(0.5286)
Mongolia	-0.2741	0.4516	-0.2091	-0.1222
	(-5.6685)	(0.5336)	(-5.6968)	(-3.3692)
Philippines	0.0885	0.7264	-0.0556	-0.4879
	(0.5019)	(3.3626)	(-1.3300)	(-0.5031)
Malaysia	0.4466	0.3647	-0.0303	-0.0684
	(3.3211)	(2.1240)	(-1.4304)	(-1.9300)
Korea	0.8593	0.2688	-0.0779	-0.0429
	(4.8056)	(2.1030)	(-1.3364)	(-0.9692)
Singapore	0.0350	-0.1044	-0.1684	-0.0919
	(0.1581)	(-0.7822)	(-4.0238)	(-2.4631)
Thailand	0.8835	0.0070	-0.2006	-0.0778
	(4.1022)	(0.0665)	(-3.8293)	(-2.2034)
All Economies (Common coefficients)	-0.0031	0.3568	-0.1771	-0.0709
	(-0.2337)	(9.2903)	(-6.9291)	(-2.8088)
Common coefficients : Adjt.R^2 0.5232 F Statistic : 42.4731 Error Correction Term : -0.1154 (t statistic: -7.1030) Cross section specific coefficients: Adjt.R^2 0.9314 F Statistic : 29.9521 t statistic is given in parenthesis				

The feedback coefficients of Mongolia, Nepal and Indonesia were found to be negative and significant. Hussain et al., (2007) found negative and significant adjustment coefficients for Thailand and Indonesia. In this study, Thailand had a negative but insignificant adjustment coefficient.

Changes in money supply were found to be positively significant for output in Indonesia, Chinese Taipei, Sri Lanka, Malaysia, Korea and Thailand, in the short run. Among these economies, Indonesia, Korea and Malaysia showed a positive and significant relationship for the change in government expenditure as well. This implies that for these three economies, both monetary and fiscal policies are effective but monetary policy is more powerful than fiscal policy in

the short run. Changes in government expenditure are significant and positive in the Philippines where monetary policy is ineffective in the short run. In Sri Lanka and Thailand, monetary policy is effective but fiscal policy is ineffective in the short run.

The EAC had a significant and negative impact on the output of Indonesia, Thailand, Singapore and Mongolia. Hussain et al., (2007) also found a negatively significant impact of the EAC on Thailand and Indonesia. Malaysia and Korea had negative signs for the EAC but not highly significant. The GFC had a negative and significant impact on Chinese Taipei, Mongolia, Malaysia, Thailand and Singapore. This evidence is in concurrence with the analysis in Section 4.

5.3 Summary of Single Economy Based Econometric Models

This section summarises the findings of the econometric model used by the six participating economies of Chinese Taipei, Indonesia, Mongolia, PNG, Philippines and Sri Lanka. Although Cambodia participated in the research project, it did not estimate the econometric model. Nepal carried out a simple regression analysis due to data limitations. In general, all six economies used the Engle and Granger (1987) two step procedure which allows an explicit testing for cointegration and the specification of the Error Correction Model (ECM) to examine the relative effectiveness of monetary policy and fiscal policy on economic growth. Some researchers used the Vector Error Correction Approach to estimate the model as well as the Impulse Response Analysis to examine the results.

In principle, the empirical model is of the form:

$$Y_t = f(MP_t, FP_t, Z_t)$$

Where Y_t is a measure of economic activity and Z_t refers to other relevant variables while MP_t and FP_t correspond to monetary and fiscal policy responses, respectively. Table 28 gives the variables used by individual economies in their model specification. Some researchers created two dummy variables to represent the EAC and the GFC. Results on the duration of the crisis episodes identified by Harding and Pagan (2002) methodology had been used to identify the dummy variables.

The model is estimated using quarterly data for the period Q1 1990 - Q2 2010.

Table 28
Summary of the Variables Used in the Econometric Models

Economies	Economic Growth	Monetary Policy	Fiscal policy	Others
Chinese Taipei	Real GDP growth	Real M2 growth rate	Real primary balance	Two dummy variables for EAC and GFC
Indonesia	Real GDP	Real money supply (M1)	Real government expenditure	Two dummy variables for EAC and GFC
Mongolia	Real GDP	Money supply (M2)	Nominal government expenditure	Price Level and Two dummy variables for EAC and GFC
Nepal	Real GDP	Real money supply (M1)	Real Fiscal balance	Dummy variable for crisis
PNG	Real GDP	Money supply (M1)	Government expenditure	Government revenue and Two dummy variables for EAC and GFC
Philippines	Real GDP	Money supply (M3)	Government expenditure	Real US GDP and Two dummy variables for EAC and GFC
Sri Lanka	Real GDP	Money supply (M2)	Government expenditure	

All seven economies used Real GDP to represent economic growth but different definitions for the independent variables. Indonesia used real money supply and real government expenditure while Mongolia used nominal money supply and nominal expenditure together with price level consistent with monetarist propositions. The inclusion of M1 is preferred because the financial market in Mongolia is not fully developed. The model for Chinese Taipei includes real primary balance to represent fiscal variables. When government expenditure increases, PB will decrease, therefore real primary balance is expected to be negatively correlated to real GDP growth. The positively correlated primary balance as indicated in Chinese Taipei implies that the increase in government expenditure has a negative effect on economic growth. Therefore, it is suggested that the soundness of government financial conditions rather than government expenditure, helps to promote economic growth.

Table 29
Summary of the Results

	Cointegration Equation(long run or equilibrium relationship)	ECM (capturing the short run fluctuations)	Impact of EAC and GFC	ECM Term
Chinese Taipei	Real GDP cointegrates with the real money growth and real primary balance with positive long run effect.	Fiscal policy has positive short run effect but monetary policy has negative short run effect.	GFC has negative impact but EAC has no significant impact on the growth.	73% of the disequilibrium from the previous period is carried into the next period.
Indonesia	Real GDP cointegrates with the real money supply (M1) and real government expenditure with positive long run effect.	Changes in money supply and government expenditure are effective in short run. Impact of the fiscal policy is higher than monetary policy.	AFC has negative impact on the growth but GFC has no significant impact on economic growth.	6% of the disequilibrium from the previous period is carried into the next period.
Mongolia	Real GDP cointegrates with the nominal money supply (M2), price level and government expenditure. Both monetary policy and fiscal policy are effective in long run but the monetary policy is more effective than fiscal policy.	Money supply, government expenditure and price level have no significant role in the movement of output in the short run. Monetary policy and fiscal policy have inflationary pressure slightly on price level.		79% of the disequilibrium from the previous period is carried into the next period.
Nepal	Real GDP cointegrates positively with money supply and negatively with fiscal balance[67]. Both monetary and fiscal policy has positive impact in the long run.	Both fiscal and monetary policy have no strong impact on the growth in the long run but monetary policy has slightly positive relationship.	GFC has negative impact.	14% of the disequilibrium from the previous period is carried into the next period.
Philippines	Real GDP cointegrates positively with the money supply (M3) and government. Expenditure Monetary policy is more effective than the fiscal policy in the long run.	Monetary policy is more effective in short run than fiscal policy.	AFC has negative impact but GFC has no significant impact on the growth.	
PNG	Real GDP cointegrates with the money supply (M1), government revenue and government expenditure.	Fiscal policy is effective in the short run.	Both crisis have no short term impact on the growth but GFC impact in the long run.	5.5% of the disequilibrium from the previous period is carried into the next period.
Sri Lanka	Real GDP cointegrates negatively with the money supply (M2) and positively with government expenditure.	Real GDP is affected by both monetary policy but monetary policy is more effective than fiscal policy in the short run.		72% of the disequilibrium from the previous period is carried in o the next period.

67. When government expenditure increases fiscal balance will decrease. When real fiscal balance is negatively correlated to real GDP, it implies that an increase in government expenditure has a positive effect on economic output

The empirical results based on the econometric model estimated for examining the relative effectiveness of monetary policy and fiscal policy in seven SEACEN economies, Indonesia, Chinese Taipei, Mongolia, Philippines, Nepal and Sri Lanka during the period from Q1 1990 to Q2 2010 demonstrate that for each economy, there is a long run relationship between economic growth, money policy and fiscal policy instruments. Chinese Taipei, Indonesia, Nepal, Philippines , Mongolia and PNG found that both fiscal policy and monetary policy are effective in the long run, but in the cases of Philippines and Mongolia monetary policy is more effective than fiscal policy. In the case of Sri Lanka fiscal policy is more effective than monetary policy in the long run. In Indonesia, both fiscal and monetary policies are effective while in Chinese Taipei and PNG fiscal policy is more effective in the short run. In the cases of Philippines and Sri Lanka, monetary policy is effective in the short run while in Mongolia, both policies have no impact on economic growth in the short run. In Sri Lanka, the lack of fiscal room due to the longstanding high budget deficit and substantial level of recurrent expenditure incurred during the past several years have made fiscal policy ineffective in promoting economic growth in the short run. Shahid Ali et al. who examined the relative effectiveness of monetary and fiscal policies in South Asian economies of Pakistan, India, Sri Lanka and Bangladesh during the period 1990 to 2007, using the Autoregressive Distributed Lag Approach, concluded that "monetary policy is a more powerful tool than fiscal policy in generating economic growth in South Asian economies". This conclusion supports the findings of Sri Lanka for this study. Fiscal policy in Mongolia too has limited efficacy in promoting aggregate demand to mitigate the effects of the economic crisis due to the heavy dependence of government revenue on the mineral sector which is highly vulnerable to international price swings and the low fiscal savings from the "windfall" tax revenues of the previous years resulting from pro-cyclical fiscal policies in the past.

Indonesia and Philippines found that the dummy variables representing the EAC had a significant impact on economic growth than the GFC while Chinese Taipei found that the recent crisis was more impactful than the EAC. These results agree with the findings of the panel estimation.

Either the individual studies conducted by the team members or the panel ECM estimates show that government expenditure is significant in the long run for Indonesia, Nepal, Philippines, Malaysia, Korea, Chinese Taipei, and Sri Lanka, while monetary policy is significant only for Indonesia, Philippines, Malaysia, Korea, Singapore, Thailand, and Mongolia. For Sri Lanka, Mongolia and Nepal, fiscal policy is insignificant in the short run due to the lack of fiscal space. For

Chinese Taipei and Singapore, sound economic fundamentals have played a more significant role than government expenditure in the short run but fiscal policy was more effective in the long run. For Thailand, Korea and Malaysia with large domestic economies, implementation of effective stimulus packages in short run is more difficult than monetary policy. These economies have efficient and well organised financial sectors which allow monetary policy to impact the economy sooner than fiscal policy. In the case of Indonesia, it was found that although the impact of monetary policy is stronger, fiscal policy affects growth sooner in the short run.

6. The Way Forward

The 12 SEACEN economies under review have experienced a strong recovery from the recent global financial crisis. According to the latest projections released by the IMF, all 12 economies have shown a robust recovery in 2010 and are expected to continue the growth momentum over the short to medium term horizon. In 2010, Singapore and Chinese Taipei, which are classified as advanced economies by the IMF showed stronger recovery than their counterparts which are classified as developing Asia. Korea which is also classified as an advanced economy, recorded a 6.1 % growth in 2009. In 2011, these three advanced SEACEN economies are projected to record growth rates between 4-6%, which are more or less double the average growth expected in advanced economies as a group. The other nine SEACEN grew by an average of 6.7% in 2010 and are expected to grow in the range of 5.5 - 8% for 2011.

6.1 Solid Economic Recovery

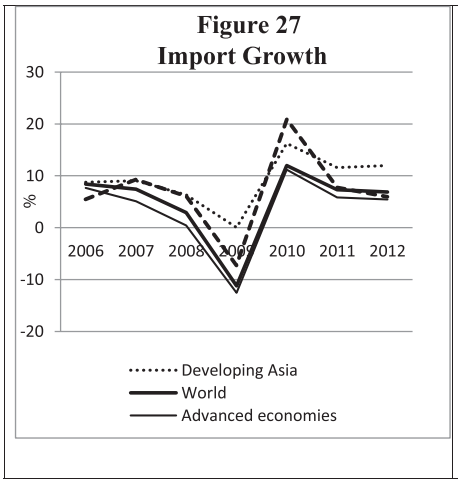
The world economy grew by 5% in 2010 compared to -0.5% in 2009. Advanced economies also recovered, achieving a 3% growth against the 3.4% slump in 2009. Trade recovered on the back of an upswing in the inventory cycle of developed economies and continued growth in emerging market economies. According to IMF trade forecasts (WEO-April 2011), world import volumes showed a V shape recovery turning the 11% decline in 2009 to a 12% growth in 2010. Advanced economies recorded an 11% growth creating opportunities for Asian economies to sell their products to those markets. Meanwhile, developing Asia also reported a 16% growth in 2010. The 12 SEACEN economies under review recovered with a 13% growth in export volume in 2010. Imports of advanced economies are expected to grow by 5.8% and 5.5% in 2011 and 2012, respectively. The export earnings of SEACEN economies are, therefore, expected to recover and record a positive growth of around 7% in 2011 and 2012.

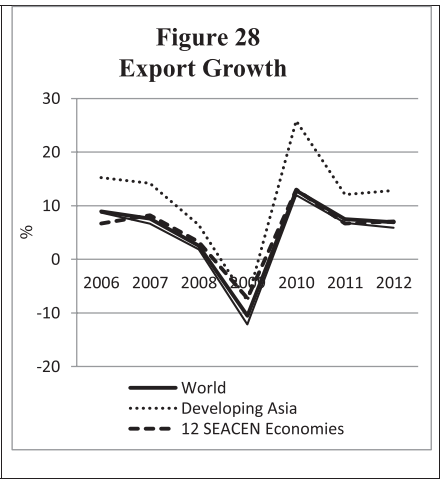
Table 30
GDP Growth in Selected SEACEN Economies

Economies	2007	2008	2009	2010*	2011*	2012*	2013*	2014*	2015*
Cambodia	10.2	6.7	-2.0	6.0	6.5	6.5	6.5	6.6	6.8
Indonesia	6.3	6.0	4.6	6.1	6.2	6.5	6.7	7.0	7.0
Korea	5.1	2.3	0.2	6.1	4.5	4.2	4.2	4.0	4.0
Malaysia	6.5	4.7	-1.7	7.2	5.5	5.2	5.1	5.1	5.0
Mongolia	10.2	8.9	-1.3	6.1	9.8	7.1	23.1	15.8	9.0
Nepal	3.4	6.1	4.9	4.6	4.5	3.8	4.2	4.7	5.0
PNG	7.2	6.6	5.5	7.0	8.0	5.0	1.5	4.0	21.0
Philippines	7.1	3.7	1.1	7.3	5.0	5.0	5.0	5.0	5.0
Singapore	8.8	1.5	-0.8	14.5	5.2	4.4	4.3	4.2	4.1
Sri Lanka	6.8	6.0	3.8	8.1	7.0	6.5	6.5	6.5	6.5
Chinese Taipei	6.0	0.7	-1.9	10.8	5.4	5.2	5.1	5.0	4.9
Thailand	5.0	2.5	-2.3	7.8	4.0	4.5	4.7	4.8	4.9
World	5.4	2.9	-0.5	5.0	4.4	4.5	4.5	4.6	4.7
Adv. Economies	2.7	0.2	-3.4	3.0	2.4	2.6	2.5	2.5	2.4
Developing Asia	11.4	7.7	7.2	9.5	8.4	8.4	8.5	8.6	8.6
12 SEACEN Economies	6.9	4.6	0.8	7.6	5.9	5.3	6.4	6.1	6.9
SEACEN Advanced	6.6	1.5	-0.8	10.5	5.0	4.6	4.5	4.4	4.4
SEACEN Developing Asia	7.0	5.7	1.4	6.7	6.3	5.6	7.0	6.6	7.8

* Estimate

Source: IMF World Economic Outlook Database, 2011 April





Policy actions taken by the monetary authorities to ease credit conditions in the financial sectors and to reduce the fear and risk perceptions in the market coupled with government stimulus expenditures and the recovery in international trade, enhanced private consumption in these economies. The robust private consumption in SEACEN economies was benefited by continuing remittance inflows as well. While employment shedding took place during the crisis, most of the employed labour force in SEACEN economies was able to hold on to their jobs[68]. Although some migrant workers lost their jobs during the crisis, the preference of employers in economies with robust job markets allowed redeployment of these workers. Similarly, the market destination also played an important role in the recovery process. For example, the job markets for Sri Lanka, Nepal and Malaysia are mostly in the Middle East and East Asia. The robust recovery in worker destinations also contributed positively for all 12 SEACEN economies to reach or surpass the pre-crisis level in terms of the remittances. Many of the economies were also boosted by significant fiscal stimulus provided by the respective governments while Sri Lanka was benefitted by the peace dividends gained with the end of the three decade long internal conflict in May 2009.

SEACEN economies were able to rebuild their external reserve positions beyond pre-crisis levels by 2010. As discussed in Section 4, the exchange rates of the economies with strong reserve base appreciated (as against US$) up to the pre-crisis level while others continued to appreciate beginning from Q2 2009, but not reaching the pre crisis level until end 2010. However, the current account positions are still below pre crisis levels. Although the economies experienced a deterioration in the fiscal balance in 2009 and 2010 due to large fiscal stimulus packages and lower revenues, they showed improvements in 2011. Except for a few economies such as Sri Lanka, Cambodia and Mongolia, that had limited policy space, the other nine economies had sufficient policy space when they faced the crisis. This helped them recover at a faster pace than many developed economies. The sound and well regulated financial systems allowed for effective monetary transmission; the timely implementation of preventive measures and avoidance of systemic banking failures.

The common negative sentiment being experienced currently by all SEACEN economies is rising inflation. Inflation which declined sharply in 2009 due to lower commodity prices and policy measures undertaken to curtail increases in prices, declined further in 2010 with the exception of Mongolia, Singapore and

68. Please refer to Philippines project paper footnote 29.

Sri Lanka. In Sri Lanka and Singapore, inflation remained within target while the deflationary pressure experienced by Chinese Taipei and Thailand turned positive. However, all SEACEN economies are experiencing higher inflation in 2011 than 2010 and accordingly increased their policy rates (i.e. Korea, Thailand, Chinese Taipei etc.) towards mid-2010 to thwart rising prices due to high oil and commodity prices prevailing in the world market. However, inflation is expected to slow down slightly in 2012.

Unemployment rates in advanced economies which was at a peak of 8.25% for the decade in 2010, is projected to decline gradually to 5.9% by 2016, which is still higher than the pre-crisis level. Among the SEACEN economies[69], Indonesia, Korea, Malaysia, Philippines, Sri Lanka and Thailand are expected to reduce the unemployment rate to pre-crisis levels by 2011 while Singapore is expected to achieve this by 2014.

6.2 Exit Strategies

As discussed in Section 4, all central banks in the grouping have initiated and completed exit strategies for their non-conventional monetary policy measures. Exiting strategies from the accommodative policy regime have to be implemented very carefully as most of these economies were facing the dilemma between high inflation and high output growth. Fortunately, except for Nepal, other economies recovered from the inflationary pressure towards the latter half of 2009 and this enabled the reduction of policy rates to address the existing liquidity crunch. Some economies recorded the peak policy rate in Q3 2008 (Thailand, Malaysia and Indonesia) while others (Philippines, and Korea) reported the peak in Q4 2008. Chinese Taipei responded to the crisis slightly earlier (Q2 2008) while Mongolia responded relatively later in Q1 2009. Policy rates were reduced gradually over 2 quarters (Malaysia, Korea and Mongolia), 3 quarters (Chinese Taipei, Philippines and Thailand) and 4 quarters (Sri Lanka and Indonesia) from peak to trough. It was very clear that all central banks were managing their policy rates very carefully while monitoring the developments in the economy. Central banks followed a very slow process of reducing the policy rate by a small percentage point at a time. As a strategy, all eight SEACEN economies, which used policy rate as a policy tool continued maintain the lowest rate for a further 2-5 quarters before raising it. Overall, the SEACEN economies used gradual and slow exit strategies for their conventional policy tools.

69. Projections are not available for Nepal, Cambodia and PNG.

Among the SEACEN economies, only Cambodia and Nepal used the SRR to tighten market conditions. Cambodia increased the SRR on foreign currency deposits from 8% to 16% when inflation reached a decade high of 35.6% in May 2008. When inflationary pressure eased, the SRR was reduced to 12% while the 15% limit imposed on credit to the real estate sector was removed later in 2009. Nepal raised its SRR from 5% to 5.5% in October 2008 to address inflationary concerns. Despite the high inflation, Mongolia, Sri Lanka, Malaysia, Chinese Taipei, Philippines and Indonesia, lowered their SRR on domestic currency deposits to release liquidity to ease liquidity shortages during the period Q3 2008 to Q1 2009. When private credit recovered and economies were turning around, authorities responded by increasing the SRR gradually, albeit at a slower pace than their response to the policy rate. For example, when credit growth was favourable and signs of inflationary pressure was seen, the CBSL considered it prudent to pull back any build up of demand-side pressure on inflation and increased the SRR applicable to all rupee deposit liabilities of commercial banks by 1 percentage point to 8% with effect from 29 April 2011. Bank Indonesia also decided to raise the primary SRR for rupiah funds to 8% and introduce a Loan Deposit Ratio-based reserve requirement. The new reserve requirement has been set in consideration of the present condition of banking liquidity, hence, does not diminish the capacity of banks to pursue credit expansion in line with their existing business plans while upholding prudential banking principles. With this new policy, the rupiah statutory reserve requirement consists of 8% primary reserves + 2.5% secondary reserves + Loan Deposit Ratio (LDR)-based reserves. The primary reserve requirement policy was implemented on 1 November 2010 while the LDR-based reserves were implemented on 1 March 2011.

Fiscal consolidation is also taking place albeit at a slower pace. Most of the fiscal stimulus packages implemented by SEACEN economies were temporary in nature, financed through the government budget. However, some of the stimulus measures promulgated may be politically difficult to withdraw. These include several measures such as removal of the exemption of senior citizens from the expanded value added tax in Philippines, removal of sector specific incentives in Sri Lanka. Indonesia is still continuing with its fiscal policy to support the recovery from the impact of the global crisis to provide an impetus to economic growth. The main elements of the 2010 fiscal policy consists of continuing/increasing all programmes related to citizen welfare, fiscal stimulus through infrastructure, agriculture, energy development and labour intensive programmes and tax incentives for business development. Expenditure on investment projects in Thailand, Singapore, Korea and Malaysia has a longer time horizon of up to 3-4 years. In the meantime, government revenue

performance of many economies could not reach the pre-crisis level in terms of GDP, despite buoyant economic growth. Reforms in tax administration are being instituted to ensure higher revenue generation.

6.3 Opportunities and Challenges

The praise worthy conservatism of financial institutions in the Philippines, Indonesia, Thailand, Sri Lanka, Mongolia, Cambodia, Nepal, PNG and Malaysia had prevented these economies from being exposed to systemic risks arising from distressed foreign financial institutions/markets during the crisis period. However, going forward, a more balanced integration into foreign financial markets is necessary to promote capital formation and reduce distortions in the economy. Therefore, regulators of these economies must have the ability to contain systemic risk that may arise from higher integration with offshore financial systems. Since the banking sector is still relatively weak in economies such as Mongolia and Nepal, addressing the fundamental vulnerabilities revealed during the recent crisis remains a priority for authorities, bank management and shareholders. It is vital that bank restructuring reforms move forward in order to clean up bank balance sheets, enhance corporate governance, build adequate capital buffers and increase credit availability within the banking system with enhanced credit risk management.

Raising policy rates relative to advanced economies may attract more capital inflows into the SEACEN economies which would lead to inflationary credit expansion. Therefore, among other things, policy makers should be mindful of the challenges ahead due to developments in the international markets and their impact on domestic economies. Many SEACEN economies have already planned to implement institutional reforms in their monetary sector. For example, BSP is seeking to institute reforms in the monetary sector by making amendments to the central bank charter and to redesign the financial system to promote stronger financial intermediation while containing systemic risk. The inflation targeting framework (ITF) that has been adopted by Bank Indonesia since 2005 had shown several positive developments but the plan for improving the monetary policy framework with flexible ITF to better deal with present and future economic challenges is under consideration.

Except for Sri Lanka, Cambodia and Mongolia, the other nine economies under review were having sound fiscal and current account space when the global financial crisis hit. However, with the introduction of stimulus packages and revenue shortfalls that were experienced, fiscal balances turned negative in 2009 in these economies as well. Although all economies showed some

improvement in fiscal balances, except for Singapore and Korea, all the others still recorded deficits in their fiscal balances in 2010. Sri Lanka requires strong commitment in fiscal consolidation while the Philippines, Malaysia and Chinese Taipei require further efforts as well for fiscal consolidation. Similarly, Mongolia needs to manage rising income from the mineral sector as there is a re-emerging tendency towards pro-cyclical spending. In order to cut the budget deficit gradually, the government of Mongolia has recently introduced a fiscal responsibility bill while trying to save revenue generated from high commodity prices.

Some of the medium term economic infrastructure development plans introduced by several economies such as Indonesia, Thailand, Korea, Singapore and Chinese Taipei need better planning, continuous monitoring and policy coordination to reap the expected benefits. When large plans are implemented during a crisis period, they are likely to suffer from lack of proper planning and coordination among implementing agencies. Indonesia and Thailand faced some difficulties in the implementation process. Efforts towards this end is seen in Chinese Taipei where the government has drawn up a proposal for the "Plan to Enhance the Soundness of the Housing Market" in April 2010. Simultaneously, CBC has introduced a series of targeted prudential measures since June 2010, as an integral part of efforts to enhance risk management for real estate loans as per the "Plan to Enhance the Soundness of the Housing Market". However, achieving the expected targets in similar long term investment plans rely heavily on concerted policy efforts from various government agencies and institutions. Mongolia is expected to benefit from its mineral resources and large sums of foreign funds are expected to be invested in this sector. Large inflows of capital and rise in mineral exports may exert upward pressure on the exchange rate, making exports of agriculture and other manufacturing products less competitive in the world market. Similarly, the need for a skilled labour force, corruption and internal conflicts facing some economies may pose challenges in the future as well. Such economies should manage carefully the wealth generated from resources while paying attention on improving fiscal discipline.

According to the Migration and Remittances Fact Book 2011, remittance flows are expected to increase by 6.2% in 2011 and 8.1% in 2012. However, many economies in the region have concerns about the future prospects of remittance inflows as many migrant receiving economies have imposed restrictions on immigration due to high levels of unemployment in those economies, fragile global economic recovery, volatile currency and commodity price movements in the short to medium term. At the same time, economies like Sri Lanka and

Nepal whose labour destinations are mainly in the Middle East, face the threat of lost opportunities due to the ongoing political situations in the region.

The sharp drop in global demand has exposed the risks associated with heavy dependence on a few manufactured/primary exports, encouraging authorities to seek new ways of generating economic growth and diversify economic activities. For example, heavy dependence of Chinese Taipei on a few manufactured products, Sri Lanka on garments and tea, Mongolia on meat products, PNG on mining products and a few commodities, Nepal on tourism and worker remittances, have made them vulnerable to fluctuations in international prices and demand. Furthermore, the setback in economic growth during the crisis was mainly caused by the sharp declines in exports resulting from the lack of market diversification or otherwise due to high exposures to the US and limited destinations for exports. More than 50% of international trade in Cambodia, Indonesia, Philippines, Thailand, Malaysia, PNG and Sri Lanka are with US and other developed economies. Except for Nepal, 25-50% of the exports and imports of the other 5 SEACEN economies are to and from developed markets respectively. Chinese Taipei's major export market (more than 40%) and its second largest supplier (around 14%) was China while PNG's major export market was Australia. As China accounts for over 80% of Mongolia's export, the economy would suffer in the event of any sharp downturn in Chinese economic growth. Contribution of workers' remittances are very significant in the Nepalese economy. Export markets and products are limited to a few markets and products. Unless Nepal gives priority to promote products such as garments, carpets, pashmina, handicrafts and herbs for which Nepal has competitive advantage and harness prospects in sectors like hydropower, tourism, and bio-diversity, its vulnerability to external shocks is high. These factors highlight the need for product and market diversifications to enable SEACEN economies to weather future crisis.

7. Conclusion

The global financial crisis evolved in the US as a result of the US sub-prime mortgage bubble and subsequent failures in the financial systems in the US and Europe. Hence, failures in macroeconomic policies and financial supervision and regulations in the US and the rest of the developed economies are considered as the major causes of the global financial crisis of 2007-2009. However, financial systems in all SEACEN economies remained stable, thanks to the lessons learnt by most economies from the East Asian crisis which prompted them to develop comprehensive regulatory frameworks with strong prudential policies. All the 12 SEACEN economies under review were free

from any major systemic banking failures and were not significantly exposed to toxic assets of troubled financial institutions. Since most of the SEACEN economies are heavily dependent on exports and on western markets as their trade destinations, weak external demand resulted in a serious deceleration in economic growth in 2009.

In the first half of 2008, SEACEN economies focused on monetary policy tightening to address emerging risks of the domestic inflation. When the US subprime mortgage debacle developed into a global scale crisis following the collapse of Lehman Brothers in September 2008, central banks in the region responded to the situation appropriately at different stages of the evolving crisis. At the initial stage of the crisis, central banks introduced a defendable set of policies aimed at relieving the stresses in the foreign exchange and short term money markets which emanated from outflows of foreign funds with provision of adequate liquidity. When the pressure in the short term money market spilled over to the financial markets, central banks shifted to aggressive monetary policy easing but this was done gradually and cautiously. At first, central banks resorted to conventional monetary policy measures such as reducing policy rates and statutory reserve requirements. However, it was soon realised that conventional monetary policy measures alone were not sufficient to improve the liquidity conditions in the interbank money market and therefore, most central banks resorted to more unconventional measures to address the liquidity issues in the domestic market. At the same time, authorities took steps to build depositor confidence and to develop an effective communication mechanism to stakeholders including those in the international community.

The external reserves of some SEACEN economies were severely affected by the financial crisis, forcing them to undertake measures to strengthen their foreign reserves. Some entered into swap arrangements with other central banks while Sri Lanka and Mongolia resorted to IMF assistance to address balance of payment issues and improve foreign reserves while also enabling the building up of confidence of the international community on their economies.

While ensuring an appropriate level of liquidity in the banking system, the central banks of SEACEN economies took appropriate policy measures to enhance credit availability and in particular enhance the financing mechanisms for Small and Medium Enterprises (SMEs) and other priority sectors. Through this process, a strong trust in business and consumer confidence was built by a substantial easing of monetary policy and putting in place a proactive crisis management framework. In the meantime, the authorities of Singapore,

Indonesia, Korea, Malaysia, Philippines, Thailand and Chinese Taipei actively adopted expansionary fiscal policies to stimulate economic activity. Meanwhile Sri Lanka, Cambodia, Mongolia and Nepal used fiscal stimulus in a restricted manner due to limited fiscal space. Although PNG had some fiscal space, its budget surplus was used mainly to cater to servicing public debt and retirement payments while spending was targeted at specific projects consistent with the Medium Term Development Strategy of the government. At the same time, all economies took measures in some way or another to stabilise the financial system and strengthen the regulatory framework with a long term focus. These coordinated policy efforts, together with the recovery in major export destinations have helped SEACEN economies to recover quickly and record higher growths than many other developed economies.

This study which examines the relative effectiveness of policy choices during the crisis, supports the argument that in the SEACEN economies, the policy rates were effective even in the crisis period. The behaviour of the policy and lending rate reductions in selected SEACEN economies during the 1997/98 East Asian crisis and the 2008/09 global crisis revealed that the current monetary policies have been more aggressive in terms of duration as it took only about 3 quarters on average to bring interest rates to their trough as compared to 9 quarters in the 1997/98 episode after the initial increase in policy rates. During the 1997/98 crisis period countries were having relatively weaker financial systems than the current crisis period and therefore, authorities would have been very cautious in reducing rates. Furthermore, during the global financial crisis authorities had more policy space to reduce the rates aggressively than in the East Asian crisis period. It appears that the pass-through of policy rates to lending rates has improved in the recent crisis as lending rates have fallen by a higher proportion than those in the 1997/98 crisis. The slope was even higher than the slope in policy rate adjustment during the recent crisis period. This situation was further amplified by the spread between the policy rate and lending rates which was much smaller during the recent crisis period.

Evidence from selected SEACEN economies shows that monetary policy is more effective in non-crisis periods than in crisis periods as the direction of the policy rate to lending rates is faster during the non-crisis periods. The smaller spread between the policy rate and lending rate during the GFC compared to the EAC period also supports the argument that during the recent global crisis, monetary policy measures were more effective and responsive compared to that of the EAC.

Comprehensive fiscal stimulus programmes were made available by the economies that had the fiscal space and most were well targeted temporary measures which came into effect in a timely manner. A few programmes were faced with implementation difficulties but the majority reached the target groups. Except for a few stimulus programmes which were socially and politically sensitive and could not be withdrawn easily in a short period of time, in general most economies have already exited from the programmes. Long term infrastructure development programmes introduced by financially sound economies were continuing with timely adjustments.

This study also investigated empirically, the relative effectiveness of monetary policy and fiscal policy in SEACEN economies during the crisis. An econometric analysis was conducted in two stages. Firstly, for individual economies, the error correction methodology was used to examine the relative effectiveness of fiscal policy and monetary policy based on a quarterly time-series data for the period of Q1 1990 through Q3 2010 by individual researchers of the seven economies of Chinese Taipei Indonesia, Nepal, Mongolia, PNG, Sri Lanka and Philippines. Secondly, using the same methodology, a pooled estimate was carried out using annual data for the 10 SEACEN economies.

The empirical results from individual project studies show that in Mongolia, both monetary and fiscal policy impact GDP in the long run but that monetary policy has been more effective than the fiscal policy. However, neither fiscal policy nor monetary policy has a significant impact on GDP in the short run. Empirical evidence in PNG concludes that fiscal policy is more effective in the short run but monetary policy plays a significant role in achieving long term economic growth. In Chinese Taipei and Indonesia, it was found that fiscal policy is effective in the short run while both fiscal and monetary policies impact the long run growth performance. In Sri Lanka, a positive and significant relationship was found between economic growth and fiscal policy in the long run. However, monetary policy dominates fiscal policy in the short run.

When panel estimates were used to examine the relative effectiveness of fiscal and monetary policies on real GDP using the Granger Engle two step procedure to estimate the error correction model, the following observations were made.

- The cointegration equation for the panel data showed that both monetary policy and fiscal policy have a significant impact on real GDP growth in the long run. The estimates indicate that in the long run, a one percentage increase in real government expenditure and broad money, would accelerates

economic growth by 0.68% and 0.21%, respectively. In the short run fiscal policy is effective but not the monetary policy as the estimated coefficient was statistically insignificant.

- In Indonesia, Malaysia and Korea, both fiscal and monetary policies positively affected economic growth in the long run as well as in the short run. However, in the short run, fiscal policy was found to be more effective. High effectiveness of monetary and fiscal policies in these three economies, which have relatively large domestic markets, may be a reflection of the sound economic fundamentals in place. In the Philippines, a positive impact of both monetary and fiscal policies on economic growth was found in the long run but monetary policy was found to be insignificant in the short run.
- In the case of Singapore, monetary policy was more effective than fiscal policy in the long run but both policies have not shown a significant impact on economic growth in the short run.
- In Thailand, monetary policy is effective both in the long and short run relative to fiscal policy.
- In the case of Sri Lanka, monetary policy affects real GDP positively in the long run as well as in the short run. Fiscal policy is effective in the long run.
- The aggregate panel estimate shows that both the GFC and EAC had a significant negative impact on GDP in the short run. Similar results were shown in Thailand, Singapore and Mongolia. According to this estimate, the EAC had a greater impact on Indonesia, Philippines and Korea than the recent GFC.

Most SEACEN economies experienced two financial crises within a decade. A comparison between the recent crisis and the East Asian crisis revealed that the countries that were more affected at the East Asian crisis were able to recover faster at the recent crisis. The EAC episode which occurred in 1997, raised the awareness of these economies on the importance of robust prudential policy measures and regulatory frameworks for their financial systems, prompting them to introduce both policy and institutional reforms in the financial sector. The need for a well structured financial system built on a strong base of international norms and best international practices was highlighted. The systems in place helped these economies to avert systemic bank failures which would have made the conditions worse.

The global financial crisis of 2007/2008, although occurring outside the Asian economies, made its impact mainly through external financial and trade flows. The lessons from this crisis and the responses of the policy makers were quite divergent. Firstly, it was clear that conventional monetary policy measures alone

were insufficient to address the issues stemming from the crisis and it was felt that there was need to combine both conventional and non-conventional policies to address the crisis effectively. Similarly, closer cooperation and coordination among the policy makers were deemed necessary in identifying and dealing with challenges posed by the global crisis. It was clear that some policy measures in the monetary, fiscal and financial sectors were taken simultaneously as the strategies demanded appropriate responses to the issues posed by the GFC. For example, central banks undertook accommodative monetary policy measures while some unconventional monetary policy measures were also implemented to address liquidity issues.

The respective governments took steps to maintain steady domestic demand by implementing fiscal stimulus and trade policies. For them to be successful, a close coordination between public and private sector institutions such as ministries of finance, central banks, other financial institutions responsible for policy implementation, was required.

- The policy measures undertaken during the crisis had been formulated in a timely manner with the ultimate objective of price and financial system stability and sustainable economic growth. Delaying the implementation of policies to mitigate the impact of the crisis on the financial sector may cause severe damage to the economy. It is also evidenced that the response of government authorities to the global financial crisis by way of bailing out financial institutions (only in Indonesia and Mongolia) and fiscal stimulus were much faster than during previous crisis episodes. With regard to fiscal policy, more timely disbursement of government expenditure was important to increase the effectiveness of this policy to stimulate economic activity.
- At the same time, policy makers should not undermine the fact that providing a short term stimulus in a crisis without taking a long term view, has economic consequences as the funds used to boost consumption would increase fiscal deficits and create debt burdens for future generations.
- During this crisis episode, many central banks and governments undertook proactive communication efforts to educate stakeholders in the financial systems. Authorities were able to successfully avoid unnecessary panics and therefore strengthen the effectiveness of policy measures. For example, the Philippines and Sri Lanka used communication effectively to avoid panics while Indonesia used effective communication to build up depositor confidence and avoid bank failures.
- The experience of the global financial crisis emphasises that the economies with fundamentally sound macroeconomic policies are able to recover from

the crisis quicker than other economies. It is clear that Singapore and Chinese Taipei which had substantial foreign reserve bases, were able to stabilise exchange rate fluctuations, use stimulus packages without incurring high fiscal deficits and a high debt stock. However, building up reserves in order to prepare for future crisis along may not be insufficient. For example, Korea which holds the fifth largest reserves in the world and substantial current account surplus, was severely affected by the crisis and economic growth became negative with the Korean won depreciating significantly. However, it is also important to note that without such huge foreign reserves and current account surplus, Korea would have been more severely affected.

- The Korean case has taught policy makers to look at gross financial flows rather than net financial flows of an economy. Before the crisis, Korea had a cumulative net surplus in its external financial account in addition to the current account surplus. However, the economy had gross capital inflows of portfolio investments and other financial liabilities of US$ 200 billion. At the outbreak of the financial crisis, these investments reversed, exerting pressure on the exchange rate, reserves and growth.
- The recent financial crisis has emphasised the importance of financial stability. As some have argued - "the lack of comprehensive supervision of about 50 large financial institutions with operations around the world caused the problems faced by the global economy" (Truman, June 2009). Before the GFC, most central banks focused mainly on price stability as the key to economic and financial stability. However, policy makers have now identified that effective financial regulation requires both micro and macro prudential policies. Therefore, it is very important for a central bank to pursue both price and financial stability. International institutions, including IMF and BIS, have recognised the responsibilities of central banks in financial stability. It may also be noted that although price stability has always been a key mandate of central banks, the legislations of many central banks such as CBSL and BOT stipulate financial stability as a key objective.
- For some economies, non-economic factors also contributed either positively towards the recovery or negatively to exert further pressure on the economy. For example in Sri Lanka, the end of the three decade long civil war in May 2009 accelerated the recovery process from the crisis. On the contrary, non-economic factors such as work stoppages, labour disputes, fragile industrial security, inadequate power supply and lack of investment friendly environment of Nepal were responsible for the worsening of economic conditions during the crisis period.
- Given the increasing integration of the world economy through financial and trade channels, none of the economies in the world can avoid being affected by a financial or economic crisis of a significant scale in the future. Against

this scenario, small emerging and developing economies should critically evaluate the lessons learnt from the recent global crisis and use them to formulate policies and strategies to minimize the adverse effects of sudden shocks. It is a challenge for policy makers of advanced and emerging market economies to implement appropriate policy measures, as their actions may have a significant impact on the rest of the world. Given this backdrop, it is also a responsibility of those advanced economies and systematically important emerging market economies to be responsible and adhere to prudent policies in order to avoid any future crisis. Efforts at the regional level and multilateral cooperation would also be important as a crisis prevention strategy.

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Appendix

Table 1
Monetary Policy[70] Measures

Economies	Action Taken
Policy Rate	
Chinese Taipei	• Reduced the discount rate by 2.375 percentage points, from 3.625% to 1.25%, in seven steps from September 2008 to February 2009.
Indonesia	• Changed the operating target from discount rate of Bank of Indonesia one month paper (1 month SBI) to Overnight interbank money market rate in June 2008. • Increased policy rate gradually in 6 steps from 8 % in April to 9.5 % in September 2008 and then commencing from December 2008, reduced in 9 steps to 6.5% by August 2009 .
Korea	• Reduced the BOK base rate in 6 steps from 5.25% on 09 October 2008 to 2% on 12 February 2009. BOK increased its base rate in 5 steps from 2% in June 2010 to 3.25% in June 2010 to curb high inflation.
Malaysia	• Reduced the overnight policy rate (OPR) from 3.50% in November 2008 to 2.00% in February 2009 in 3 steps. • Reduced the ceiling and floor rates of the corridor for the OPR to 2.25% and 1.75%, respectively by February 2009.
Mongolia	• Increased the policy rate from 9.75 % to 14% in March 2008 and introduced a two way multiple price forex auction in March 2008. • Reduced the policy rate by 1.25 % percentage point each in May and June 2008 and 1.5% percentage points in September 2008, bringing it to 10 %.
Nepal	• Maintained the bank rate at 6.25% until July 2009 then increased to 6.5% by October 2009.

70. Different economies use slightly different names for Policy Rate and Statutory Reserve Requirement.

Philippines	• Increased the policy rate by 100 basis points during the June - December 2008. • Reduced the policy rate by 200 basis points during 18 December 2008 to 09 July 2009 and maintained unchanged till February 2011.
PNG	• Increased the policy signaling rate (Kina Facility Rate) progressively from 6.0% in June 2008 to 8.0% by December 2008, and maintained it at that rate for most of 2009.
Sri Lanka	• Reduced the reverse repo rate used to inject liquidity to the market from 12.0% in January 2009 to 9.0% by August 2010 in 7 steps. Repo rate has been reduced from 10.5% from January 2009 to 7.25% by July 2010 in 6 steps.
Thailand	• Increased policy rate from 3.25% in July 2008 to 3.75% in August 2008 in 2 steps to the historic low level of 1.25% in April 2009 in 4 steps. • The rate maintained unchanged until July 2010 and gradually raised to 2.5 % in March 2011 in 5 steps.
Statutory Reserve Requirement (SRR)	
Cambodia	• Increased the reserve requirement from 8% to 16% for foreign currency deposits in July 2008. The ratio has recently been reduced to 12% amid the risks to economic growth.
Chinese Taipei	• Lowered the required reserve ratios on demand deposits and time deposits by 1.25 and 0.75 percentage points, respectively, from 18 September 2008.
Mongolia	• Increased reserve required ratio from 5.0% to 5.5% in Q1 2008 and then reduced it from 5.5% to 5.0% during the Q4 2008.
Indonesia	• Lowered reserve requirement for Rupiah currency from 7.5% to 5% primary reserve (cash reserve) and 2.5% secondary reserve on 23 October 2008 . • Lowered reserve requirement for foreign currency from 3% to 1% on 23 October 2008.
Malaysia	• Reduced the statutory reserve requirement from 3.5% to 2.0% in February 2009 and further reduced to 1 % in March 2009.
Nepal	• Increased CCR by 0.5% to 5.5% October 2009.
Philippines	• Reduced the statutory reserve requirement by 200 bps from 21 % to 19 % on 07 November 2008.

Sri Lanka	• Reduced the statutory reserve requirement from 10 % from 17 October 2008 to 7% on 27 February 2009 in 3 steps. However, it was increased to 8 % from 29 April 2011.
Liquidity Interventions	
Cambodia	• Introduced a 15% ceiling on commercial bank credit to the real estate sector (the requirement has been recently phased out and replaced by structural measures). • Introduced overdraft facility for banks eventually in need of liquidity.
Chinese Taipei	• Expanded the scope of repo facility operations since 25 September 2008. • Expanded eligible counterparties by including securities firms and insurance companies. • Extended the term of repo facility operations from 30 days to within 180 days provide market access to longer-term liquidity. • Expanded eligible instruments to CDs issued by the CBC. • Allowed financial institutions, according to their funding demand, to apply for CBC Repo operations approved by CBC, in addition to the operations announced by CBC.
Indonesia	• Amended regulation regarding the liquidity facility for commercial banks on 18 November 2008. • Opened Standing Facility(repo) of 2-14 day tenure from 9 December 2008. • Introduced regulation regarding a liquidity facility for rural banks (BPR) on 10 December 2008. • Narrowed the interest rate corridor by adjusting standing deposit facility to BI Rate - 50 bps and lending facility (repo) to BI Rate + 50 bps on 4 December 2008. • Opened 1 month repo window on 17 April 2009. • Expanded BI's facility through the short-term funding facility (FPJP) for banks facing liquidity problems.
Korea	• Increased liquidity provisions through open market operations • Broadened list of counterparties (12 securities companies were newly included in the list of eligible counterparties for purchase repo facility. Financial institutions eligible for repo transactions were selected once again in July 2009 in which some of previous institutions are also included.) • Increased eligible collaterals (bank bonds and special bonds) for open market operations.
Malaysia	• Shortened the maturity of BNM's monetary operations, allowing banks more flexibility in managing liquidity when dealing with capital outflows. • Widened access to its liquidity facility beyond banks including insurance companies and takaful operators. • Abolished restrictions on daily balance position of foreign short term borrowing.

Mongolia	• Reduced 7-day central bank bill rate from 10.25% to 10% in September 2008. • Reverse repo regulation was amended in September 2008.
Philippines	• Opened a US dollar repo facility on 17 October 2008. • Liberalized existing peso repo facility through the relaxed valuation and the acceptance of a wider range of collateral. • Increased the rediscounting budget from PhP20 billion to PhP60 billion in two occasions between November 2008 and February 2009, but brought back to pre crisis level in two occasions by mid 2010. • Permitted reclassification of financial assets between categories (e.g., from held for trading to held to maturity) • The rediscount rate was aligned with the bench mark policy rate. Thus, the rediscount rate would be equivalent to the overnight repurchase rate less 50 basis points. The previous benchmark for the rediscount rate was the 91-day Treasury Bill rate. • Increased the loan value of all eligible rediscounting papers from 80% to 90% in February 2009 and later reduced to the pre-crisis level in March 2010. • Removed the requirement of executing a surety agreement by the majority shareholder of a bank with rediscounting lines at the BSP . • A cap on the amount of outstanding credit instruments that a bank may rediscount was set at the bank's single borrower's limit (i.e., 25% of net worth) or PhP3 billion, whichever was lower.
Singapore	• Kept a higher level of liquidity in the banking system and stood ready to inject additional liquidity.
Sri Lanka	• The penal rate of 19% applicable on reverse repo transactions when participating institutions exceeds their monthly quota on access to reverse repo of the Central Bank at the policy rate, introduced on 21 December 2007,was reduced to 17% on 12 January 2009. It was gradually reduced to 13% in 3 steps and withdrawn on 21 May 2007 removing quantity restrictions. • Eased restrictions on participating institutions' access to Reverse Repo facility to the policy rate. Increased from 3 times to 6 times per month in 2 October 2008 and further to 10 times in 15 October 2008. Reduced to 3 times back in November 2008 with a reduction in SRR. • Injected liquidity by purchasing T bills at primary and secondary markets.

Other non- Conventional Policy Measures	
Indonesia	• Issued regulation to support the rupiah and the balance of payments by Minister of Trade mandating export payments for certain products to use letters of credit (LCs) in domestic banks. Products with LC requirements include coffee, crude palm oil, cocoa, rubber, mining product and tin. • Suspended IDX trade on 9 and 10 October 2008, issued regulations regarding buyback, banned short selling and limited margin trade to avoid further fall on the stock market performances.
Nepal	• Lowered the refinance rate for export credit in Nepalese currency by one percentage point to 2.5 percent in July 2008 and further to 2% in July 2009. • Imposed a ceiling of 5.5% on interest rate charged by commercial banks and development banks from borrowers of such facility.
Malaysia	• Encouraged banks to reduce monthly loan repayments on floating rate loans. The BNM also issued Bon Simpanan Merdeka amounting to RM2 billion to provide higher returns to the segment of savers that depend on interest income for their livelihood, mainly Malaysian citizens aged 56 and above with a nominal return of 5% per annum. The real return on the bond is expected to average above 2.5% in 2009.
Sri Lanka	• The 100 % margin deposit requirement imposed against opening of Letters of Credit (LCs) on the importation of certain categories of vehicles on 22 October 2004 was reduced to 50% on 18 October 2006 and increased back to 100% on 30 March 2007. This rate was further increased to 200 % on 31 October 2008. This rate was reverted to 100% on 18 March 2009 and withdrawn on 08 April 2009. • The margin requirements imposed in late October and early November 2008, in relation to opening of LCs for certain non-essential items and in respect of imports on Documents Against Acceptance (DA) terms, was withdrawn on 18 March 2009.
IMF- Stand By Arrangement (SBA)	
Mongolia	• IMF approved an 18-month SBA in an amount equivalent to USD 229.2 million to restore macroeconomic stability through fiscal, monetary and financial sector policies on 1 April 2009.
Sri Lanka	• IMF approved a SBA facility of US$ 2.6 billion (SDR 1.65 billion), which is equivalent to 400 % of country's current quota on July 24, 2009.

Sources: Individual papers of Cambodia,Chinese Taipei, Indonesia,Mongolia,Nepal,PNG,Philippines and Sri Lanka.
SEACEN (February 2010).

Table 2
Fiscal Policy Measures

Economies	Measure	Timely	Targeted	Temporary
Cambodia	• Fiscal stimulus and expenditure rationalization package		→ Social safety nets and providing alternative employment for vulnerable segments	→ Temporary
	• Increased budgetary allocations		→ Public investment in physical infrastructure	
	• Fund for agricultural development		→ To increase agricultural productivity and diversify growth base	→ Temporary
Chinese Taipei Fiscal expenditure and tax cuts (2008 Q4-2009 Q2)-NT$ 580 billion (US$ 17 billion)	• Issuing consumption vouchers (NT$80 billion)	→ Issued consumption vouchers valued at NT$3,600 per person from 18 January 2009 to stimulus the economy immediately	→ To increase consumption and increase real GDP by 0.28-0.43 percentage points in 2009.	→ Temporary measure limited to resources allocated.
	• Expanding investment in public works 2009-2012 with a total of NT$500 billion	→ Introduced on 20 November 2009 with a medium term view to create a second wave of economic revitalization effect to augment the benefits generated by the consumption voucher Scheme.	→ Targeted to increase real GDP by 0.68 percentage points in 2009 and create 19,000-22,000 job opportunities	→ Four year horizon. Limited to allocated funds.

	• Lowering the estate and gift tax rates (Effective from 23 January, 2009.) • The ceiling on both the estate and gift tax rates was lowered from 50% to 10%, respectively. • The tax-exempt thresholds on corporates and personal income taxes were raised to NT$12 million and NT$2.2 million from NT$7.79 million and NT$1.11million, respectively.	.	→ Expected to attract capital remitted abroad to flow back and revitalize domestic markets	→ Time not specified
Employment promotion (2008 Q1-2010 Q2)	• The short term employment promotion programme for 2008-2009	→ Social insurance measures and getting to work immediately programme were implemented to address the immediate financial problems of job losers.	→ Targeted to provide 46,000 and 56,000 job openings in 2008 and 2009, respectively.	→ Limited to 6 month period.
	• The employment promotion program for 2009-2012	→ Focused 4 year time horizon with short term social assistance and long term programmes.	→ Targeted to create 50,000 employment opportunities per year from 2009 to 2012	→ Four year plan

Indonesia **1st Package** Fiscal expenditure and tax cuts -IDR 73.3 trillion (USD 7.6 billion or 1.4% of GDP). (Jan 2009)	• General income tax cut (IDR43 trillion).	→ Government immediately gave instructions but the implementation or disbursement of the funds was delayed due to administrative and structural problems. Disbursement was high in the fourth quarter and until October utilization was 52%.	→ Targeted to boost private consumption and corporate investment by lowering corporate tax rate and personal tax rate and raising income tax free band.	→ The source of funds for fiscal stimulus came from the unutilized budgetary allocation of 2008 and newly raised debt. → Use of unutilized funds has no negative impact on the government budget but the raising debt could have impact on the future budget deficits. → However, the expected budget deficit for 2010 is still below 2 % of GDP. Since economy is in recovery path this cost can be considered as temporary phenomenon.
	• Tax and import duties reduced (IDR13.3 trillion).		→ Targeted to help energy and other industrial sectors by reducing VAT on oil/gas exploration and cooking oil, import duty on raw material and capital goods, payroll tax and geothermal tax.	
	• Infrastructure spending (IDR9.7 trillion).		→ Well targeted infrastructure, subsidies and other government projects.	
	• Energy subsidy and financing for the support of small business activities (7.3 trillion		→ Well targeted to support small industrial sector by reducing price for automotive diesel, discount electricity tariff for industrial sector	→ Limited to resource allocated

Korea **1st Package** 2009 Budget and Public Fund Operations Plan to Overcome Economic Difficulties" (KRW 35.6 trillion, USD 26 billion, 4% of GDP)	• Tax reduction (KRW 3 trillion). • Social overhead capital (SOC) projects mainly on building local infrastructure to invigorate local economies (KRW4.6 trillion). • To ease financial distress of SMEs, small business owners, farmers and fishermen KRW 3.4 trillion). • To tackle unemployment problems and support small business startups (KRW 0.3 trillion). • To support low income households .(KRW 1 trillion). • Local government expenditures (KRW1.1trillion).	- Introduced when declining domestic production and rising unemployment was felt on the economy to stimulate the real economy by boosting domestic demand.	Plan was laid out targeting crisis affected and vulnerable sectors; → To Increase social overhead capital investment with focus on investments in construction projects including leading projects for advancement of the metropolitan economy and provincial traffic network expansion. → To create more jobs by providing better job training through expansion of the internship system, vitalizing venture enterprises and increased job positions for the underprivileged. → Increased welfare support to stabilize livelihoods of low-income classes and provide aggressive support in reducing childcare costs.	Target was to spend 60% of the allocation during the first half of 2009 and the balance in the second half of 2009.

	• Provide funds to state owned banks so as to lend financial assistance to SMEs (KRW 1.3 trillion). • To provide credit guarantees by the Regional Credit Guarantee Fund (KRM 1.5 trillion). • Financial aid through the Korea Exim Bank will increase from (KRW7.5 trillion) in 2008 to (KRW8.5 trillion) in 2009. • Expand FX insurance loans and export insurances (KRW 3.5 trillion). • Additional funds to the Korea Housing Finance Corporation to lower mortgage loan interest rates (KRW 0.1 trillion). • Expand credit guarantees to SMEs by contributing to the Korea Credit Guarantee Fund and the Korea Technology Guarantee Fund.	→ Initiated timely in December 2008 to cope up with unprecedented challenges by supporting SMEs and low income families.	→ Support stabilization of SMEs and the financial markets by increasing SME guarantees. → Support regional finances to offset reduced real estate tax.	

2nd Package "Green New Deal Job Creation plan" -KRW 50 trillion,(USD 37 billion). (January 2009)	• Four major river restoration project (KRW 14.5 trillion). • Green transportation (KRW 9.7 trillion). • Integrated territory management (KRW 0.4 trillion). • Water resource catchment (KRW 0.9 trillion). • Green car and clean energy (KRW 2.0 trillion). • Water resources (KRW 0.9 trillion). • Forestry (KRW 2.4 trillion). • Green home, green school (KRW 8.0 trillion). • Ecological river (KRW 0.5 trillion). • Support projects(KRW 10.7trillion).	→ In time to promote the economic growth while protecting the environment.	Implement with an objective to generate 950,000 jobs over 4 years while achieving following targets → Energy conservation, recycling and clean energy development to build an energy-saving economy → Green transportation. networks and clean water supplies to upgrade the quality of life and environment. → Carbon reduction and stable supply of water resources to protect the earth and future generations. → Building of industrial and information infrastructure and technology development to use energy efficient in the future.	→ Four year time horizon from 2009-2012.
3rd Package Government expenditure and tax cut- Supplementary budget bill) KRW 28.9 trillion(US$	- Maintaining job security and revitalizing provincial economies & supporting industries with future growth potential (KRW17 trillion). - To meet shortfall in tax revenue (KRW11.9	→ Timely to promote the growth.	→ Targeting job security and growth	→ Supplementary budget 2009. → KRW 19 trillion is expected to raise through government bond issue.

0.7 billion). (March 2009)	trillion).			
Malaysia **1st Package** Fiscal expenditure-RM 7 billion (USD 1.9 billion or 1% of GDP) (4 November 2008)	• Investment funds to promote strategic industries and implement high-speed broadband (1.9 billion). • Small-scale infrastructure projects (1.6 billion). • Pre-school education, free school books, skills training and youth programs (RM 1 billion). • Public transport and military facilities (1 billion).	→ To address problems affected sectors.	→ To address problems affected sectors.	→ Temporarily limited to funds allocated.
2nd Package Fiscal expenditure-RM 60 billion (USD 16.2 billion or 9% of GDP) (10 March 2009)	• Fiscal injection (15 billion).	→ Timely implemented.	Expected to achieve following targets → Subsidies to avert price increases of necessities (sugar, bread, wheat flour) - RM674 million. → Subsidies to ensure no toll rate hikes- RM480 million. → Build 6500 units of low-cost homes managed by	→ Temporarily - Limited to funds allocated.

			SPNB-RM200 million. → Build and improve school facilities-RM1.95 billion. → Build rural roads and utilities for Sabah and Sarawak-RM2.3 billion. → Upgrading and renovating public infrastructure-RM2 billion. → Training and retraining programmes-RM700 million. → Finance tuition fees for PhD and Masters students-RM110 million. → Basic amenities in rural areas;RM1.1 billion.	
	• Equity investment (10 million)	→ Timely	→ Targeted to increase Khazanah Nasional Berhad's investment fund.	→ Temporary. To be invested over a two year period.
	• Guarantee funds (RM 25 billion)	→ Timely	→ Working Capital Guarantee Scheme-RM5 billion. → Industry Restructuring Guarantee Scheme-RM5 billion. → Financial Guarantee Institution- RM15 billion.	→ Temporary → Bonds totaling RM15b will be raised
	• Private finance initiatives and off-budget projects (RM 7 billion)	→ Timely	Targeted following projects. → Off-budget projects (LCCT, Pulau Pinang airport, Telco infrastructure, Covered walkways in Golden	

			Triangle)-RM 5 billion. → Private Finance Initiatives and Public-Private Partnership-RM 2 billion.	
	• Tax incentives (3 billion)	→ Timely	→ Accelerated capital allowance for expenses incurred on renovation and refurbishment of business premises and plant and machinery. → Allow total carry back losses for the year 2009 and 2010. → Tax relief on interest paid on housing loans up to RM10,000. → Double tax reduction for employers who employ workers retrenched from 1 July 2008, applicable to workers employed from 10 Mar 2009 and 31 Dec 2010. → Tax exemption for	Temporary → Temporary, for 3 years till 2011.

			retrenchments benefits increased to RM10,000 from RM6,000 for each completed year of service.	
Mongolia **1st Stimulus Package** Expenditure-MNT 455 billion (USD 0.35 billion) (December 2008)	• Bailout package	→ Timely	→ To stabilize the banking sector	→ Find funds through sovereign bond issue /increase commercial borrowing.
2nd Stimulus Package Expenditure-MNT 1.6 trillion (USD 1 billion) (March 2009)	• Stabilize exchange rate and banking sector • Investment in infrastructure	→ Timely	→ Financial sector stability → Promote growth in jobs → Support agriculture	
Nepal	Scheme to provide financial support to the returnee workers who lost their jobs but a significant fiscal stimulus package has not been used to address the effects of the financial crisis.[1]			
PNG	• Part of the savings in the Trust Fund was used as budgetary provisions to stimulus the economy. Total worth of the Trust Fund was about kina 3 billion (15 % of GDP) in mid 2008. Budget deficit for 2009 was estimated as approximately 10% including off budget spending of Trust Funds. During the first quarters of 2009 , a net 5.8% of GDP was spent from trust funds.			

Philippines Economic Resiliency Plan (PHP 330 billion, USD 6.5 billion, 4.3% of GDP) (January 2009)	• Increased national government spending (PhP160 billion).	→ Timely. The bulk of government spending was concentrated during the first half of 2009.	→ Job creation programme to provide 180,000 temporary jobs at government departments by July 2009. → Skill development programme to returning Filipino workers to meet need of the local and foreign markets.	→ Limited to 2009 budget
	• Infrastructure projects (PhP100 billion).		→ Develop infrastructure projects.	
	• Waiver of penalties on loans from social security institutions (PhP30 billion).		→ Provide additional (i.e., new) benefits for social security system members.	→ Temporary
	• Tax reduction in corporate income tax and waiver of personal income tax for minimum wage earners (PhP 40 billion).		→ General tax reduction for corporations and individuals.	
Singapore Fiscal expenditure and tax cuts- SGD 20.5 billion (USD 13.7 billion) (27 January 2009).	• "Job Credit Program"(SGD 5.1 billion).		→ Cash transfers for employers to cover part of their wage bills and to help preserve jobs.	→ Funds to be draw from the accumulative reserves Limited to provisions given in budget 2009.
	• "Special Risk Sharing Initiative" (5.8 billion).		→ government guarantees working capital loans to individual firms to stimulate bank lending.	
	• Enhancing business cash-flow and competitiveness; corporate tax rate from 18% to 17% and grants for businesses . (SGD 2.6 billion).		→ To enhance business cash-flow and competitiveness.	

	Supporting families; personal income tax rebates of 20% of taxes due. SGD 2.6 billion).		→ To support households on top of the benefits they will derive from the measures to preserve jobs.	
	• Building home for the future; Infrastructure development (SGD 4.4 billion).		→ To develop first class infrastructure for the island and on expanded provisions for education and healthcare.	

Sri Lanka **1st Package** Measures to support export sector LKR 16 billion (USD 141 million or 0.4% of GDP) (December 2008) **2nd Package** Rewards to export development LKR 8 billion. (US$ 70 or 0.2 % of GDP) (May 2009)	• Incentives for the agricultural and industrial export sectors (tea, rubber, cinnamon, garments , tourism and leather) • Waiver of Fuel Adjustment Charge (15%) for industrial sector and hotels • Across the board fertilizer subsidy. (Introduced before the crisis) • The Value Added Tax (VAT) refunded period was reduced to a maximum of six months • A 5% of export incentive was granted for exporters • Tourism sector – concessionary loan scheme, extended time period for recovery of loans, reduction of interest rate, suspension of collection of penal interest rate on defaulted loans • Relief measures for consumers such as reduction of fuel prices, gas prices and passenger fares.	→ Timely introduced to address the difficulties faced by the export industry and tourism sector.	→ Focused on affected sectors which can directly utilized the incentives.	→ Not clearly defined the effective period. Expenditure is an estimate and not it is clear what would be the actual cost. However, given the limited fiscal space, these incentives should be limited only for the essential period until these sectors recovered.

Thailand **1st Package** Supplementary budget (THB 116.7 billion, USD 3.3 billion, 1.3% of GDP)	• One time living cost allowance of THB 2000 for those earning less than THB 15,000 per month • Extension of 5 public service subsidies program for 6 months. • Support given to unemployed workers. • Free education for students. • "Sufficient Economy Fund for Improvement in Quality of Life" fund for rural villages. • Old-age support payment of THB 500 per month. • Infrastructure projects. • Tax measures to boost real estate sector, SMEs and the tourism industry.	→ Timely	→ Targeted at low income earners → Public servants → Unemployed workers → Students → Rural villagers → Old age people and infrastructure development	→ Temporary –One time → Limited to 2009 budget
2nd Package Thai Kehm Khaeng (or Strong Thailand 2012) (THB 1.43 trillion, USD 42 billion) (2010 – 2012) (January 2009)	• Infrastructure investment.	→ Timely but could not utilized within the expected time.	→ Targeted in mass transit; transportation and communication; energy; education; healthcare; housing; water resources and other vulnerable sectors.	→ 2009-2012 four year programme.

Sources: "Sustainable and green tourism: Korea's green new deal and 4 rivers restoration project" – Presentation by Mr. Pan Sang HAN
"Comprehensive policy measures to overcome the ongoing economic difficulties", Ministry of Strategy and Planning-Republic of Korea
Information provided by Bank Negara Malaysia and Bank of Korea in response to the questionnaire sent by Author

Table 3
External Sector Policy Measures

External Sector Policy	
Korea	• Signed currency swap agreements with major central banks i.e. the US Fed ($30 billion in October 30, 2008.), the People's Bank of China (180 billion yuan in December 2008), the Bank of Japan ($20 billion-equivalent). • Used competitive auction swap facility and foreign currency lending to provide foreign currency liquidity worth of $26.8 billion utilizing its foreign reserves and currency swap funds with the US Fed.
Indonesia	• Abolished the limit on daily balance position of short term foreign loans. • Provided foreign exchange for domestic corporations through banks. • Extended FX Swap tenor from maximum of 7 days to a maximum of 1 month. • Introduced regulations governing the purchase of foreign exchange by banks. • Amended Bank Indonesia regulation concerning derivative transactions (net open position limits, margin trading and flows related to the derivative transaction, prohibition of structured product transactions). • Strengthened the monitoring system of the foreign exchange market by e.g., some early warning systems. • Signed a bilateral currency swap arrangement with other East Asian countries.
Singapore	• Shifted to a zero % appreciation of the Singapore dollar nominal effective exchange rate (S$NEER) policy band in October 2008. • Re-centered the exchange rate policy band down to the prevailing level of the S$NEER in April 2009, while maintaining the width of the band and zero percent appreciation path. MAS maintained the zero percent appreciation of the S$NEER policy path in October, 2009. • Established a precautionary swap facility that provides US$ liquidity of up to US$ 30 billion with US Federal Reserve and the SMA on 30 October 2008.
Thailand	• Conducted additional sell-buy swap transactions to provide more dollar liquidity to the market during the drying up period of dollar liquidity overseas.

Table 4
Financial Sector Reforms

Financial Sector Reforms	
Cambodia	• Enhancing the capital base of banks and increasing minimum capital requirements • Strengthened loan classification standards and improved the valuation of collateral used for bank lending • Rigorous implementation of on-site and off-site inspections and supervision • Strengthened the credit information-sharing system • Improved bank licensing procedures • Formulated bank resolution plans for troubled banks • An amendment of the existing banking law has been prepared and submitted to the Council of Ministers for review. • Securitized the fixed certificate of deposits held by banks and issued a regulation for repo operations. • Regulatory and supervisory measures aimed at strengthening risk management practices are being prepared.
Chinese Taipei	• Introduced a blanket coverage of deposit insurance • Introduced an interim blanket deposit guarantee scheme on October 7 2008 to guarantee all deposits in insured financial institutions by their full amount until the end of 2009, and then extended to the end of 2010. Additional deposits to be guaranteed included foreign currency-denominated deposits, inter-bank deposits and lending, and financial bonds issued before or on 23 June 2005. • In view of providing preferential mortgage loans by NT$400 billion (Sep. 2008 – Dec. 2009) corporate financing support was introduced to increase lending to cooperate customers.
Indonesia	• Increased the amount of deposits in the banking system guaranteed by the government from IDR 100 million to 2 billion (13 October 2008). • Issued a government regulation in lieu of law on financial system safety. (This was rejected by parliament in January 2009). • Provided provisions for facilitation of mergers in support of the bank consolidation programme, focusing on compliance with the minimum capital requirement. • Made an amendment to regulatory content and clarification of interpretation of some previously issued regulations. This policy emphasizes the risk management capability in the banking system in extending and evaluating credit rather than fulfillment of requirements.

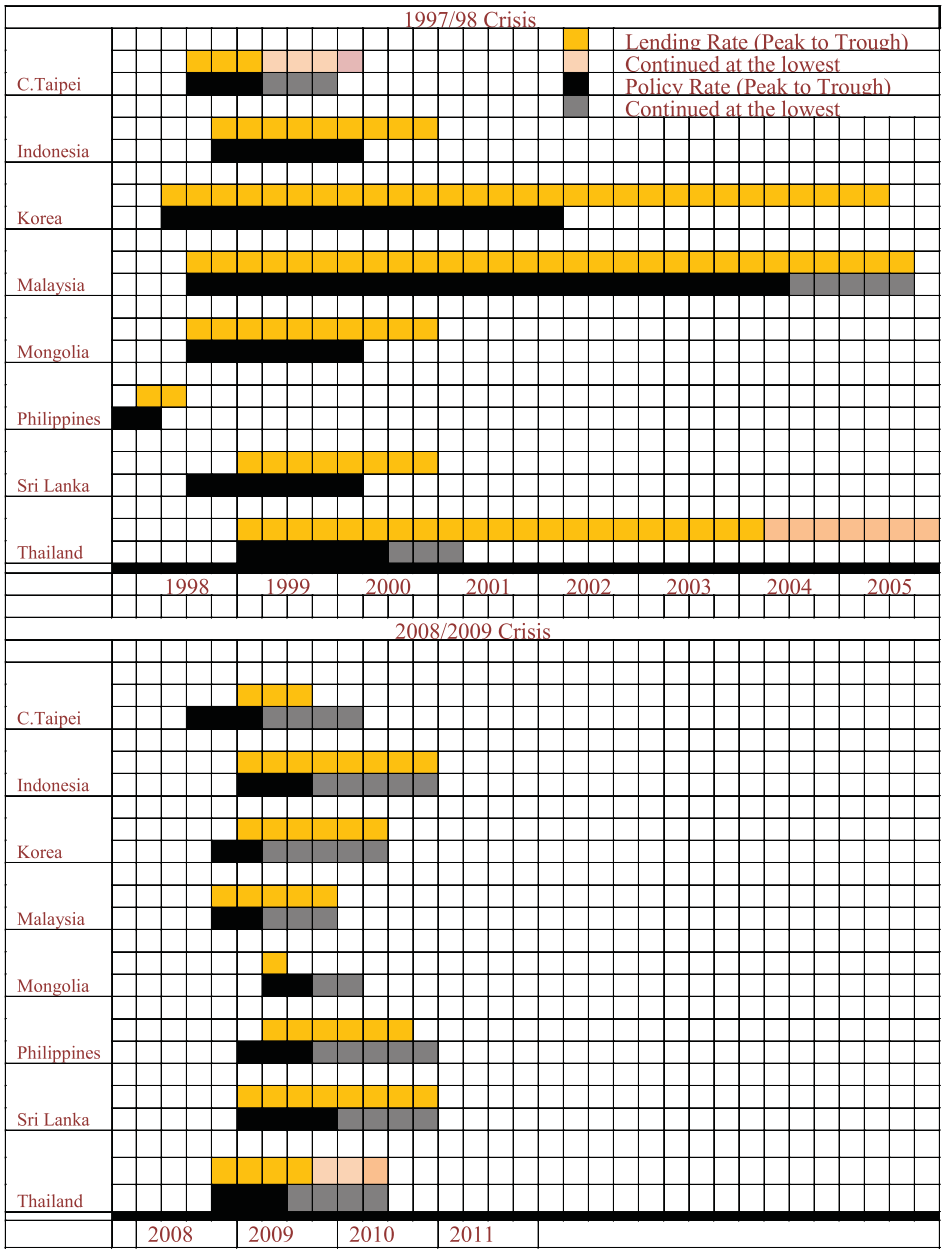
	• Issued regulation of bank employment of expatriates in order to build competence and ensure greater opportunity for Indonesian employees. . • Provided business data and information to facilitate the bank intermediary function for the real sector.
Korea	• Expanded financial support to vulnerable sectors as follows. - Increased aggregate credit loan ceiling - Made a one-time interest payment on required reserves - Supported the bank recapitalization fund and the bond market stabilization fund.
Mongolia	• Increased the capital adequacy ratios of commercial banks from 10% to12% in March 2009. • Introduced 100% blanket deposit guarantee on the bank deposits. For 4 year period under "The Law on Guaranteeing the Deposit Banks" passed on 25 November 2008. The Act was amended to cover only current or transactional accounts of households and other entities. • Enforced a joint decree of the Minister of Finance (MOF) and the Governor of Bank of Mongolia to formalize the exchange of information between the two institutions. • Lowered the loan loss provision rate by joint agreement of the BoM and MOF on 4 March 2009. • Allowed banks and lenders to twice extend the duration of their loans. • International auditors were appointed to investigate and assess the reliability, independence, and completeness of accounting of NPL and off-balance commitments.
Nepal	• Formed a high level committee by the government headed by Vice-Chairman of National Planning Commission including members from Ministry of Finance and the Nepal Rastra Bank in order to closely monitor the impact of crisis in the country.
Malaysia	• Instituted a full guarantee on deposits placed with banks to preserve confidence in the financial system. • Set up special funds to help SMEs with viable businesses to obtain financing: - SME Assistance and Modernization Facilities (RM 1.2 billion) in July 2008 - SME Assistance Facility (RM700 million) in August 2008 - SME Modernisation Facility (RM500 million) in August 2008 - Micro Enterprise Fund (RM 200 mil) in November 2008 - SME Assistance Guarantee Scheme (RM2 billion) in January 2009 - Working Capital Guarantee Scheme (RM5 billion) in April 2009 - Industry Restructuring Financing Guarantee Scheme (RM 3 billion) in March 2009 • Held dialogues with the banking institutions and the business community to bridge the concerns faced by both parties.

	• Made more intensive outreach efforts to assist borrowers under distress, including the provision of avenues for debt resolution and restructuring. - Intensified efforts to provide assistance to individual borrowers in developing personalized debt repayment plan in consultation with their banks through the Credit Counseling and Debt Management Agency (AKPK). - Established the Small Debt Resolution Scheme (SDRS) to facilitate restructuring and rescheduling of all non-performing loans of SMEs. (Previously, only non-performing loans of an aggregate amount not exceeding RM3 million were allowed to be restructured under this scheme. - The Corporate Debt Restructuring Committee to help corporations to restructure their debt, including bank loans and private debt securities. - One year loan moratorium for retrenched workers for repayments on their housing loans. • Established the Danajamin (Financial Guarantee Institution) to provide credit enhancements to corporations with viable businesses and investment grade ratings to enhance their access to the Malaysian bond market. • Established the Integrated Contact Centre comprising BNM Link, BNM Telelink and complaints management and advisory section within the Bank to address general enquiries relating to banking services and credit issues from individuals and businesses. In addition, ABM Connect Toll Free Channel was set up in December 2008 by the Association of Banks in Malaysia (ABM) in collaboration with banking institutions.
Philippines	• Increased the ceiling of the NPL ratio requirement to 10 percentage points above the prevailing industry average. Earlier it was set at two percentage points above the industry average. Resorted the NPL ratio requirement and loan valuation to pre-crisis levels in March 2010. • The BSP allowed the reclassification of financial assets from categories measured at fair value to those measured at amortize d cost in consistent with amendments to the International Accounting Standards and International Financial Reporting Stand ards issued by the International Accounting Standards Board • The BSP temporarily eased (up to March 2009 the rules on asset cover of foreign currency deposit units (FCDUs). This was later extended by another six months till September 2009. Prior to this the BSP required banks to cover 100% of their FCDU liabilities with dollar assets.
Singapore	• Announced a guarantee on all S$ and foreign currency deposits of individual and non-bank customers in banks, finance companies and merchant banks until end-2010.
Sri Lanka	• The regulation and supervision of the banking, finance, insurance and securities sectors have been further strengthened to improve the resilience and soundness of the financial sector. • CBSL intervened to stabilize the stressed finance companies to overcome the difficulties encountered by them. The interventions included the appointment of managing agents and the issue of several specific directions to those companies in February 2009.

	• CBSL established a new guarantee scheme in respect of loan facilities provided by banking institutions to Registered Finance Companies (RFCs) and Specialized Leasing Companies (SLCs), in instances where RFCs and SLCs face unforeseen liquidity constraints in December 2009. • Implemented a mandatory deposit insurance scheme (named as the Sri Lanka Deposit Insurance Scheme (SLDIS)) covering all licensed banks and registered finance companies with effect from 1 October 2010. The initial capital of the Scheme, Rs. 1.1 billion (approximately) was provided by the Central Bank. The deposit taking institutions are expected to contribute to the Fund.
Thailand	• Introduced blanket deposit guarantee and credit guarantee scheme for SMEs.

Sources: Project papers of Cambodia,Chinese Taipei, Indonesia,Mongolia,Nepal,PNG,Philippines and Sri Lanka.
SEACEN (February 2011).

Figure 1
Impact of the Crisis-(Policy Rate Vs Lending Rate) and (1997/98 Vs 2008/2009)



Chapter 2

RELATIVE EFFECTIVENESS OF POLICY CHOICE DURING FINANCIAL CRISIS

By
May Sokchetha[1]

1. Introduction

A notable feature of Cambodia's economy is its high level of dollarisation. Cambodia's monetary authorities neither sought nor encouraged dollarisation, but since the country adopted an open economy and a liberal exchange rate system, the dollar have effectively become a second national currency alongside the riel. Dollarisation in Cambodia resulted in a series of shocks, experiences and events that eroded public confidence in the capacity of the authorities to maintain the value of the national currency, the riel.

There were already some amounts of US dollars circulating in Cambodia during the period of the Khmer Republic (1970-1975). However, the riel remained the currency used normally in domestic transactions. The **first shock** occurred from 1975 to 1979, when all the financial infrastructures in Cambodia (markets, trade, money, and banking) were systematically destroyed. There was no place for a financial system under the Khmer Rouge[2]. Immediately after they overthrew the capital city, the National Bank of Cambodia's headquarters was bombed to the ground[3].

1. Chief of Division, Economic Research and Statistics Department, National Bank of Cambodia.

2. Initially, the Khmer Rouge leadership had every intention of issuing its own currency and establishing a banking system of its own. In January 1975, new banknotes, printed in China, were brought down the Ho Chi Minh Trail. In May 1975, it was decided that riels should be put progressively into circulation. Nong Suan was appointed the National Bank Chairman; in August he was replaced by Pich Chheang. Supplies of the notes were sent to the provinces in August 1975, and the new currency was effectively circulated in the Northern Zone, north-west of Kompong Cham. But the Central Committee and Pol Pot himself considered that the question whether or not to use money concerned the essence of the Khmer Rouge state. On September 19, 1975, the Central Committee of the Communist Party of Kampuchea (CPK) resolved not to issue the new currency, a decision confirmed at the CPK's Fourth Congress four months later (*Pol Pot, the History of a Nightmare*, Philip SHORT, John Murray 2005).

3. More than a deliberate decision of the regime, the destruction of the National Bank of Cambodia headquarters appears to be due to pillage by men from the Easter Zone's headquarters. The perpetrators allegedly made off with 200 kilos of gold and then blew up the building to make the theft appear to be the work of gangsters profiting from the confusion (ibid).

After the end of the Pol Pot regime in 1979, commercial transactions were conducted mainly in the form of barter, or using rice and gold and later also the Vietnamese dong. The Central Bank was re-established in 1980 under the name of the People's Bank of Kampuchea (PBK) and the riel again became the country's legal currency. During the 1980s, the PBK provided a multitude of functions, including acting as the monetary authority, the cashier of the government, and was the only institution providing banking services, such as deposits, loans, and payment instruments. The use of the US dollar (US$) and the Thai baht (THB) was restricted by the centrally planned economy. However, confidence in the riel remained low, given the political structure and the security situation, with the consequence that the dollar, baht and, above all, gold were largely considered as a refuge by Cambodians.

1.1 Dollar Flows and Start of Dollarisation of Economy

Cambodia was transformed from a planned economy to a market economy in the late 1980s, when its borders were opened to trade and when economic and political relations with the western countries were restored.

In 1993, the United Nations Transitional Authority in Cambodia (UNTAC) settled into Cambodia with the main objective of keeping peace. By that time, a large number of non-governmental organisations (NGOs) were active in the country working to reduce poverty. Cambodia at this time was viewed as a country dependent on foreign aid. In August 1994, the government set up the Council for the Development of Cambodia (CDC) as a "one-stop shop" for approving foreign direct investment (FDI) projects. This generated more foreign investment, especially from companies led by ethnic Chinese in ASEAN countries such as Malaysia and Singapore, as well as from the People's Republic of China (PRC) and Chinese Taipei. Investment also flowed in from Australia, France, the United Kingdom, and the United States (US). According to the World Bank, FDI in Cambodia has dramatically increased since 1994. In 1995 alone, it expanded 10-fold the amount of the previous year to around US$100 million. Between August 1994 and September 1996, the Cambodian Investment Board (CIB), which approves incentives available to domestic and foreign investors as well as investment applications, approved 330 applications amounting to US$2.8 billion. Most of the FDIs targeted hotel construction, casinos, logging, and light industry, especially garment manufacturing.

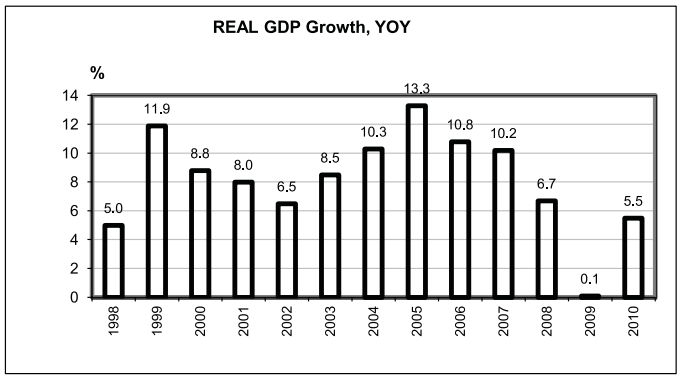
1.2 Economic Growth Performance

Cambodia's economy has performed well in recent years, with a stable macroeconomic environment and double-digit growth. However, in 2008, the conditions became less settled, owing to the spillover effects from the global financial crisis and weakening external demand. Cambodia has been particularly vulnerable to the recent shocks given its narrow production base, concentration of exports in a few products and markets, and dependence on external inflows. Three of the four main drivers of growth – garment, tourism and construction - registered contractions. While the signs of bottoming out began in mid-2009, private investment was hit. In the garment industry, some 40,000 jobs were lost.

As a result, the economy experienced a slowdown in its growth to 6.7% in 2008 and 0.1% in 2009 and tightened liquidity conditions. The rapid credit expansion since 2007 combined with weaknesses in bank supervision has heightened risks faced by a number of banks, including a few systemically important ones. On a positive note, the inflationary pressures, which had been intensifying until mid-2008, has decreased owing mainly to the fall in commodity prices.

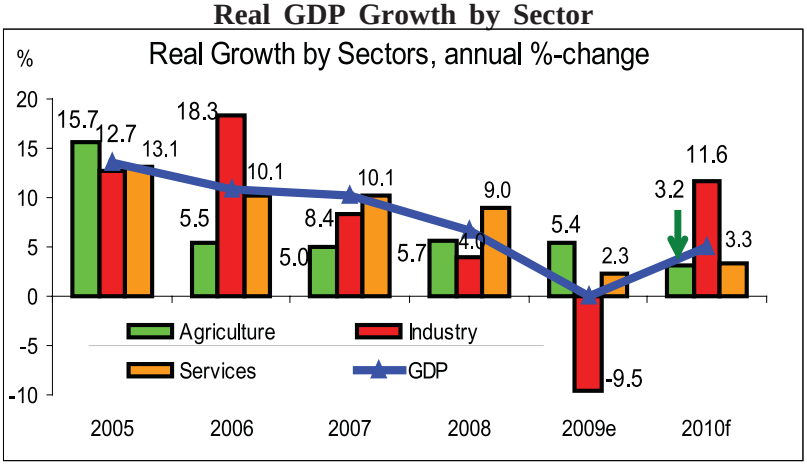
Real GDP growth averaged over 9.0% during 2000-2007. The Cambodian economy has recovered from the economic crisis of 2008-2009. Growth was estimated to be about 5.0% in 2010, compared to 0.1% in 2009. The expansion was due to the global recovery and the growth of garment exports, tourism, construction and foreign direct investment.

Figure 1
Real GDP Growth, Y-o-Y



Source: National Institute of Statistics, MOP

Figure 2
Real GDP Growth by Sector



Source: National Institute of Statistics, MOP

With regard to the monetary and banking sector, the NBC has tried to adjust its monetary policy in a flexible manner in order to deal with the inflationary developments and to address the liquidity constraint in the banking system. The monetary policies have promptly been modified from an appropriately tight monetary policy stance during the period when the economy was hit by rising global food and fuel prices in 2007-2008 to a moderately easy monetary policy stance in early 2009. This is to ensure that the liquidity strains in the economy would not escalate into systemic pressures, while the NBC's role as the role of lender of last resort has been further enhanced.

With a prompt evaluation of the situation, the Cambodian Government initiated a rapid response and adjusted the orientation of its macroeconomic policies. On the fiscal front, to help foster economic activities and sustain growth in the wake of the global financial crisis and recession, the government took counter-cyclical action to prop up domestic demand, by introducing fiscal stimulus and expenditure rationalisation. Priority in government spending was focused on public investment in physical infrastructure and supporting growth in the agricultural sector as well as on improving social safety nets and providing alternative employment for the vulnerable population segments, including the unemployed displaced in the affected export sectors.

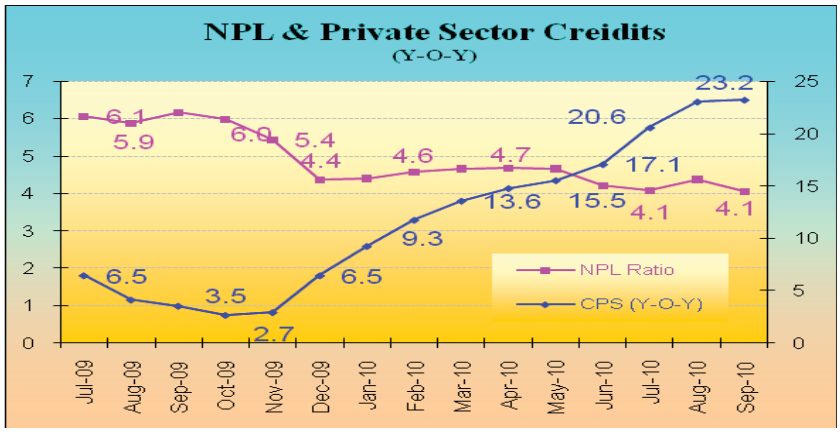
As far as the monetary and banking sector is concerned, the performance of the banking sector has been satisfactory, though challenging. Following an episode of stress, total banking system liquidity is gradually improving. The broad money supply (M2) has recovered to 21.1% y-o-y in December 2009, from a negative growth at the beginning of the year, reflecting the picking up in customers' deposits with an annual growth rate of 22.5% in December 2009. Credit to the private sector remained low, mirroring the banks' prudent credit policy in the period of weak economic activities.

2. Impact of Global Financial Crisis on Cambodia

2.1 Indirect Impact on Banks

Cambodia's banking system was sound, well capitalised and highly liquid before the crisis. The capital adequacy ratio (net assets or net worth/weighted assets according to the degree of risks) was 26% in 2007, well above the regulatory minimum of 15%. The liquidity ratio (liquid assets/total assets) was 50% in 2007. Non-performing loans (NPLs) declined from 9.5% in 2006 to 3.4% in 2007 and further to 2.6% in June 2008.

Figure 3
NPL of Banking System



Source: National Bank of Cambodia

After the onset of the crisis, the real estate market slowed down, but there was no sign of hard landing or imprudent lending to the sector by banks. However, Cambodia's slowing economy has weakened banks' balance sheets and stalled new lending. Although the Cambodian banks were not exposed to toxic assets abroad, the liquidity conditions tightened at the onset of the global financial crisis. In 2008 liquidity dropped by 1.6% in September, 5.4% in October and 2.7% in November; foreign currency deposits dropped by 2.2%, 5.4%, and 3.3% correspondingly. However, credit to the private sector continued to grow. It rose by 55% in December 2008. But liquidity began improving in early 2009 and 2010. Foreign currency deposits (FCDs) rose 3.5% in 2009, partly due to high deposit interest rates. However, the credit growth has fallen sharply, from 55% in 2008 to 6.5% in 2009 and 26.6% in 2010.

Figure 4
Bank Sector Overview

	2007	2008	2009	2010
Number of DMBs	23	30	33	33
Number of Banks' Branches	75	102	129	135
Assets of DMBs (in million of US$)	3,383	4,241	5,120	6,507
Assets of DMBs (annual % change)	72.5	25.4	20.7	23.6
Net Worth of DMBs (in million of US$)	457	787	996	1088
Net Worth of DMBs (annual % change)	44.4	75.7	29.2	21.9
Average M2/GDP	25.8	29.3	32.4	38.3

Source: National Bank of Cambodia

2.2 Indirect Impact on Garment Exports

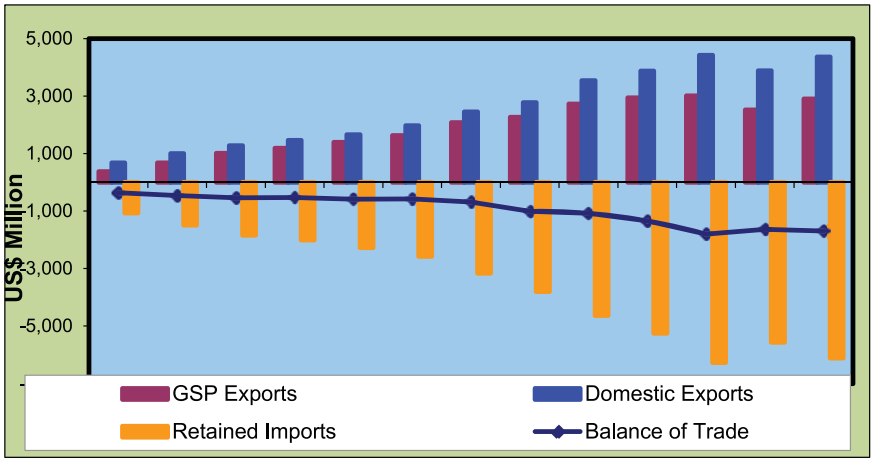
The preliminary estimates of Cambodia's balance of payment transactions for 2009 posted a surplus on the overall balance, but a decline of 79.7% compared to the position in 2008. In 2009, the current account balance exhibited a deficit, a decrease of 16.6% compared to 2008.

The year 2010 showed remarkable improvement in Cambodia's balance of payments performance compared to 2009, when the country's external sector was largely affected by weak external demand and falling international commodity prices. The current account (excluded official transfers) posted a deficit of US$1,237.9 million, which was more than offset by a surplus in the official transfers and financial account balance of US$1,434.3 million. As a result, the overall balance of the balance of payments transactions in 2010 recorded a surplus of US$143.2 million, after having posted a deficit of US$4.7 million in 2009. The overall balance in terms of GDP was 1.3% in the reporting year.

2.2.1 Current Account (Excluding Official Transfers)

The current account balance recorded a deficit of US$1,237.9 million in 2010, an increase of US$35.0 million (2.9%) compared to 2009, which was about 11.2% of GDP**.** The increase in the trade and net income deficit of 3.9% and 2.8%, respectively, were the main contributors to the increase in the current account deficit. The current account balance was offset by the increases in net private transfers' surplus by 5% and net services surplus by 4.4%.

Figure 5
Balance of Trade (1998-2010)



Source: National Bank of Cambodia

In 2010, the global economic recovery stimulated external demand, which was the main contributory factor for a strong domestic exports of US$4,363.4 million, an increase of US$484 million (12.5%) compared to 2009. Although the

external demand for garment and textile declined sharply in 2009, the exports of garment and textile recorded an increase of US$383.5 million (15.2 %) to US$2,898.3 million in 2010, a sharp turnaround from a decline of 16.4% in 2009. During the same period, other domestic exports increased by 7.4%. The increase in the prices of paddy rice, fish and rubber also contributed to the increase in domestic exports.

Retained imports of goods amounted to US$ 6,109.5 million in 2010, an increase of US$544.1 million (9.8%) compared to the previous year's imports. The gradual increases in imports of garment materials (14.7%) and construction materials (2.3%) were the main contributors.

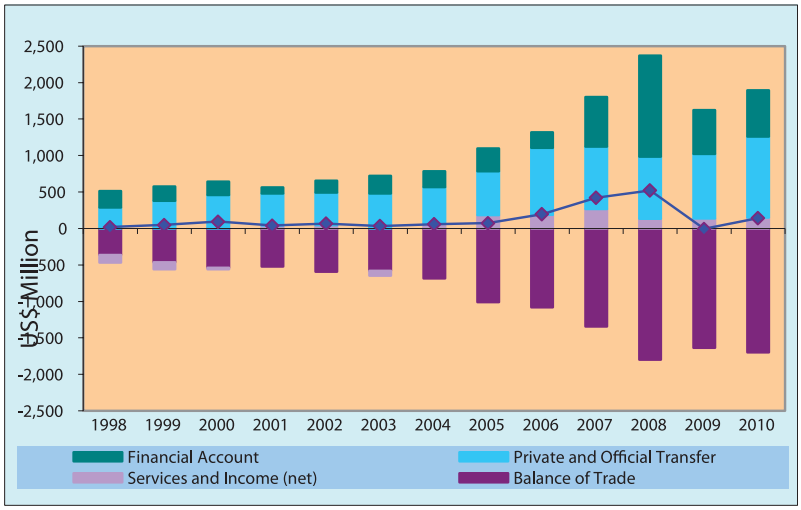
Net services recorded a higher surplus of US$633.0 million in 2010, compared to US$606.4 million in the last year's surplus. This increase was due to an increase of US$27.7 million (1.7%) in services receipts since services payments increased only by US$1.1 million (0.1%). The estimate of travel services receipts was US$1,249.8 million, an increase of 5% compared to the previous year's estimate. The number of foreign tourist arrivals in Cambodia was estimated to have increased by 10% to 2.4 million persons, in spite of the global economic recession in 2009 and the slow pace recovery in 2010. A recent assessment showed that most of the Asian countries were not severely impacted by the global recession and Asian tourist arrivals in Cambodia are on the increase. Vietnamese tourists take the top spot with 13.5% of the total tourist arrivals, followed by Korean 12.1% and Japanese 7.7%.

During the same period, the net income account posted a deficit of US$481.2 million, an increase of US$13 million (2.8%) compared to the last year's deficit. This increase was due to a rise in income on equity of direct investment by 3%. The net private transfer surplus was US$307.8 million, up US$14.7 million (5%). This increase was contributed by the increase in the remittances to Cambodia by Cambodian working abroad.

2.2.2 Official Transfers and Financial Account

In 2010, the balance on the current and official transfer accounts registered a deficit of US$438.1 million compared with a deficit of US$610.3 million in 2009. This decrease resulted from the increase in official transfer inflows by 35% since the current account deficit increased by 2.9%.

Figure 6
Balance of Payments (1998-2010)

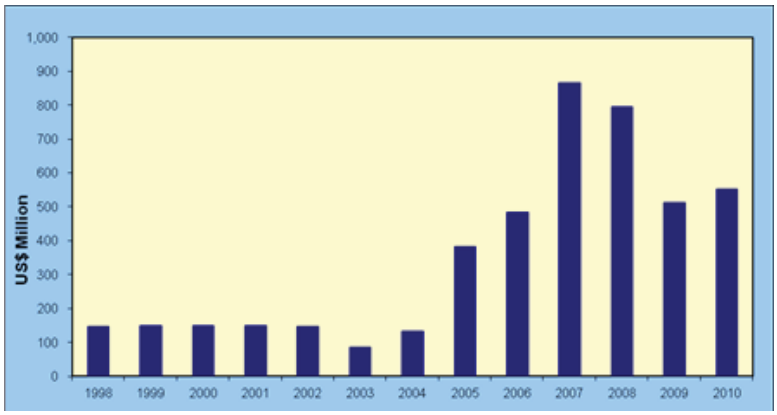


Source: National Bank of Cambodia

The official transfers in the form of cooperation financing (grants) recorded an inflow of US$799.7 million, up US$207.1 million (34.9%) compared to previous year's inflow. During the same period, net official sector loans (excluding loans from the IMF) was US$188 million, an increase of US$34.9 million (22.8%) compared to the last year's inflows. Net foreign direct investment exhibited a net inflow of US$553 million, up US$41.7 million (8.1%) compared to the previous year's inflows. During the period, foreign direct investment inflows from the agro-industry, garment, footwear, and beverages sectors increased remarkably.

In general, Cambodia's balance of payments improved in 2010. The result reflected the improvement in exports, tourism services receipt, remittances and foreign direct investments after the negative effect of the global economic recession in 2009. This enhancement manifested, therefore, a surplus in the overall balance of US$143.2 million in 2010 as against a deficit of US$4.7 million in 2009. This surplus reflected an increase in the gross official reserves to a level that was sufficient to cover 4 months import of goods.

Figure 7
Foreign Direct Investment Flow
(1998-2010)



2.3 Indirect Impact on Tourism

People would prefer to put off their holidays during hard times. Job losses and gloomy outlook would be less favourable for vacations. However, the tourist arrivals in 2008 increased over 2007 by 5.5%. This is deceptive since in the fourth quarter of 2008, tourist arrivals declined by about 5% over the same period of 2007. The full impact of the tourism downturn was felt in 2009.

Figure 8
Passenger Arrival to Cambodia

Source: Ministry of Tourism

The second quarter of 2009 showed a 4.66% increase when compared to the same period in 2008. Moreover, the international visitor arrivals from all regions showed a growing diversity in the profile of the average tourist to Cambodia. Visitor arrivals from the Asia and Pacific regions were up 3.00%, while visitor arrivals from the ASEAN countries showed a notable increase of 25.41%. European tourists showed a slight rise of 1.59%, while visitors from Africa were up an astounding 33.74%. Only the tourist arrivals from America and Middle East showed slight declines of 1.83% and 6.16%, respectively. Perhaps as a result of Cambodia's increasingly diverse visitor profile, the tourism receipts stood at US$1,561 million for 2009, indicating a decline of 2.13% when compared to the last year, and less of a decline than expected in the face of crippling international economic trends. The tourism sector is one of the four main components that contributed to GDP growth in Cambodia. In December 2010, the tourist arrivals grew by 16.4% compared to previous year.

2.4 Indirect Impact on Construction

The real estate market in Cambodia is stagnant since June 2008. The central bank policy is to limit credit exposure to the real estate market. Moreover, investors were cautious, as real estate crisis was in full swing in the US and Viet Nam. However, there were no indications that banks have lent imprudently to the real estate market. Construction activity continued to be slow in 2009, reflecting a decline in foreign investment flows and cautious banks lending.

However, some real estate developers continued their projects and the contraction in activities were partly offset by public work projects, such as road and bridge construction. In 2009, the construction activities estimated to have contracted by 2.6%.

2.5 Indirect Impact on Small- and Medium-Size Enterprises (SMEs)

According to a survey conducted by Cambodia Institute of Development Study (CIDS) of over 500 provincial SMEs, 60% of the enterprises have never sought external financing. For those that have borrowed, 38% of them were from micro-financial institutions (MFIs) or banks. The average loan size was around US$150 for a period of 10-12 months. Predominately for local markets, the slowdown in economic growth in 2009 could reduce demand and impact sales for the SMEs.

2.6 Indirect Impact on Household Economy

At the household level, workers from the vulnerable sectors (T&C, construction, tourism) faced similar situations. They come from rural, subsistent agriculture-based families with little assets (i.e. small land plot, few livestock). Their agricultural production is primarily for household consumption. The migrant workers represent the household's link to the commercial economy, the channel for bringing in cash income.

After June-July 2008, the incomes of the workers in the vulnerable sectors declined, resulting in less remittance received back home, and decreasing household income. Female garment workers informed that in the past they were able to send home US$30-40 every month. However, since the mid-2008 global crisis, with the cut back in overtime hours and higher prices, they have only enough money to cover their living expenses in Phnom Penh and no extra money to send home. Construction workers expressed the same sentiments; in the past, they were able to send home US$25-37.50 each month.

3. The Relative Effectiveness of Policy Choices

According to the Law on the Organisation and Conduct of NBC issued on 26 January 1996, "The principal mission of the central bank is to determine and direct monetary policy aimed at maintaining price stability in order to facilitate economic development within the framework of the country's economic and financial policy" (Article 3). Price stability implies smooth fluctuations in the exchange and inflation rates, which is one of the core policies for stabilising macroeconomic conditions. This clearly suggests that the ultimate goal of monetary policy is to stabilise the exchange rate, as well as lower the inflation rate. In fact, there exists a positive correlation between the exchange rate and the inflation rate in Cambodia. Experience shows very clearly that when the government has been able to control inflation, exchange rate fluctuations were minimised. To achieve the ultimate goal of price stability, NBC has first to ensure that exchange rate fluctuations are minimised, so that both the government and NBC can maintain a desirable level of inflation.

3.1 Policy Choices Available During the Crisis

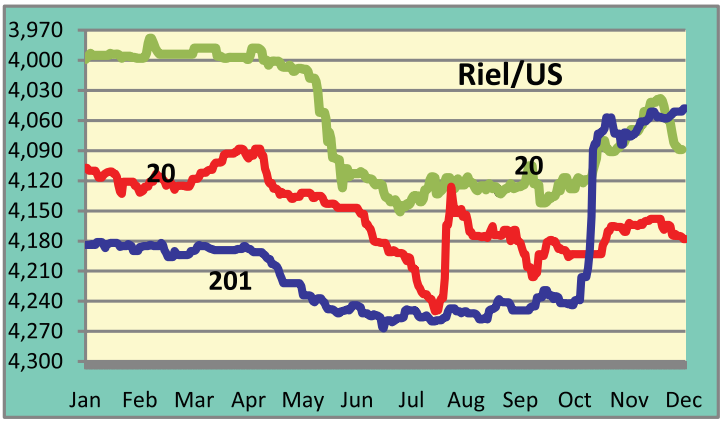
For over a year, the global environment has changed significantly. Last year, the challenge of the Royal Government of Cambodia and the NBC was to strike the right balance between containing inflation and promoting economic growth in light of inflationary pressure arising from the high and volatile

international commodity and oil prices. This time, the authorities face greater challenges arising from a volatile financial and economic environment, and thus requiring more sophisticated and unconventional policy responses.

3.1.1 Monetary Policy

Cambodia is a small and open economy, with capital account liberalisation. The Cambodian economy is highly dependent on a sustained international trade expansion and foreign capital inflows. More than 90% of the banking transactions are dollarised. It means that we cannot use interest rate policy to influence the economy. With free capital flow, foreign exchange intervention has been used to stabilise the exchange rate and to increase international reserve position. Policy response coordination, through the Committee for Economic and Financial Policies, is crucial in a dollarised economy, in which fiscal policy also plays a crucial role.

Figure 9
Exchange Rate Khmer Riel (KHR) against US$



Source: National Bank of Cambodia

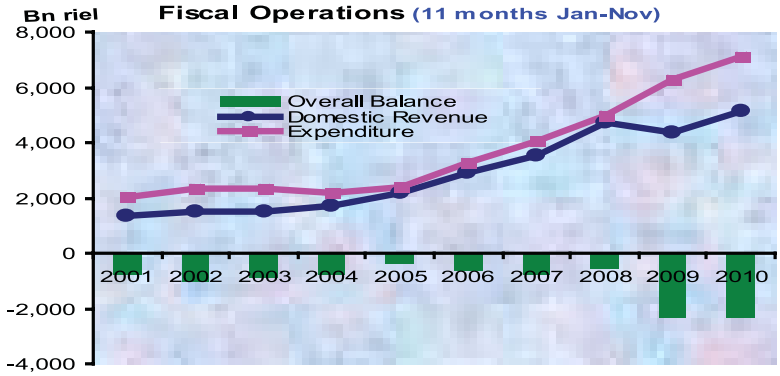
The Khmer riel (KHR) closed the year 2009 at 4,181 per US dollar. This was a depreciation of 1.8% on the end-period exchange rate for 2008, compared to a depreciation of 2.7% recorded in the previous year. The drop in the value of the KHR in 2009 was a result of a pressure from the global financial crisis as foreign investors pulled out the needed cash to meet their obligations abroad. The weakness in the current account of the BOP and the increase in the government's spending in local currency associated with the stimulus package may also have contributed to achieve the appropriate liquidity levels and dampen the inflationary pressure in the economy.

During 2010, the exchange rate of the riel remained relatively stable in a narrow range and was even strengthened to some extent for a few months towards the end of the year. Considering the bilateral average exchange rate of the Cambodian riel relative to the US dollar, which is the simple average of the daily exchange rate over the period under review, the local currency weakened on average by only 1% against the US dollar over the period. The annual average exchange rate for 2010 was recorded at KHR 4,198 per US dollar, compared to KHR 4,154 to US$1.00 for 2009, an annual change of about KHR 44 or 1%, a mark improvement against the change of about KHR 90 or 2.2% recorded for the same period of 2009.

3.1.2 Fiscal Policy

On the fiscal front, the Royal Government of Cambodia has acted counter-cyclically to boost domestic demand, with increased public expenditure towards improving social safety nets and providing retraining and alternative employment for the vulnerable population segments, including those unemployed displaced in the affected export sectors. It also established the Fund for Agricultural Development in order to increase agricultural productivity and diversify the growth base. Priorities have also been given to public investment in physical infrastructure and supporting growth in the agricultural sector.

Figure 10
Fiscal Indicator



Source: Ministry of Economic and Finance

Domestic revenue grew by 17.7% from 4,358 billion riel during the 11 months January-November 2009 to 5,130 billion riel during January-November 2010 (10.8% of GDP). During the same period, total expenditure increased by 12.7% from 6,310 billion riel to 7,113 billion riel (15.0% of GDP) with the current expenditure rising to 4,128 billion riel (8.7% of GDP) and capital expenditure to 2,986 billion riel (6.3% of GDP) in the same period. The total amount of the overall budget balance for the first eleven months of 2010 remained at a deficit of 2,322 billion riel, close to a deficit of 2,325 billion riel during the same period of last year

In public investment expenditure, priority was placed on the development of irrigation system which supports the development of the agricultural sector in response to the high demand in agriculture product in the international market. Doing so will create more jobs in the agricultural sector as well as increase the incomes of farmers.

Figure 11
Cambodia: Fiscal Sector Indicators, 2001-2011

	2001	02	03	04	05	06	07	08	09	10
Total revenue	10.0	10.6	9.8	10.4	10.6	11.4	12.1	13.3	11.9	12.7
Tax revenue	7.2	7.6	6.8	7.7	7.7	8.0	10.2	11.2	10.1	10.8
Domestic tax	4.8	5.0	4.7	5.3	5.5	5.9	7.3	8.4	5.5	5.9
Tax on foreign trade	2.4	2.5	2.1	2.4	2.2	2.2	2.9	2.8	2.5	2.4
Non-tax revenue	2.7	3.0	2.8	2.5	2.2	2.1	1.8	1.9	1.7	2.0
Capital revenue	0.1	0.1	0.2	0.1	0.6	1.3	0.0	0.2	0.1	0.1
Total expenditure	16.4	18.0	16.2	14.2	13.2	14.1	14.7	15.7	20.5	18.7
Current expenditure	9.3	9.7	9.7	8.5	8.0	8.3	8.6	9.0	11.4	11.9
Capital expenditure	7.0	8.3	6.4	5.7	5.2	5.7	6.1	6.3	9.1	6.8
Primary balance (incl. grants)	1.1	1.1	1.0	1.9	2.0	1.4	3.4	3.7	2.2	0.5
Aggregate deficit	1.0	1.0	0.8	1.7	1.8	1.2	3.2	3.5	0.7	0.8
Aggregate Deficit (incl. grants)	-6.0	-7.2	-5.4	-3.8	-2.7	-3.3	-2.8	-2.7	-6.4	-6
Domestic financing	0.1	-1.0	0.5	-0.5	-1.5	-1.6	-2.2	-3.3	-0.1	1.3
External financing	5.7	7.4	4.9	4.3	4.4	4.8	5.2	5.8	6.6	4.7

Source: Ministry of Economic and Finance

3.1.3 Financial Sector Reform

To maintain financial stability, the NBC has also closely monitored the banking sector. It has further tightened and enhanced its banking supervision and paid particular attention to the banks' solvency and liquidity conditions. Safeguarding the stability of the banking system, which is still in the early stages of development compared to many other economies, remains a priority of the NBC. The central bank has been very active in recent years in taking steps to improve banking supervision. Recent efforts have included a focus on strengthening loan classification standards, improving bank licensing procedures and the formulation of bank resolution plans for troubled banks, should they be needed. The recent crisis has also prompted reforms in the legal framework, in particular to provide for a better framework for sound banking operations and an effective exit policy. An amendment of the existing banking law has been prepared and submitted to the Council of Ministers for review. To promote a money and interbank market, the NBC has securitised the fixed certificate of deposits held by banks and issued a regulation supporting repo operations. Going forward, the NBC will consider any regulatory and supervisory measures aimed at strengthening the risk management practices and policies of the banks, enabling the institutions to better anticipate, manage and ultimately withstand adverse economic conditions and market trends.

The global financial crisis did not have any direct impact on the Cambodian financial system during 2008 and early 2009. The principal reason is that the financial system is in the early stage of development and the degree of its involvement in global financial markets is still insignificant. The banks continue to engage in the traditional banking activities, relying on local deposits rather than external borrowing for their business. They also have no exposure to the securitised instruments that was the root cause of the crisis.

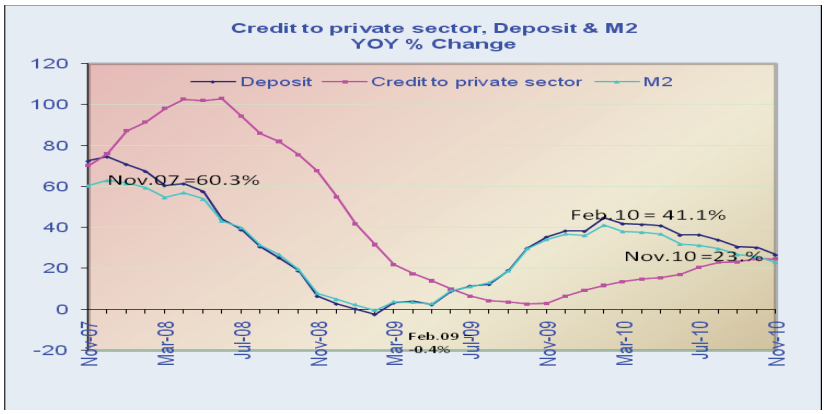
Based on capital adequacy, asset quality, earning performance, and liquidity, the overall financial condition and performance of the banking industry during 2008 was satisfactory. The banking system expanded further, despite the crisis. In 2008, bank assets grew 30% over the previous year. The industry's net worth increased 76%, reflecting enhanced minimum capital requirements imposed by NBC and an increase in the number of operating banks. The sector also continued to be adequately capitalised. Although in recent years the growth rate of loans was relatively high, the capital adequacy ratio increased to 27.8% from 23.4% the previous year, well above the prudential requirement of 15% by NBC.

The banking sector's liquidity position was satisfactory with the average liquidity ratio reaching 81% at the end of the year. All banks met the prudential minimum ratio of 50%. The ratio of non-performing loans to total loans increased to 3.7% in December 2008, up from 3.4% the previous year, a negligible rise. Nonetheless, the recent sluggishness in the real estate market may lead to deterioration in the quality of the assets of commercial banks and this could increase the risk of more non-performing loans in the future.

In 2010, liquidity (M2) increased by KHR 3,248.5 billion (20.0%) from the stock position of KHR 16,228.3 billion at the end of December 2009 to KHR 19,476.8 billion at the end of December 2010. The liquidity (M2) experienced an annualised increase of 36.8% at the end of December 2009 and only 4.8% at the end of December 2008. The increase in M2 in 2010 resulted from increase in residents' foreign currency deposits of KHR 3,098.3 billion (24.3%) coupled with an expansion of currency outside banks of KHR 97.0 billion (3.2%), Riel-denominated time and savings deposits of KHR 49.5 billion (13.8%), and Riel-denominated demand deposits of KHR 3.7 billion (3.1%). It should be noted that foreign currency deposits recorded an increase in almost every month over the whole year 2010, with a monthly average growth rate of 1.8%. The growth in foreign currency deposits included increases in the following components: savings deposits of 51%, term deposits of 35% and demand deposits of 14%. On the whole, monetary development in the year under consideration indicated further improvement in banking intermediation and expansion in banking services, as witnessed by the entry of new banks, continuous modernisation of payment services initiated by a number of big commercial banks and the encouragement by the Royal Government of Cambodia under the Public Management Reform Programme towards increasing the use of banking services.

During the year, the NBC also continued to actively support the expansion of microfinance services. This was done, among other ways, through facilitating micro-financial institutions' access to voluntary deposits from the general public, enhancing the provision of credit to MFIs by domestic commercial banks, providing necessary support for MFIs' capacity building and the inclusion of MFIs in the Credit Information Sharing System.

Figure 12
Credit and Deposit



Another project which should help banks in Cambodia play a more active role in the economy is the development of the National Payments System, which will serve as a channel of inter-sector, inter-industry and inter-company financial resource flows, thus promoting economic growth. With the support from private stakeholders and development partners, the NBC has made efforts to introduce the institutional arrangements, operational mechanisms and inter-related IT infrastructure.

3.1.4 Mixed Policy: Monetary plus Fiscal Policy

The government continues to implement flexible monetary policy to maintain low inflation rate and ensure financial stability, especially the strengthening the supervision of commercial banks. In addition, the government implements fiscal policy to promote economic growth by increasing its budget expenditure to balance the decline in private investment, to mitigate the impact and promote economic activities. The Royal Government has given priority to public investment in infrastructure and social welfare. It has intensified efforts to mobilise external funding from development partners who had committed more than US$1 billion for the year 2009 to help Cambodia cope with the current global economic crisis.

3.2 Relative Effectiveness of Policy Choices

In general, monetary policy seeks to respond to demand-side rather than supply-side inflationary pressures. In this context, in addition to the government's efforts to address supply-side issues, the monetary policy in 2008 was focused on mopping up excess liquidity from the economy, mainly emanating from the continuous foreign exchange inflows over the past years, so as to achieve the appropriate liquidity levels and dampen inflationary pressures in the economy.

In this regard, regulatory policies have been used to supplement the monetary measures. In response to rising inflation and the need to strengthen the banking sector, the NBC in recent years has introduced a package of the following monetary policy and financial stability measures:

- increasing the required reserve ratio (RRR) from 8% to 16% on 25 April, 2008 for foreign currency deposits (the ratio has recently been reduced to 12% on January 2009, amid the risks to economic growth from the global financial crisis;
- introducing a 15% ceiling on commercial bank credit to the real estate sector (the requirement has been recently phased out and replaced by structural measures); and
- enhancing the capital base of banks through an increase in the minimum capital requirements.

4. The Way Forward

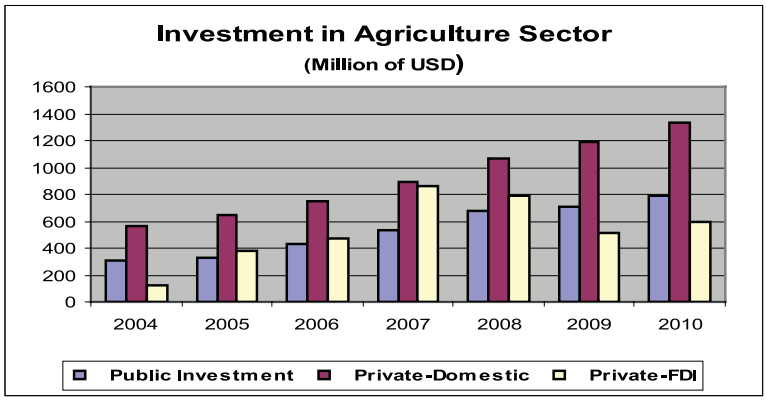
The economic estimation for year 2010 is based on the economic performance and the trend of the year 2009. According to the primary estimation of the National Institute of Statistics of Ministry of planning, it projected that if the economic growth rate at constant prices and inflation index is 2.6% and 2.3% respectively, this will offset the declining growth in other sectors such as the industrial sector which is -9.5% ,particularly the garment sector which dropped by -9.0%.

In the year 2010, the Economic and Public Finance Policy Department (EPFPD) of the Ministry of Economic and Finance estimated that the real economic growth rate would approximately be 5.5% at constant price and the deflation index would be 4.8%.

4.1 Economic Estimation in 2010

The initial estimation of the real growth rate in 2010 will be around 5.5% at constant price above the previous forecast of 3% made in the early 2009 and the deflation index will be 4.8%. The estimation referred to the reverse trend of the economic activity in the fourth quarter of 2009 after major decline in the second and third quarter. The main sectors that drive those changes are:

Figure 13
Investment in Agricultural Sector



The agricultural sector is estimated to grow by 4.0% at constant price in 2010. The crop increase will go up 4.4% in which rice production will rise to 4.8%, up from 7.5 million tons in 2009 to 7.9 million tons in 2010, as the cultivated rice fields are extended by 1.6% and the average yield increased by 2.3%. The land area under various crop cultivation is estimated to increase around 5.8% and the average production up by 0.5%.

The industrial sector is estimated to grow by about 10.5% at constant price in year 2010 after a contraction of 9.5% in 2009. The growth of this sector is due to the recovery of the garment sub-sector which severely declined last year, and supported by the increase of food supply as well as electricity and water supply.

The service sector is estimated to grow at the rate of 3.3% at constant price in 2010. The growth is supported by the rebound in the hospitality, trade and financial sub-sectors. The growth of the hotel and restaurant sector is estimated at 4.2% due to the increase in arrivals of foreign visitors by around

7% from 2.16 million to 2.31 million and also an increase of domestic visitors by about 2%.

4.2 Exit Strategy

Although the global recovery remains fragile, we expect to see growth in Asia excluding Japan, to be around 7% in 2010. This means that the emerging market economies should be able to exit from the crisis support measures sooner than the advanced economies. Asia's remarkable recovery seems to reflect to some extent a decoupling from the United States and Europe. The main factors which contributed to Asia's rebound include global trade normalisation, especially in the global IT recovery, monetary easing, currency flexibility, sound balance sheets of its private sector and large fiscal stimulus.

4.3 Fiscal and Monetary Policy

In this regard, timing the exit strategy is crucial. The fiscal and monetary stimulus should be maintained until the recovery is firmly in place. There is a consensus that the withdrawal of stimulus should await a more clear-cut and sustained recovery in private demand, as well as a return to more entrenched financial stability. Therefore, strong growth must be restored, while structural reform is needed to boost productivity and create new investment. Efforts to boost the "green" economy can also support this restructuring effort. The financial sector reforms should be continued to widen the parameter of regulation and further improve supervision. The key medium-term challenge in Asia, however, is allowing the domestic sources of growth to play a more dynamic role. International economic cooperation should be strengthened to facilitate stable and balanced growth.

4.4 Investment

In 2010, the estimated total investment capital is US$2,758 million or 24% of GDP, a 14% increase compared to the figure in 2009. Public investment increased by nearly 13% to US$802 million (6.9% of GDP) of which public investment from external sources (including grants and foreign burrowing) was US$616 million and domestic source was US$186 million.

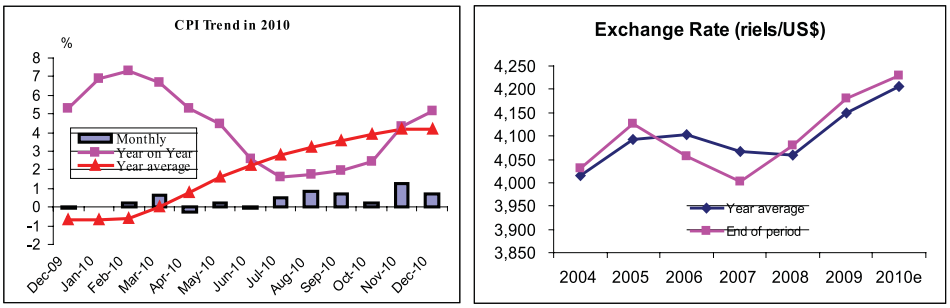
Private investment reached US$1,955 million (17.11% of GDP), an increase by 14.6% compared to the previous year. Foreign direct investment (FDI) had increased by 16.4% to US$599 million (about 5.2% of GDP) and domestic private investment increased by 13.8% to US$1,356 million (11.9% of GDP).

4.5 Inflation and Exchange Rate

In the year 2010, the inflation is estimated to be around 6.2%. This estimate is based on an increase in the demand for consumption with economic recovery and a rise of commodity prices in the international market, especially agriculture products. However, in the event of an upsurge of oil price and other commodities, the inflation will be 10%. In contrast, if the prices decline, the inflation will be 3%. The above estimated rate of inflation is reasonable and in line with the current Cambodian situation. It is expected that the increase in oil price in 2010 will not be too high due to low fuel demand in the period of economic recovery, but the price of agricultural product will be a bit higher supported by an increase globally in food demand. Approximately, the food price index is estimated to increase by 6.0% and the price index of other goods and services to increase ranging from 1% to 5% in 2010.

The official exchange rate of riel against US dollar, which on average was at 4,145 riel per US dollar, was stable compared to the previous period. It was notable that the currency outside bank rose by 30.8% in 2009, but without much acceleration in economic activity due to the impact of global financial crisis and the tightened monetary policy which influenced the riel currency. For instance, loans granted by the commercial banks rose only by 6.5% and loans by MFIs increased by 10.7%. At that time, the NBC mopped up riels from the market by selling US dollars in order to avoid a sharp riel depreciation.

Figure 14
CPI Trend and Exchange Rate (Riel/US$) in 2010



Source: National Bank of Cambodia

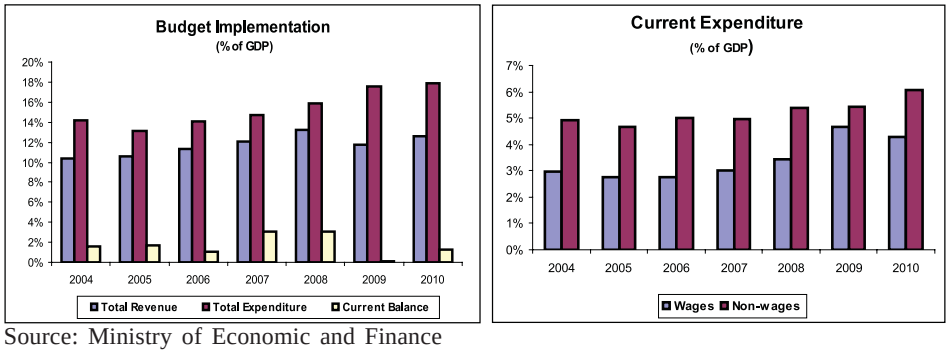
In the year 2010, the monetary situation reversed due to the high increase in deposits of the previous year resulting in increases in lending in the current year. In view of this, the riel appreciated because the increases in loans denominated in US dollars. This has stabilized the monetary sector and the exchange rate. The NBC was able to inject more riel currencies into the market by buying back US dollars. As in past years, exchange rate stability is a major consideration in managing inflation at low levels.

4.6 Budget Implementation

The budget targets are expected to be met for the year 2010. The total domestic revenue (included sub-national revenue) is to be mobilised to the amount of 5,990 billion riel or about 12.6% of GDP – an increase of approximately 18.1% (0.8% of GDP), compared to the previous year. The total revenue comprises 99% of current revenue of 5,942 billion riel (an increase or about 17.8%) and capital revenue of 48 billion riel (an increase by about 63.3%).

The total implemented expenditure of 8,499 billion riel (about 17.9% of GDP) recorded an increase of 14.4%, compared to the level of previous year of 2009. The estimated current expenditure was 5,175 billion riel (about 10.9% of GDP), and capital expenditure was 3,326 billion riel (about 7% of GPD). The budget surplus was 625 billion riel or around 1.3% of GDP, an increase compared to the previous year of 2009 with just 0.1% of GDP. The budget deficit of 5.3% of GDP in the year 2009, was lower than the 6.3% of GDP recorded in 2009. Nevertheless, in the year 2010, the economy will emerge with a rise in private expenditure. In this scenario, it is prudent to implement the public financial policy in order to deal with the incidental increase of inflation.

Figure 15
Budget Implementation (% of GDP) in 2010



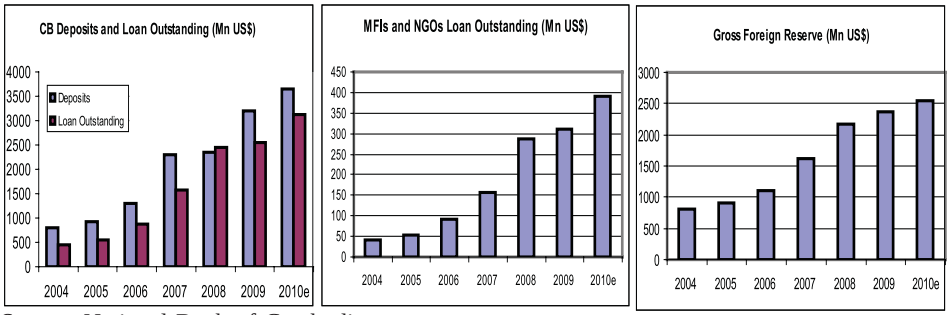
Source: Ministry of Economic and Finance

4.7 Currency Situation

2010-operated cash, estimated at 19,137 billion riel recorded an increase of 17.9% against the previous year of 2009 in which riel currency operation in market rose up by 26.1% and deposited currency went up by 16.1%. The money velocity decreased from 2.65 in 2009 to 2.49 in 2010. At the same time, the funds granted to private sector increased by 25%, compared to the previous year's amount from 10,532 billion riel to 13,170 billion riel. Overall, the reserved capital is estimated to be US$1,935 million, sufficient to sustain 3.5 months import of goods and services for domestic consumption.

An increase in deposits is a source of capital for the investment sector. Although the demand for domestic capital was high, there was some reluctance to lend by financial institutions which was concerned about the stability of micro-financial institutions. At the beginning of 2010, a number of commercial banks had excess deposits, while at the same time some micro-finance institutions lack adequate capital for funding their clients, which in turn kept the interest rate high over the past years. It would be better if the funds could flow from the commercial banks to the micro-finance institutions. However, if the deposits in banking sector are only for short term, then we should look for additional source of funds to be directed into the micro-finance sector, for instance, joint funding between the government, development partners, and commercial banks. In 2010, loans from the commercial banks increased by US$630 million, and loans from micro-finance institutions increased by US$110 million.

Figure 16
Deposits and Loans Outstanding and Gross Foreign Reserve in 2010



Source: National Bank of Cambodia

4.8 Foreign Trade

Cambodia's foreign trade declined during the period of the global financial crisis in 2008-2009. The decline in the export of industrial products and services was substantial and resulted in a high BOP deficit. Cambodia has potential in increasing foreign exchange earnings from agricultural exports such as rice, corn, cassava, rubber, and fish, as well as from manufactured and processed products, notably, footwear and tobacco; and from tourism. For imported products, it is possible for certain imports which are in the process of being locally manufactured to be reduced, for instance, food and beverage products, alcoholic products, cement, plastic products, and agricultural fertilizers. Speeding up exports and slowing imports will improve the current account in the external balance of payments.

The main external sector indicators of Cambodia are presented the figure below.

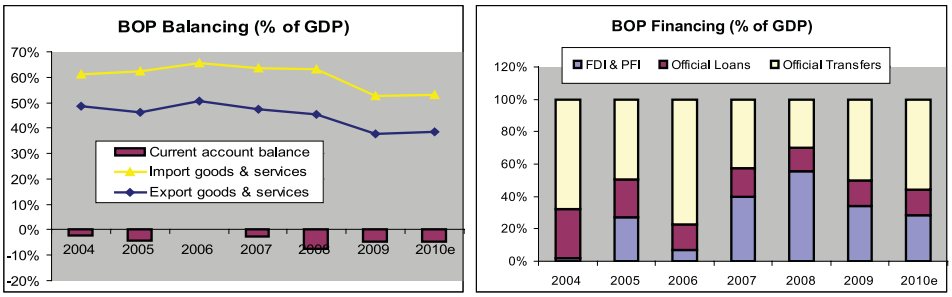
Figure 17
Cambodia: External Sector Indicators, 2001-2010

	2001	2002	2003	04	05	06	07	08	09	10
GDP Growth	8.1	6.6	8.5	10.3	13.5	10.8	10.2	6.7	0.1	5.5
Domestic exports (% change)	15	13	16	29	13	28	11	9	-11	12
Imports (% change)	8	11	10	28	20	21	15	23	-10	9
Imports (garments excluded, % change)	6	8	8	29	27	21	16	32	-9	8.2
Balance of current transactions (Excl. transfers), US$ Mns	-349	-359	-450	-440	-591	-526	-730	-1,705	-1,203	-1,238
Balance of current transactions (Incl. transfers), US$ Mns	-45	-47	-137	-122	-256	-77	-332	-1,205	-618	-438
Direct investments (US$, Mns)	142	139	74	121	375	483	866	785	511	553
Overall balance	45	60	33	31	65	193	426	511	-5	143
Gross reserves (US$, Mns)	548	663	737	809	915	1,097	1,616	2,104	2,367	2,653
(Months of imports)	2.79	3.05	3.08	2.67	2.55	2.54	3.29	3.51	3.9	4.7

Source: National Bank of Cambodia

In 2010, the estimated export revenue was about US$4,279 million (37.4% of GDP) an increase of 9.5%, compared to the revenue of the previous year, and the overall import was US$6,005 million (52.5% of GDP) an increase of about 10.2%. The current account deficit in the external payment balance will be about US$1,153 million (10.1% of GDP). This deficit will be financed through officially transferring the complementary funds of about US$587 million and financing capital account of about US$470 million. The total external balance is a deficit of US$95 million that will be financed by the national reserve capital.

Figure 18
Foreign Trade Projection 2010



Source: National Bank of Cambodia

5. Conclusion

Recently there are some signs that the world is recovering from the worst global recession since the 1930s after policymakers in the advanced economies made decisive efforts to cut interest rates to record lows and boost public spending to revive growth. However, the pace of recovery remains fragile.

The latest projections by the various international financial organisations suggest that most of the major economies, including those in the euro area, will contract this year and recovery is only likely to set in well into 2010. The government's most recent forecast for the Cambodian economy anticipated that the GDP growth would fall from 6.7 % in 2008 to 0.1% in 2009 and recover to grow at 5.5% in 2010.

In light of the spillover effects of the global crisis on the domestic economy, the government is determined to speed up the structural reforms, diversify the economy, and accelerate the pace of reform in the agricultural sector, which should help achieve more progress in poverty reduction.

First and foremost, the crisis taught that sound macroeconomic fundamentals and prudential measures are the necessary policy conditions for preserving price stability, and sustaining economic growth and achieving financial stability. A general consensus of the causes of the recent crisis is that low interest rates and excess liquidity in the past compromised the quality of loans held by financial institutions posing challenges to the stability of financial sector. However, weaknesses in the institutional framework of the global financial system, especially in respect of regulation, prudential oversight, and risk management to cope with rapid growth of the financial systems, coupled with the complexity and diversity of financial instruments and markets, had further contributed to cause damage to financial intermediaries.

All these factors present new challenges to the banking sector. While the local banks have been spared the full impact of the financial crisis, in the years ahead they will be operating in an environment that is likely to have changed as a result of advancement of economic and financial integration, diversification of banks to a more complex business structure, and the emergence of the capital market in Cambodia. Therefore, moving forward, our banks will face tougher regulation and need to strengthen their capacity to manage risk and growth.

The shape of financial regulation and supervision also needs to be changed accordingly. We have to learn from the crisis if we wish to move forward effectively and sustainably. NBC is committed in taking its responsibilities in all the important areas very seriously. We need, indeed, to enhance macro-prudential supervision and micro-supervision. The two processes are essential and are complementary components of an effective monitoring system for financial stability. Financial infrastructure, including the payment system, will have to be strengthened. Due to the current crisis, more emphasis will be given over the coming months on contingency planning and crisis management. Last but not least, the capital market, when established, needs to be closely monitored as a failure in one sector can easily affect the performance of another. The latter two issues require beyond doubt close collaboration between the NBC and the Ministry of Finance. Under the clear and wise guidance of the Royal Government of Cambodia, the two regulatory and supervisory authorities will collaborate in addressing the common challenges that we are currently facing and hence strengthen the country’s resilience to external shock.

The resumption of high growth requires more concerted action aimed at strengthening competitiveness and improving the business climate in order to diversify the production base. The efforts in preparing Cambodia for full compliance with WTO and in lowering the cost of doing business are ongoing.

However, the legislation in terms of the required laws, amendments and regulations is extensive. The implementation of post-clearance audits, simplified valuation and cargo processing procedures has reduced the time required for customs clearance. The reforms should be aimed at improving the basic infrastructure and enhancing labour skills, as well as expanding market access through trade commitments and reducing the cost of doing business, including the streamlining of investment approvals and customs procedures.

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Chapter 3

RELATIVE EFFECTIVENESS OF INDONESIAN POLICY CHOICES DURING FINANCIAL CRISIS

By
Tumpak Silalahi[1] and Tevy Chawwa[2]

1. Introduction

Prior to the global crisis, particularly during 2007, optimistic expectation about the Indonesian economy was a general mindset of the economic forecasters. This expectation was supported by various macroeconomic indicators which showed a remarkable achievement of the Indonesian economy in 2007 after the Asian crisis in 1997. The Indonesian GDP growth trend was increasing continuously since 2005 and, for the first time after crisis, the GDP growth reached more than 6 % in 2007. Basically, the growth in 2007 was driven by robust domestic consumption and external demand which led to a surplus in the current account. In addition, positive sentiment accompanied by attractive yield on rupiah portfolio investment helped encouraged capital inflows. Inflow of funds into emerging market assets contributed to a positive appreciation of the currency in the region. The surplus in the current account and the rise of portfolio capital inflows in 2007 had increased the Indonesian foreign currency reserves to 13% of GDP, a level sufficient to cover importation of goods and services for an average of seven months.

The Indonesian financial market and institutions were also in a stronger condition based on the financial indicators. The lessons learned from the 1997 crisis resulted in a fairly strict implementation of prudential regulations in the corporate and banking sectors. The Indonesian banking industry consequently emerged much sounder with a more robust foundation to absorb various shocks in the economy. Demand pressure in 2007 was relatively high indicated by a positive output gap, although it was still far below the output gap in 1996. Moreover, the government had tried to reduce its dependency on foreign debts,

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both short-term and long-term. All of these improvements resulted in the assessment of Indonesia as a low-risk country and it achieved the highest ICRG (International Country Risk Guides) scores since 1997.

In 2007, the fiscal policy was targeted at maintaining price stability for energy and staple needs, while also delivering an economic stimulus. Escalating world oil prices in combination with below-target lifting of domestic oil led to a considerable pressure in the government budget deficit. In the monetary policy, Bank Indonesia (BI)'s stance could be divided into two periods: the period of decline in the BI Rate (January-July 2007) and the period of flat movement in the policy rate (August-November 2007). BI also applied a flexible exchange rate policy, allowing the rupiah to move in line with the economic fundamentals. To manage the volatility in the rupiah, BI conducted foreign exchange market interventions on a limited scale. Although many improvements such as better monetary and fiscal coordination were introduced to strengthen the effectiveness of policy choices in Indonesia, the disturbances from external shocks, such as the rise in commodity/oil price, and internal shocks, such as crop failures or seasonal events, were important factors that influenced the Indonesian macroeconomic conditions.

The global financial crisis in 2008 had reversed the previous optimistic mindset of economic forecasters. The pressures in the global liquidity had caused a massive short-term portfolio capital outflow followed by a decline of Indonesia's financial market performances. In the real sectors, reflecting the input of the global slow-down, exports declined and it had an indirect impact on household and private sector's income, leading to a decline in Indonesia's consumption and investment. As a result, Indonesia's GDP growth in 2009 declined to 4.5% (y-o-y).

Some policy measures were implemented in the monetary, fiscal and financial sectors to deal with the global financial crisis. BI implemented an accommodative monetary policy in order to achieve at least moderate growth by maintaining financial markets liquid which was facilitated by a relatively low inflation. The policy rate was brought down in December 2008 with the intention of decreasing banks' lending rates. Some unconventional monetary policy measures such as narrowing the interest rate corridor for standing deposit and lending facility had also been taken to address liquidity issues. On the fiscal side, the government provided the policy response to keep domestic demand by several fiscal stimulus and trade policies. There were also coordination between the Ministry of Finance, Central Bank and other institutions in order to maintain financial and macroeconomic stability.

With this background, this paper aims to review the policy measures taken during the crisis, evaluating their effectiveness and analysing the exit strategy of reaching the ultimate objective of sustainable economic growth while maintaining macroeconomic stability in Indonesia. In turn, this is expected to make a contribution to a comprehensive evaluation of the effectiveness of the policy measures in the SEACEN economies. To handle the broad issues in the paper, two methodologies are adopted: firstly, by descriptive analysis using simple statistics and graphics; and secondly, by econometric modelling to analyse the relative effectiveness of the policy choices. However, it is difficult to analyse the effectiveness of the policy choices exclusively during the crisis with an econometric model, since we have only limited period of data. Therefore, we shall analyse the relative effectiveness of policies from 1990-2010 using the Error Correction Model.

2. Impact of Global Financial Crisis on Indonesia

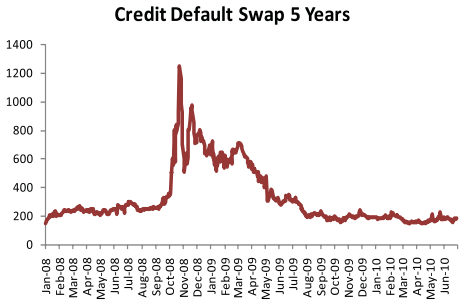
As a part of the emerging market economies, Indonesia was impacted by the global financial crisis which resulted in a sudden stop in capital inflows into the emerging market economies and a decline in global economic growth. The impact on the macroeconomic indicators can be grouped into the first- and second-round effects as follows:

2.1 First-round Effects of Global Financial Crisis

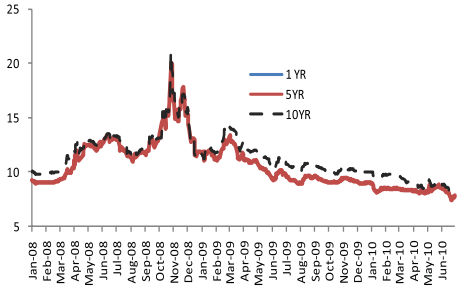
2.1.1 Impact on BOP and Exchange Rate Movements

During Q3:2008, the global economic developments exerted pressure on the Indonesia's balance of payments. The pessimistic outlook for the global economy in 2008 signaled by the international institutions reinforced pessimism among the market actors. Investors saw gloomier prospects and higher risk in fund placements in the emerging markets, including Indonesia. The high risk perception of the Indonesian market could be seen in the indicators such as Credit Default Swap (CDS) and Government Bond Yield that increased significantly (Graphs 1 and 2). Then, in order to avert risk, the investors moved their funds to the safe haven of US Treasuries.

Graph 1
CDS



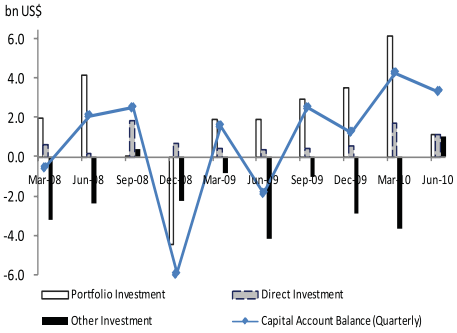
Graph 2
Government Bond Yield



A negative sentiment caused by the turbulence in the global financial markets prompted a wave of capital outflows as seen in Graph 3. At that time, foreign investors cut back their holding of Indonesian government securities by Rp 4.4 trillion, or approximately US$387 million. The foreign investors' behaviour in terminating their portfolio investment followed by domestic investors drawing their assets and these actions brought the portfolio investment in Q4:2008 to a recorded net outflow. Further, the domestic agents moved their accounts from domestic banks to overseas banks and some of them had failed to get new foreign financing as indicated by the other investment component that recorded a deficit. The increased deficit of other investment was also explained by higher drawing on corporate lines of credit spurred by heavy corporate foreign exchange demand to pay for imports in 2008. In contrast, direct investment still recorded a net surplus due to acquisition activities of domestic banks by foreign investors.

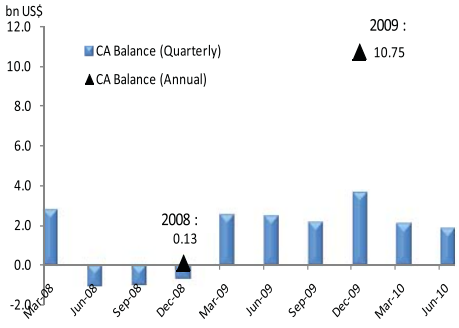
The global financial crisis also weakened the performance of the Indonesian current account in Q2 to Q4:2008 (Graph 4). This escalation in the current account deficit resulted primarily from falling exports as the global economy contracted and falling export commodity prices. Current transfers buoyed by worker remittances were also decreasing although they remained positive. In 2008, incoming transfers from worker remittances generated a surplus of US$5.2 billion, then decreased to US$4.8 billion in 2009.

Graph 3
Financial/Capital Account



Source: Bank Indonesia

Graph 4
Current Account

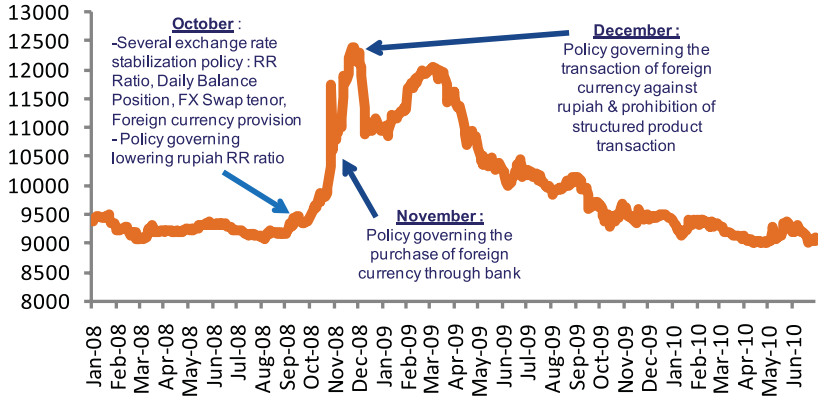


Source: Bank Indonesia

The downturn in the BOP in turn triggered a strong exchange rate depreciation accompanied by high volatility. Demand pressure for foreign currency which was derived from foreign portfolio capital outflow and the drop in foreign currency supply because of the collapse of exports led to heavy depreciation pressure on the exchange rate. Downward pressure was also sustained by the regional currencies that weakened from the spillover effects of the external turbulence. Additionally, the side effect of BI's policy in lowering the reserve requirement ratio might also have given effect to the excess rupiah liquidity in the market and led to further depreciation of the rupiah. These developments placed pressure on the rupiah, causing it to fall to its lowest level of Rp 12,400 per US$ in November 2008 (Graph 5).

Bank Indonesia responded by issuing a series of policies to ease the pressure and prevent excessive volatility in the rupiah such as exchange rate stabilisation, policy governing the purchase of foreign currency through banks, policy governing the transaction of foreign currency against rupiah, and prohibition of structured product transaction. These policies will be discussed in detail in the next section.

Graph 5
Exchange Rate Movement



Source: Bank Indonesia

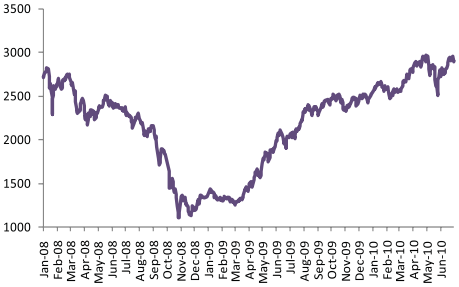
2.1.2 Impact on Stock Market

The investors' behaviour in withdrawing their funds from the emerging economies during global crisis led to a fall in the stock market index of the emerging markets, including Indonesia. Falling prices of mining and agricultural commodities in the world market also affected the stock market index adversely. The Indonesian Composite Index (IDX) continued to decline sharply and closed at 1.355 at the end of 2008, a drop of 50.64% compared to the Q2:2008 (Graph 6). With this worst performance, the Indonesian Stock Exchange was placed in fifth spot in the Asia-Pacific region, after Vietnam, Shanghai, Shenzhen and Mumbai.

The disappointing performance of the IDX led to a fall in both the volume and value of transactions in the stock market especially in Q4:2008 (Graph 7). A number of firms who already held principle permits to issue shares also decided to postpone their share issuances.

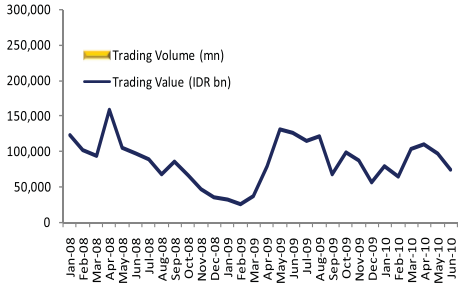
To avoid further fall in the stock market performances, the government decided to suspend the IDX trade on 9th and 10th October 2008, issued regulations regarding buyback, banned short-selling and limited margin trade. These policies were intended to provide time for investors to think rationally amidst the financial market turbulence caused by the crisis.

Graph 6
Jakarta Stock Index



Source: CEIC

Graph 7
Trading Volume & Value



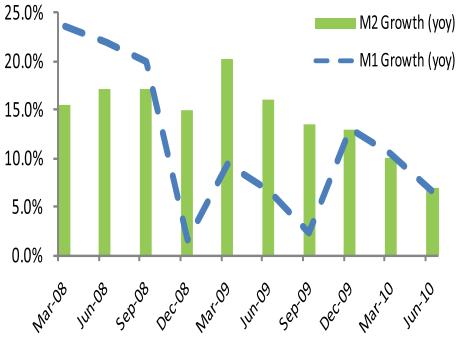
Source: CEIC

2.1.3 Impact on Market Liquidity

The global financial pressures also led to a liquidity shortage in the domestic money market, which was reflected in a slower pace of growth in narrow money (M1) and broad money (M2) (Graph 8). In Q4:2008, the average M1 and M2 recorded slower growth at 1.5% (y-o-y) and 14.9% (y-o-y), declining from 19.9% (y-o-y) and 17.2% (y-o-y), respectively, in the preceding quarter.

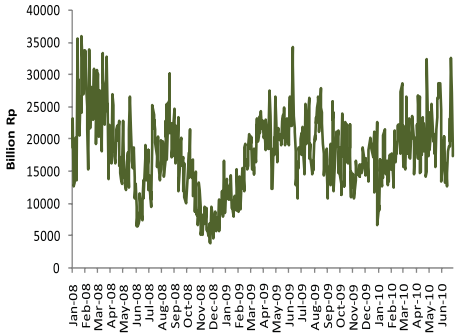
Strong perception of tight bank liquidity and spillover from global conditions were also reflected in the rising liquidity premium, which widened progressively for longer tenors. With the tightened conditions in the money market, some banks who customarily supply liquidity, reviewed their credit lines and credit limits to individual counterparties. This resulted in more uneven distribution of liquidity in the market tending towards greater segmentation, due to loss of confidence in transaction. The movement in the overnight interbank rate remained above the policy rate (BI Rate) during July-October 2008, alongside drastically reduced transaction volume and a growing spread between the highest and the lowest overnight rate (Graph 9). Following this, banks with long positions in the money market chose to shift their liquidity to BI short-term investment.

Graph 8
M1 nad M2 Growth



Source: IFS-IMF

Graph 9
Daily Interbank Market Volume



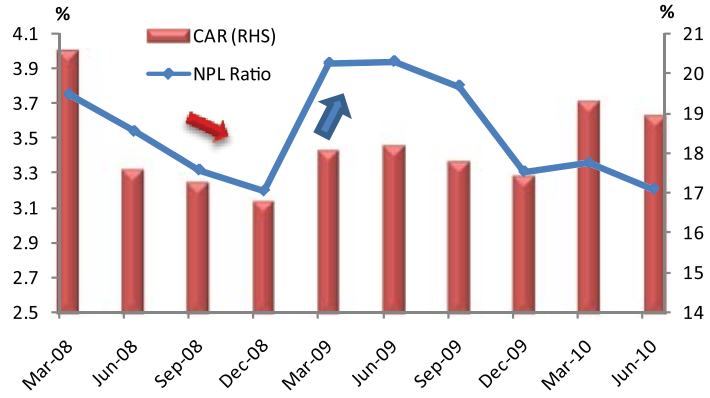
Source: Bank Indonesia

2.1.4 Impact on Financial Institutions

The impact of the financial crisis on the Indonesian financial institutions was not as severe as in other countries because the Indonesian banks' and national financial institutions' exposure to sub-prime mortgages was minimal. One of the contributory factors in this regard was the characteristic of Indonesian banks and financial institutions, which still leaned towards conventional instruments of investment. Another factor was the quality of surveillance in the banking sector and non-bank financial institutions as well as the capital market which has been improved. The lessons from the Asian crisis of 1997 had caused BI to strengthen the Indonesian banking structure under the Indonesian Banking Architecture as a part of the financial landscape. Besides, the banks were well disciplined in following prudent regulations which limited their exposure to the larger problems associated with derivative products.

However, the tight liquidity in the money market had made it difficult for banks to manage their funds. On October 2008, three state banks proposed liquidity support from the government in amount of Rp. 15 trillion in total (approximately US$1.36 billion). Medium and smaller banks also had more severe problems as depositors moved their funds to bigger banks because they worried about possible bank liquidations as experienced in 1997. Under the prevailing circumstances, banks competed to attract deposits by offering high deposit interest rates. In turn, lending rates were also increased. These conditions led to a deterioration of the banks' performance as indicated by Capital Adequacy Ratio and Non-performing Loans (Graph 10).

Graph 10
Commercial Bank Performances



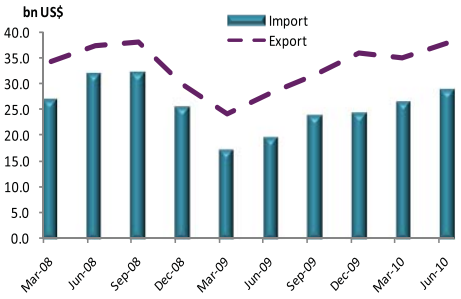
Source: CEIC

2.2 Second-round Effects of Global Financial Crisis

2.2.1 Impact on Exports

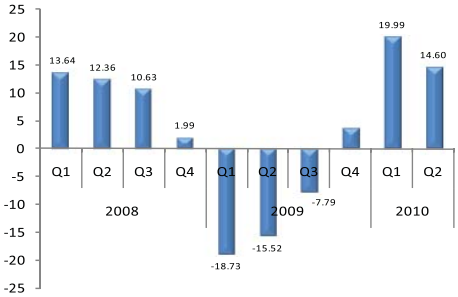
The weakening global demand and collapsing world commodity prices had lowered Indonesia's export earnings significantly, especially in Q1:2009 (Graph 11). The growth of exports dropped drastically to -18.73% y-o-y from 13.64% y-o-y in the same quarter of 2008 (Graph 12). Indonesia's exports were concentrated in a select group of countries and lacked diversification in export commodities. There was a higher degree of the vulnerability of Indonesia's export to external shocks.

Graph 11
Export and Import



Source: IFS-IMF

Graph 12
Export Growth (y-o-y)



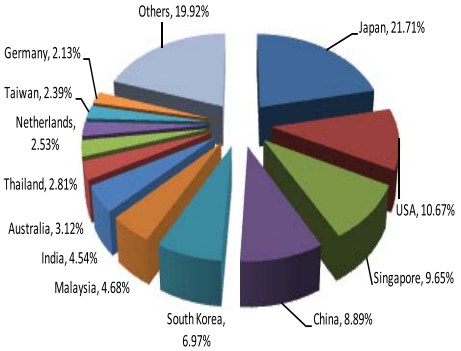
Source: IFS-IMF

Even though there was a shift in the main destination of Indonesia's exports to China since five years ago, Japan and the US markets still remain the major destinations of Indonesian exports. Prior to the crisis in 2007, based on destination country, Indonesian exports to Japan and United States was 21.71% and 10.67%, respectively, of its total exports (Graph 13). The next major destinations were Singapore (9.65%), China (8.89%) and South Korea (6.97%). The implication of this concentration is that any slowing down of economic growth in the major export destinations, as experienced during the global crisis, will have an adverse impact on Indonesian exports.

Unlike other developing economies in Asia in which exports are dominated by electronic appliances and office machinery, the structure of Indonesia's exports is dominated by oil and gas as well as low technology industrial product. Accordingly, the primary sector, notably oil, natural gas, mining and agricultural commodities, accounts for a substantial portion of Indonesia's exports. This dependency on the primary sectors made Indonesian exports more vulnerable to external shocks, especially fluctuations in international commodity prices.

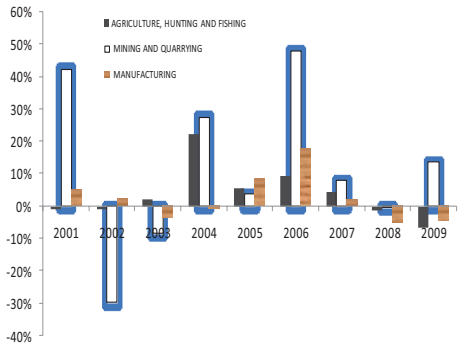
The growth in export volumes in all the main export sectors declined (Graph 14). The annual growth of the mining sector's exports decreased sharply from 47.83% in 2006 to 7.98% in 2007, and contracted -0.43% in 2008. The growth of the agricultural and manufacturing sectors continued to remain negative in 2009, but exports in the mining sector turned positive and recorded a growth of 13.79%.

Graph 13
Indonesian Export Destinations in 2007



Source: CEIC

Graph 14
Growth of Export Volumes by Sectors

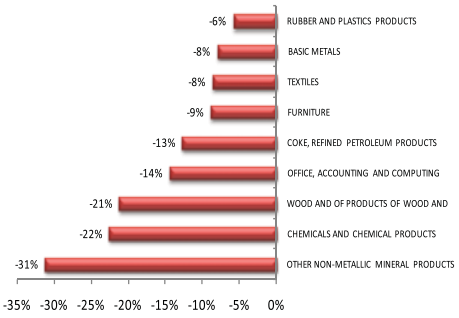


Source: Bank Indonesia

2.2.2 Impact on Industrial Sector, Unemployment and Poverty

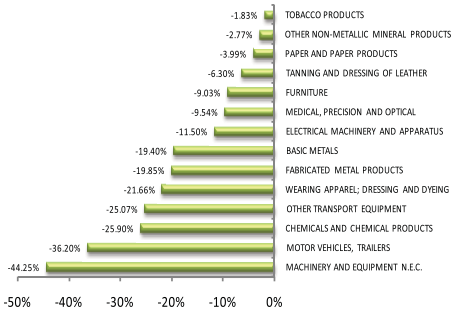
The tradable sectors were affected worst by the fall in exports during the crisis. During Q1:2008 to Q3:2009, the growth of the manufacturing sector declined from above 4 % to 1.5% (y-o-y) on average, in line with the deterioration in the export of manufactured products. The sub-sectors that were impacted deeply in 2008 were other non-metallic products, chemical products and products of wood exports which declined by 20-30% from the previous year. In 2009, the volume of exports in machinery and motor vehicles decreased by 44% and 36%, respectively, compared to export in 2008 (Graph 15 and 16).

Graph 15
Volume of Export Decrease in Manufacturing Sub-sector 2008



Source: Bank Indonesia

Graph 16
Volume of Export Decrease in Manufacturing Sub-sector 2009



Source: Bank Indonesia

The slowdown of tradable sectors' performance in turn led to a reduction in employment. Pressure from the global crisis compelled several companies to make changes in their operations and upgrade business efficiency. Consequently some factories were closed or began laying off workers, driving down purchasing power even further in 2008. According to the Ministry of Manpower and Transmigration, the total number of workers that had been temporarily laid off was of 10,306 until December 2008. BI's analysis using Indonesia Input-output Table shows that for each 1% decline in Indonesian exports, industrial employment is reduced by 0.42% (Table 1).

Table 1
Impact of Export Deterioration on Labour Absorption

Scenario	Labour Absorption (%)	
	All Sector	Industrial Sector
Export total decreased by 1%	-0.166	-0.416
Agricultural export decreased by 1 %	-0.009	-0.001
Mining export decreased by 1 %	-0.005	-0.002
Manufactured export decreased by 1 %	-0.091	-0.400

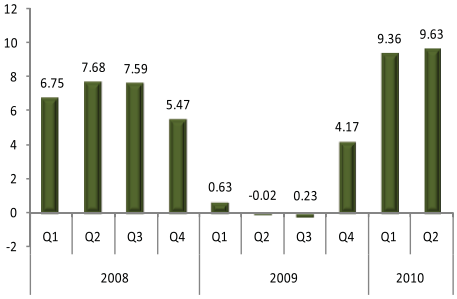
Source: Indonesia Economic Outlook, Jan 2008

The fallout in the export-dependent sectors from the global financial crisis seems to have put considerable pressure on prosperity levels. The impact of reductions in working hours and dismissals in some industries caused many households to lose their income. Additionally, farmers' income in the estate sector began to suffer in October 2008, following the collapse in commodity prices. The high inflationary pressure in 2008 also resulted in a reduction in the real wage levels for workers. Fortunately, the relatively buoyant economic growth until Q3:2008 helped bring improvement in the various indicators of welfare, such as poverty and unemployment. The government programme designed to combat unemployment, such as the National Community Empowerment Programme (PNPM) for block grants, disbursement of Grassroots Business Credit (KUR), the Unemployment Reduction Movement and distribution of Direct Cash Transfers, also seems to have some positive influence in the improvement of the welfare indicators.

2.2.3 Impact on Services Sector

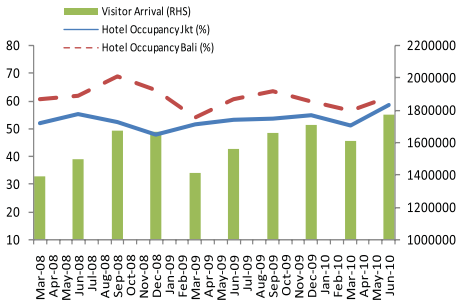
Trade, hotel and restaurant were also impacted by the global crisis as indicated by the decline on this sector's growth from Q4:2008 to Q3:2009 (Graph 17). The global loss of purchasing power led to falling volume of international tourism to various countries around the world, including Indonesia, and resulted in lower hotel occupancy rates in the beginning of 2009, especially in Bali (Graph 18). However, due to the better economic condition, service sectors, including tourism, picked up to increase from Q4:2009.

Graph 17
Growth of Trade Hotel and Restaurant Sectors



Source: Bank Indonesia

Graph 18
Tourism Indicator

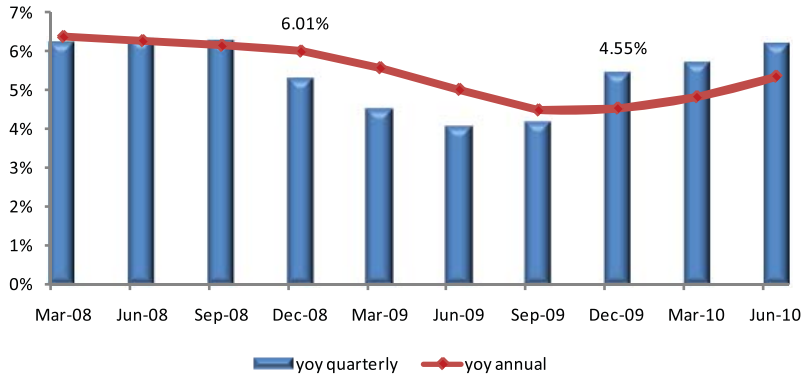


Source: CEIC

2.2.4 GDP Growth

The decline in exports, deterioration in production, and lower income simultaneously influenced Indonesia's economic performance and curtailed its economic growth from 6.3% in 2007 to 6.0% in 2008 and 4.55% in 2009 (Graph 19). Compared to other countries in the world, Indonesian GDP performance during the crisis were relatively remarkable. The GDP growth in 2009 was the third highest in the world after China and India. This achievement was supported by the performance of some sectors not related to external developments such as electricity, gas and water utilities, construction, transport and communications, and the service sector. Growth in the electricity, gas and water utilities sector reached 13.78% and growth in the transport and communications sector reached 15.53% (Table 2). On the demand side, the economic expansion in 2009 was driven by strong domestic demand, especially household and government consumption that grew by 6.21% (Table 3).

Graph 19
Impact on GDP Growth



Source: Bank Indonesia

Table 2
GDP Growth by Sector (% y-o-y)

	2008					2009					2010	
	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total	Q1	Q2
Agriculture	6.44	4.81	3.25	5.12	4.83	5.91	2.95	3.29	4.61	4.13	3.00	3.08
Mining and Quarrying	(1.62)	-0.37	2.32	2.43	0.68	2.61	3.37	6.20	5.22	4.37	3.08	3.77
Manufacturing	4.28	4.23	4.31	1.85	3.66	1.50	1.53	1.28	4.16	2.11	3.70	4.29
Electricity, Gas and Water Supply	12.34	11.77	10.41	9.34	10.92	11.25	15.29	14.47	13.99	13.78	8.18	4.76
Construction	8.20	8.31	7.76	5.88	7.51	6.25	6.09	7.73	8.03	7.05	7.05	7.18
Trade, hotels and Restaurant	6.75	7.68	7.59	5.47	6.87	0.63	-0.02	-0.23	4.17	1.14	9.36	9.63
Transportation and Communication	18.12	16.57	15.64	16.12	16.57	16.78	17.03	16.45	12.22	15.53	11.92	12.91
Financial, rental and Business Services	8.34	8.66	8.60	7.42	8.24	6.26	5.33	4.90	3.77	5.05	5.34	6.10
Services	5.52	6.51	6.95	5.93	6.23	6.70	7.19	6.04	5.69	6.40	4.62	5.25
GDP	6.21	6.30	6.25	5.27	6.01	4.53	4.08	4.16	5.43	4.55	5.69	6.17

Table 3
GDP Growth by Demand Side

	2008					2009					2010	
	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total	Q1	Q2
Consumption	5.47	5.49	6.34	6.42	5.94	7.28	6.27	5.44	5.91	6.21	2.52	3.12
Gross Fixed Capital Formation	13.88	12.16	12.30	9.40	11.86	3.46	2.37	3.24	4.18	3.32	12.45	10.13
Export	13.64	12.36	10.63	1.99	9.53	-18.73	-15.52	-7.79	3.67	-9.70	19.99	14.60
Import	17.99	16.11	11.10	-3.73	10.00	-24.42	-21.04	-14.67	1.62	-14.97	22.60	17.74
GDP	6.21	6.30	6.25	5.27	6.01	4.53	4.08	4.16	5.43	4.55	5.69	6.17

Source: Bank Indonesia

3. The Relative Effectiveness of Policy Choices

The relative effectiveness of policy actions in times of economic crisis is determined by the size of the contribution of the policy instruments implemented to limit the severity of the downturn in order to achieve a more positive outcome. Both monetary policy and fiscal policy actions were taken in response to the 2008-2009 global economic and financial crisis. While some economists believed that monetary policy should be the first line of defense during turbulence, others argued that fiscal policy has a more important role particularly when conventional monetary policy measures are not sufficient in addressing losses in output due to vulnerabilities in a weakening economy. Research has been conducted to identify the contribution to recovery. For example, Elmendorf and Furman (2010) argued that in the global financial crisis, although monetary policy contributed to the recovery in some countries, fiscal policy was likely to have had a greater role since it has more direct impact on the aggregate demand. A challenge is discerning the relative significance of each policy supporting the recovery and preventing the crisis.

In the framework of Inflation Targeting, monetary policy is affected through a transmission mechanism that consists of direct monetary policy channel, interest rate channel, asset price channel, credit channel, and expectation channel. In addition to conventional monetary policy measures, the role of communication strategy of the central bank has been discussed and much researched in order to identify how agents respond to the policy.

In the early 2008, the Indonesian economy was predicted to be declining due to the global economic slowdown. The main driver of the downside risk to growth: firstly, shock in the global financial markets owing to the US sub-prime mortgage crisis; and, secondly, the pressure from world oil prices that led to a global economic slowdown. The government of Indonesia responded with both reactive and proactive measures. The joint efforts by policy makers during the global financial crisis consist of monetary policy, fiscal policy and financial sector policy. The policies were implemented in response to the global threat and warning that is no country can be isolated from the global financial crisis. The monetary policy implemented by BI has been changed from time to time. The exchange rate regime was changed from the managed float to an independent float regime in 1997 in response to the Asian financial crisis. Moreover, since 1999, as part of the effort to achieve independence, the board of the BI is no longer elected by the government but by parliament, as legislated in the Central Bank Act. As a consequence of that new act, BI's independence is guaranteed for it to conduct monetary policy decision making. Furthermore, since 2005, BI has implemented

an inflation targeting monetary policy framework. Under inflation targeting, the central bank has a single objective to achieve, i.e., maintain the stability of the rupiah, which is defined among others, as maintaining the stability of the prices of goods and services as reflected in inflation, measured by the Consumer Price Index (CPI). However, during the financial crisis, aiming at the achievement of a single objective was inadequate, hence policy makers sought alternative policies known as unconventional monetary policy to handle the financial crisis.

3.1 Policy Choices Available During the Crisis

The Ministry of Finance and the BI were active in monitoring the financial crisis and policy measures, both monetary and fiscal measures, have been implemented to maintain economic stability.

3.1.1 Monetary Policies

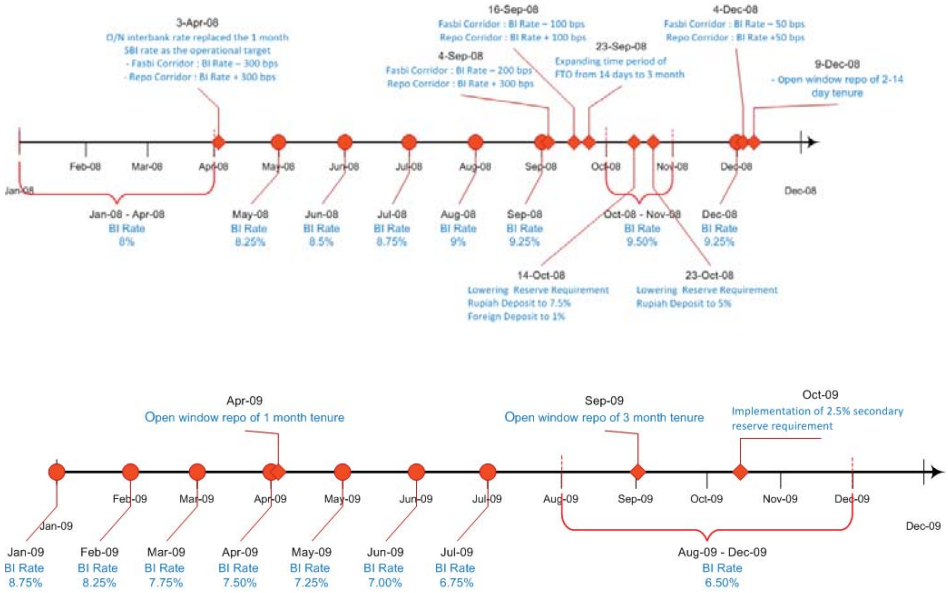
The BI initiated a series of policy measures in response to the global financial instability. Generally, the monetary policy measures were decided by taking into consideration, economic circumstances and macroeconomic characteristics. For example, Ishi, Stone and Yehoue (2009) observed clear differences between the response of central banks in the emerging economies and advanced economies in terms of the timing and types of policy measures during the global financial crisis.

With the implementation of the inflation targeting framework in 2005, the BI introduced the BI Rate as its monetary policy rate and it represents BI's monetary policy stance. Under this regime, BI also simultaneously shifted the focus of monetary operation toward short-term interest rate, replacing the former operating target of monetary base. At the early stage of implementation of the BI Rate, the BI rate was intended only to be reflected in the discount rate of BI's one-month paper (known as 1-month SBI). Since late January 2008, some gradual steps have been taken to focus more on managing the short-term market interest rates around the BI Rate level. With effect from June 9, 2008, the BI has officially changed the operating target from 1-month SBI rate to overnight (O/N) interbank money market rate (PUAB O/N).

As shown in the figure below, during the period from January 2008 to November 2008, BI increased the policy rate from 8% to 9.50% in order to constrain pressure from the rising CPI. Although the pressure from the financial stability point of view was higher as indicated by the high overnight interest rate, banking interest rates and yield rate of government bonds were increasing due

to the shortage of global liquidity at the time. BI decided to increase the policy rate in view its concern on inflation. Normally monetary policy does not respond to these developments. In line with the slowing down of economic growth, inflation also declined during 2008-2009. Accordingly, the policy rate was adjusted downward since December 2008.

Figure 1
Monetary Policy in 2008 and 2009



Further, as a response to the global financial crisis, BI took some measures to address the liquidity issues in the financial sector (Table 4). Following the declared bankruptcy of Lehman Brothers in September 2008, the interbank market rose sharply from 6.98% to 9.37% Q1 to Q3:2008. Besides that, the volume of interbank rupiah transaction declined by 41% during the period due to falling market confidence among the banking institutions. The main objective of the unconventional policy, as shown in the Table 4, was to bring the interbank interest rate to a convergence with the policy rate. In order to reduce excessive volatility in the interbank money market, the interest rate corridor was narrowed on 4 September 2008 and on 16 September 2008.

Table 4
Policies Taken on First 3 Quarters of 2008

Conventional Monetary Policy	
Policies	**Objectives**
• Increasing the policy rate gradually to 9.25 % on September 2008.	• To contain inflationary pressure such as second-round effect of the fuel price hike and food prices on other goods.
Unconventional Monetary Policy	
Policies	**Objectives**
• Narrowing the interest rate corridor for Standing Deposit Facility (Fasbi) to BI Rate - 200 bps (from BI Rate - 300 bps and maintain Lending Facility (Repo) at BI Rate + 300 bps (4 September 2008).	• To reduce excessive volatility in the interbank money market.
• Narrowing the interest rate corridor for Standing Deposit Facility (Fasbi) to BI Rate - 100 bps and Lending Facility (Repo) to BI Rate + 100 bps (16 September 2008).	• To reduce excessive pressure in the interbank money market and maintain sufficient liquidity in banking industry.
• Expanding time period of Fine Tuning Operation from 14 days to 3 month (23 September 2008).	• To provide a wider flexibility for liquidity management in interbank money market.

Like other emerging central banks, BI also responded to the liquidity problem in the financial sector by reducing the reserve requirement, followed by providing liquidity facility in order to facilitate the flow of funds into the financial market.

Table 5
Policies Taken on Last Quarter of 2008 and First Half of 2009

Conventional Monetary Policy	
Policies	**Objectives**
Policy Rate (BI Rate) increased to 9.5% (October and November 2008),decreased to 9.25% (December 2008) and then decreased gradually to 6.75% in July 2009.	To sustain business momentum amid the global economic slowdown while safeguarding macroeconomic stability.
• Lowering Reserve Requirement for rupiah currency from 9.1% to 7.5% consist of 5% primary reserve (cash reserve) and 2.5% secondary reserve (23 October 2008)	• To provide more rupiah liquidity in to the banking system.
• Lowering Reserve Requirement for foreign currency from 3% to 1%. (23 October 2008).	• To increase USD liquidity availability to be used by banks in their transactions with customers.
Unconventional Monetary Policy	
Policies	**Objectives**
• Amendment of regulation regarding the Liquidity Facility for Commercial Banks (18 November 2008).	• To smoothen the operation of the payment system supported by high-value, liquid collateral. • To provide wider access to banks by offering funding with a longer time horizon than the inter-day funding facility. • To allow banks struggling with insufficient liquidity to remain solvent and avoid systemic impacts.
• Open Standing Facility (repo) of 2-14 day tenure (9 December 2008).	• To facilitate the longer-term bank liquidity requirement.
• Regulation regarding a Liquidity Facility for Rural Banks (BPR) (10 December 2008).	• To provide an equal opportunity for rural banks to make use of this funding facility if a short-term liquidity shortfall is experienced.
• Narrowing the interest rate corridor for Standing Deposit Facility (Fasbi) to BI Rate - 50 bps and Lending Facility (Repo) to BI Rate + 50 bps (4 December 2008).	• To resolve the issue of segmentation in the interbank money market.
• Open 1-month window repo (FTE) (17 April 2009).	• To facilitate the longer-term bank liquidity requirement.

With regards to the condition in the capital market, there is some argument proffered that the central bank should react before the asset price bubbles and should proactively intervene to avoid the possibility of asset price bust. Based on this view, there was coordination between the central bank and the government taken to address the confidence issues and also to respond to the asset price bust. The following policies had been taken to address the confidence issues and asset price bust.

Table 6
Policies Taken to Address Confidence Issues and Asset Price Bust

Joint Policies	Objective
• Executing government bond buyback and preparing a state-owned enterprise equity buyback programme.	• To reduce the high risk perception in Indonesian financial portfolio which can distort the monetary policy transmission mechanism, The Minister of Finance has bought back IDR41 billion (US$3.89 million) worth of government bonds using the government fund in the central bank account.
• Allowing alternative security evaluation technique such as discounted cash flows besides marked- to-market value (Joint press release - Bank Indonesia, Bapepam-LK and Accounting Association). • Allowing commercial banks to switch bond portfolio from trading and available- for-sale categories to hold to maturity category.	• To provide market confidence in government bond particularly when no market prices are available. • To minimise the impact of Indonesian financial turbulence by providing an opportunity to commercial banks to arrange portfolio categories.
• Maintaining a sufficient level of foreign reserves.	• To support the rupiah and focused more in preventing overly volatile movement of the rupiah.
• Putting some restrictions on short-selling on the capital market. Limiting purchases of foreign currency without underlying transaction to US$100.000 to curb speculation.	• To reduce high risk perception.
• Banning trading on banks' structured product/derivative products that provide chances for bank customers to purchase foreign currencies, including dual currency deposits that are callable forward.	• To reduce speculation and exchange rate volatility expectation.

To address and avoid more rupiah depreciation, BI also introduced the following foreign exchange policy measures.

Table 7
Foreign Exchange Policy

Policies	Objectives
• Abolishing the limit of daily balance position of short-term foreign loan (13 October 2008).	• To decrease pressures in USD purchase due to transfer of rupiah account to foreign currency account by foreign customers.
• Foreign Exchange Provision for Domestic Corporation through Banks (15 October 2008).	• To enhance assurance in fulfilling foreign currency demand by domestic companies.
• The extension of FX Swap tenor from a maximum of 7 days to a maximum of 1 month (15 October 2008).	• To fulfill the temporary demand for USD currency and to provide sufficient adjustment time for banks/market players before actually adjusting their portfolio composition.
• Regulation governing the purchase of Foreign Exchange by Banks (13 November 2008).	• To support the balance of supply and demand condition of foreign exchange in the domestic market. • To moderate excessive pressure on rupiah exchange rate. • To mitigate foreign currency purchase for speculative purposes. • To support banks' prudential actions through Know Your Customer Principle (KYC).
• Amendment to BI Regulation concerning Derivative Transaction (prohibition of structured product transaction) (16 December 2008).	• To minimise speculative foreign currency transactions.
• Coordination with other Central Banks, such as : - Signing of a Bilateral Currency Swap Arrangement (BCSA) between BI and People's Bank of China (23rd March 2009). - Signing of the agreement on an increase in the maximum amount of the Bilateral Swap Arrangements between Japan and Indonesia under the Chiang Mai Initiative (6 April 2009).	• To improve trade and direct investment between both countries. • To assist in providing short-term liquidity for financial market stabilisation and help Indonesia address tight international liquidity.

3.1.2 Fiscal Policies

Like other countries, Indonesia launched fiscal policy measures as a countercyclical measure to fight the slowdown. These measures had a direct effect on aggregate demand. However, according to conventional wisdom, in order to safeguard fiscal sustainability, the government should control the amount of fiscal deficit.

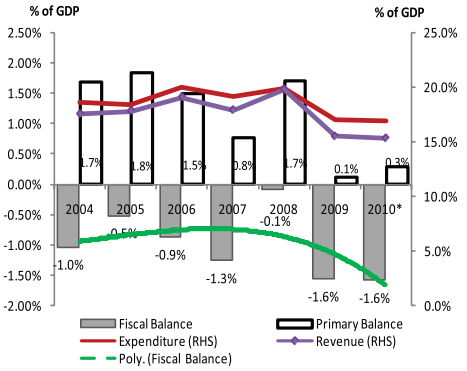
In order to reduce the impact of the current crisis, the Indonesian government took ten steps for the purpose of economic stabilisation and securing the state budget. Additionally, the government launched a fiscal stimulus package amounting to 73.3 trillion rupiah or US$7.56 billion (2.6% of GDP) with following aims:

a. Maintaining household purchasing power to keep consumption growth above 4%;
b. Improving real sector resilience and competitiveness to prevent more worker layoffs;

c. The government issued some trade policies;
d. Creating job opportunities for unemployed/laid-off workers by launching labour-intensive infrastructure projects; and
e. Providing for social protection and poverty alleviation in the budget for 2009.

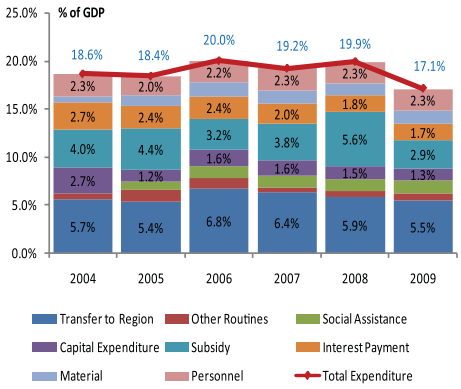
Although in the period of crisis the realisation of the fiscal balance at the end of 2008 was a significant improvement with a marginal deficit, because of the high government revenue in 2009, the higher fiscal expenditure due to the fiscal stimulus and the lower government revenue due to economic slowdown has made a higher fiscal deficit of 1.6% of GDP (Graph 20). Based on its component, the main expenditure of government budget in 2008 and 2009 was for transfers to region and for subsidies (Graph 21).

Graph 20
Government Finance Operation



Source: Ministry of Finance

Graph 21
Total Expenditure Component



Source: Ministry of Finance

3.1.3 Financial Sector Reforms

Regulations are defined as the binding rules governing the conduct of legal entities and individuals. By that definition, the role of the regulator in a financial system has two objectives. Firstly is to separate good banks from bad banks and, secondly, to protect the small depositors in the financial institutions. The role of the government in the financial system is to regulate and supervise the financial system with the objective of maintaining financial stability. Furthermore, it is essential to supervise the financial industry because it serves a vital intermediary function in relation to economic growth.

The financial system in Indonesia is dominated by the banking sector in terms of total assets compared to other non-bank financial institutions. Therefore, the short- to medium- term and the medium- to long-term programme of the banking industry have been identified by the banking supervision authority. As such, the short-term to medium-term programmes consist of:

a. Provision of business data and information to facilitate the bank intermediary function for the real sector.
b. Facilitation of mergers in support of the bank consolidation programme, focusing on compliance with the minimum capital requirement.
c. Amendment to the regulatory content and clarification of interpretation of some previously issued regulations. This policy emphasises the risk management capability of the banking system in extending and evaluating credit rather than the fulfillment of requirements.
d. Regulation of bank employment of expatriates in order to build local competence and ensure greater opportunity for Indonesian employees. Employment of expatriates in the middle-management positions is restricted to two levels below the board of directors, unless it can be proved that a position cannot be filled by local staff. In such a case, the expatriate contract is restricted to a maximum of 3 years.
e. Increasing the amount of deposits in the banking system guaranteed by the government from 100 million to two billion rupiah (approximately from US$9,000 to US$182,000).
f. Issuing a government regulation in lieu of law on Financial System Safety Net which includes crisis protocols to be implemented by the Financial System Stability Committee, particularly to handle bailed-out banks (even though it was rejected by parliament in January 2009).
g. Regulation by the Minister of Trade in order to support the rupiah (and the balance of payments). Mandating export payments for certain products to use letters of credit (L/Cs) in domestic banks. Products with L/C requirements included coffee, crude palm, oil, cocoa, rubber, mining product and tin.

During the global crisis, there were two major events in the Indonesian banking sector, i.e., the take-over of one of the domestic banks, namely, Bank Century, by the government and the closure of Bank Indover. The bailout of Bank Century did not have systemic impact while the takeover of Deposit Insurance did not generate a significant shock within the banking industry. The only difference between the Asian crises in 1997 and the global recession in 2008 was that bank-run did not become a main issue since the government has increased the deposit guarantee following other countries that already have implemented such measures. The objective of the Indonesian deposit insurance

to increase the amount of deposits in the banking system guaranteed by the government from 100 million to two billion upiah (approximately from US$9,000 to US$182,000) was not necessarily driven by concerns about domestic bank-runs, but it is more to prevent capital outflow from the domestic banking institutions.

3.2 Analysis of Policy Responses

Under normal circumstances, particularly when financial markets are functioning properly, a policy implemented by the central bank would be transmitted through the direct and indirect channels. However, when there is a high degree of uncertainty particularly owing to pressure from external circumstances, conventional monetary policy alone is not sufficient. Together with the central bank instruments, the joint effort and coordination between BI and the Ministry of Finance would be more efficient and effective. To analyse the effectiveness of the policy measures, the background and objective of such policy measures will be explored in the next session.

3.2.1 Monetary Policy: Comparison between 1997/1998 Crisis and 2007/2008 Crisis

During the last ten years, Indonesia and most of the other Asian economies had experienced two financial crises. The first crisis, the Asian financial crisis, occurred in 1997 and the second crisis, the global financial crisis, occurred ten years later in 2008. There are similarities between these two crises. Therefore, computation of the duration, amplitude, slope and cumulative losses of each of the two crises will reveal the big picture of those events.[3] A period of financial turbulence can be indicated by several economic indicators such as the period of economic recession, developments in domestic credit and stock prices index.

Compared to 1997/1998 crisis, the impact of the current crisis on the real sector was relatively smaller. In the 1997/1998 crisis, the GDP growth declined continuously for 8 quarters and the amplitude of the decrease was 28.53%. In fact, the GDP growth was negative in 5 quarters. In the financial crisis of 2008/2009, GDP growth declined for 3 quarters and the amplitude was only 2.16%.

As indicated by the cumulative losses, the impact of the recent financial crisis on domestic credit was smaller than that of the 1997/1998 crisis. The

3. Further explanation on the similarities and differences of 1997 crisis and 2008 crisis is given in the Appendices.

figure shows the cumulative losses both is 370.8% and 56.8% as well. Although the duration of the credit decline was almost the same at 4 quarters, the amplitude of 2008/2009 crisis was lower (25.2%) than that of 1997/1998 crisis (150.4%).

In the financial market, although it seems that the impact of recent crisis was bigger because the stock market index decreased by 1,390 points, in relative terms (percentage change) it was lower (50.6%) than that of 1997 crisis (61.9%). The duration was also shorter.

a. Evaluation of Interest Rate Policy

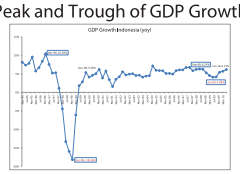
There were significant differences between the movements of the policy rate in 1997/1998 crisis and in the recent crisis. To contain the inflationary pressure which was very high in the 1997/1998 crisis (almost 83% in Q4:1998), the central bank increased the SBI rate significantly to 68% and then gradually brought it down to 11.03% in Q1:2000. Meanwhile, prior to the recent crisis, the inflationary pressure was not so high. Hence, the policy rate was raised only up to 9.25%. At that point of time, BI's policy to increase the policy rate in Q2, Q3 and Q4:2008 was contrary to other central banks in the region and across the world as then the policy was to lower their interest rates to address liquidity issues and induce economic activity. BI commenced gradually reducing its policy rate in Q1:2009 and now it is currently at 6.5%.

Table 8
Duration, Period, Amplitude, Slope and Cumulative Losses of Recent Crisis and 1997/98 Crisis

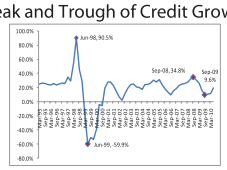
	1997/1998 Crisis	2008/2009 Crisis
Economic Growth Recession (% yoy)		
Duration	8 quarters	3 quarters
Period	Q1 1997 – Q4 1998	Q4 2008 – Q2 2009
Amplitude	28.53%	2.2%
Slope	4%	0.72%
Cummulative Losses	115.16%	4.86%
Domestic Credit Growth (% yoy)		
Duration	4 quarters	4 quarters
Period	Q3 1998 – Q2 1999	Q4 2008 – Q3 2009
Amplitude	150.4%	25.2%
Slope	37.6%	6.3%
Cummulative Losses	370.8%	56.8%
Stock Prices (Index)		
Duration	5 quarters	4 quarters
Period	Q3 1997 – Q3 1998	Q1 2008 – Q4 2008
Amplitude	448	1390
Slope	90	348
Cummulative Losses	1411	2999

Source: CEIC, estimated

Peak and Trough of GDP Growth



Peak and Trough of Credit Growth



Peak and Trough of Stock Market Index

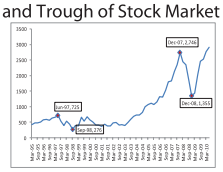
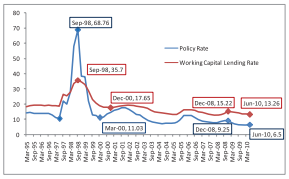


Table 9
Duration, Period, Amplitude and Slope of Interest Rate and Inflation

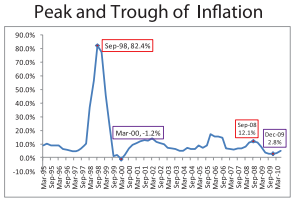
	1997/1998 Crisis	2008/2009 Crisis
Policy Rate (%)		
Duration	6 quarters	more than 6 quarters
Period	Q4 1998 – Q1 2000	Q1 2009 – Q2 2010 (still not
Amplitude	57.73%	2.75%
Slope	10%	0.46%
Lending Rate (%)		
Duration	9 quarters	more than 6 quarters
Period	Q4 1998 – Q4 2000	Q1 2009 – Q2 2010
Amplitude	18.1%	2.0%
Slope	2.0%	0.3%
Inflation (% yoy)		
Duration	6 quarters	5 quarters
Period	Q4 1998 - Q1 2000	Q4 2008 - Q4 2009
Amplitude	83.6%	9.36%
Slope	13.9%	1.9%

Source: CEIC, estimated

Peak and Trough of Interest Rate



Peak and Trough of Inflation



During both crisis periods, the magnitude of the decline in the average lending rate in the banking sector was much smaller than the decline in the BI Rate which could be seen in the wider spread between lending rate and policy rate. From the micro-perspective of banks, some factors contributing to the lending rate movements included the cost of fund and risk premium which tended to rise during the crisis, and profit margin. A previous study has showed that the decrease in the aggregate banking cost of fund throughout 2009 tended to be slower than the decline in the BI Rate. Furthermore, the risk premium in the economy was still perceived to be high and there were indications that the banking industry preferred to maintain their profit margin. All of these contributed to reduce the power of the policy rate pass- through to the lending rates.

Table 10
Average Spread between Lending Rate and Policy Rate
During Expansion Period

Non – Crisis	Crisis
Q2:1996 - Q1:1997	Q2:1999 - Q1:2000
6.12 %	**8.23 %**
Q1:2006 - Q4:2006	Q1:2009 - Q4:2009
4.29 %	**7.41 %**

b. Evaluation of Lowering Reserve Requirement

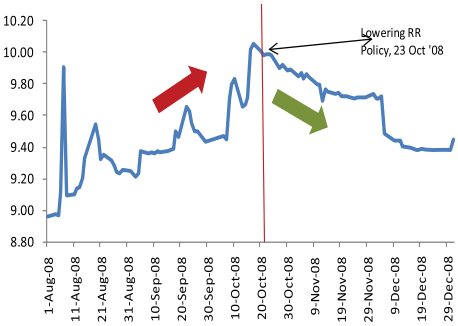
The Reserve Requirement Policy was implemented to provide more rupiah liquidity to the banking system to ease the liquidity constraint and reduce volatility in the interbank market. Its impact could be seen in the interest rate of interbank market which declined after the policy announcement. The volatility of interbank interest rate also decreased. As measured by the standard deviation, during the period of 1 month before the implementation of the policy, the volatility of interbank interest rate was 0.22%, and it decreased to 0.08% during the 1 month period after the implementation of the policy.

The volume of interbank transactions also increased although the impact was not as immediate as that on the interest rate. One of the reasons for the smaller increase in the interbank market transaction could be expansion in the fine tuning operations of the central bank at that time, which enhanced access to liquidity from the central bank and hence reduced the need for borrowing from the interbank market. This was also supported by the amendment of the

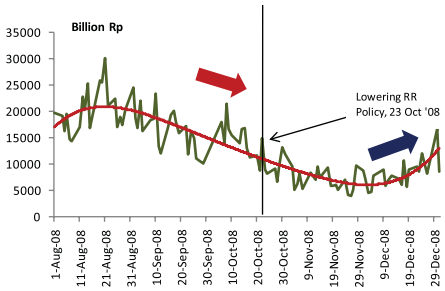
liquidity facility for commercial banks by the central bank which provided wider access for banks to receive funding for a longer time horizon than the usual inter-day facility.

Another reason was the reduction of loan disbursement by commercial banks which was in line with the lower demand of credit at that time due to the global crisis and hence a lower need to borrow funds.

Graph 22
Interbank Market Interest Rate



Graph 23
Volume of Interbank Market Transaction



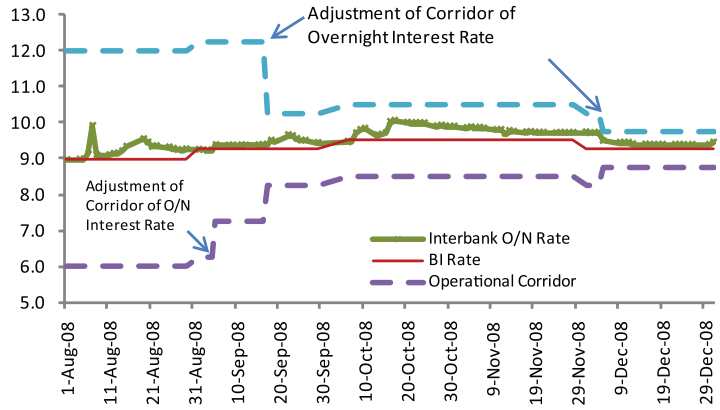
Source: Bank Indonesia

However, there is a side-effect to this policy. The increasing supply of rupiah led to the rise of money in circulation in the market (M0), and this could cause a depreciation of the rupiah.

c. Evaluation of Narrowing the Interest Rate Corridor for Standing Deposit Facility/ Lending Facility (Repo)

This policy was aimed at reducing excessive volatility in the interbank money market and increasing the credibility of BI. The lower spread between interbank interest rate and policy rate indicates a higher degree of credibility of the central bank.

Graph 24
Interest Rate Corridor (%)



Source: Bank Indonesia

From the graph above, we could see that after the first and second adjustment of the corridor, the spread between the interbank market rate and the policy rate was relatively higher and it contradicted the purpose of the policy. One of the reasons may be due to the increasing pressure of liquidity in September because of higher risk perception following the bankruptcy of Lehman Brother. Meanwhile, the third adjustment was successful in decreasing the spread between the interbank market and policy rate (Table 11). For comparison, best practices of this spread in several ITF countries are about 20bps

Table 11
Spread of Policy Rate and Interbank Market Rate

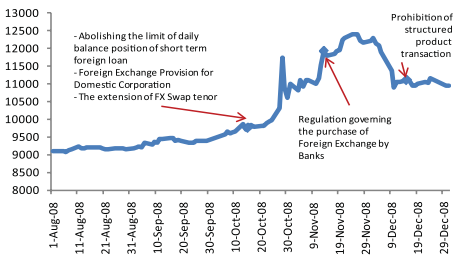
Period	Spread	Note
1 week before the 1st adjustment	9.08bps	
1 week after the 1st adjustment	11.72 bps	Higher
1 week after the 2nd adjustment	27.42 bps	Higher
1 week before the 3rd adjustment	35.57 bps	
1 week after the 3rd adjustment	17.59 bps	Lower

Source: Bank Indonesia, estimated from daily data

d. Evaluation of Foreign Exchange Policy

The foreign exchange policy measures were implemented to reduce the volatility of exchange rate during the crisis. Although in terms of level, the rupiah continue to depreciate after several exchange rate policy measures in October and November 2008 because of the massive capital outflow, the volatility of the exchange rate became relatively lower after the introduction of the policy measures.

Graph 25
Impact of Foreign Exchange Policy



Source: CEIC, estimated

Table 12
Volatility of Foreign Exchange after Policy

FX Policies	Std Deviation of Rp/US$		Result
	1 week before	1 week after	
15 October's policies	94.58	69.61	Lower
13 November's policies	349.90	244.21	Lower
16 December's policies	338.22	73.40	Lower

3.2.2 Fiscal Policy

During the financial crisis, a range of public policies were announced as a stimulus package by the government as counter-cyclical actions to keep the economy from weakening further. Basically, the fiscal consolidation or reforms implemented by the government in the recent years have created greater fiscal space for stimulus without undermining fiscal sustainability. Fiscal space can be defined as the availability of room in the budget that allows a government to provide resources for priority purposes without undermining fiscal sustainability.

The success of the government is holding fiscal sustainability during the financial crisis in 2008 was attributed to: (1) Over the past ten years, fiscal policy actions have reduced the high public debt ratio; (2) the government has taken significant measures to reduce domestic fuel subsidies, enabling it to increase spending at both the central and local government levels; and (3) the government has increased the total spending on education. However, in the Indonesian case, the problem in the fiscal stimulus package was that the regional government has limited ability to complete their budgets on time. Therefore, the

stimulus package had not been used optimally, as can be interpreted from the data for October and December 2009, which show that only 52.1% of the fiscal stimulus plan was realised. Lack of socialisation, frugal spending and slow regulation implementation led to this low absorption of the fiscal stimulus. Thus, to increase the effectiveness of fiscal policy, an effective and understandable standard operating procedure is required for fiscal policy implementation, both in the central and regional areas.

Table 13
Fiscal Stimulus Plan and Realisation

No	Description	Plan (IDR Trillion)	Realization (IDR Trillion)	% of Realization
1	**Tax Savings**	43.0	20.5	47.7% [1)]
	Reductions in Income Tax Rates	32	18	56.3% [1)]
	Lower Corporate Tax Rate	18.5	12.8	69.2% [1)]
	Lower Personal Income Tax Rate	13.5	5.2	38.5% [1)]
	Income tax-free band raised to IDR 15.8 million	11	2.5	22.7% [1)]
2	**Tax/Import Duty Subsidies for Business/Targeted Households**	13.3	3.7	27.8% [1)]
	VAT on oil/gas exploration, cooking oil	3.5	2.5	71.4% [1)]
	Import duties on raw materials and capital goods	2.5	0.3	12.0% [1)]
	Payroll tax	6.5	0.1	1.5% [1)]
	Geothermal tax	0.8	0.8	100.0% [1)]
3	**Pro-business/Jobs subsidies + budget expenditures**	17	14.0	82.2%
	Reduced price for automotive diesel	2.8	2.8	100.0% [1)]
	Discounted electricity billing rates for industrial users	1.4	1	71.4% [1)]
	Additional infrastructure expenditures+subsidies+government equity inje	12.2	10.18	83.4% [2)]
	Upscaling of Community Block Grants (PNPM)	0.6	n/a	
	TOTAL	73.3	38.2	52.1%

Notes : 1) Realization until October 2009, more updated data is not available
2) Realization until December 2009

Source: Ministry of Finance and other sources

To analyse the effectiveness of fiscal policy in boosting economic activity after the crisis is not an easy task, thus we try to adopt the evaluation of fiscal stimulus (FS) principles based on Elmendorf and Furman (2008) as follows:

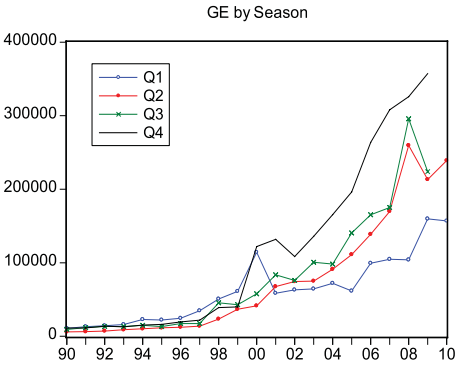
Table 14
Evaluation of the Effective Fiscal Stimulus Principles

Principles	Explanation	Measure for Indonesia's Fiscal Stimulus
Timely	FS should not be enacted prematurely, delayed too long, or consist of tax cuts or spending increases that would take too long to be implemented or to boost output.	• Although government immediately gave instruction for FS, there were problems that delayed the implementation or disbursement of the fund. • The government expenditure was mostly disbursed in Q-4 (Graph 26). It would have been better if the disbursements in each quarter were quite balanced. Thus, in terms of the timely principle, the Indonesia's fiscal stimulus was less effective.
Targeted	Tax cuts and spending increases should be directed so that they provide the greatest benefit to the people who are affected most adversely by an economic slowdown.	▪ The biggest proportion of the FS was tax reductions. This could stimulate economic output from investment and indirectly would increase employment and wages. Then, there will be increases in consumption and economic output. ▪ Moreover, the big spending in infrastructure was good because it would boost a sustainable growth in longer term instead of only short term. ▪ Thus, on the basis of target principle, the Indonesia's fiscal stimulus was effective.
Temporary	The FS should not increase the budget deficit in the long run.	• The source of fund for the fiscal stimulus came from the excess of budget utilisation (SILPA)[4] in 2008 and debt. • Fund from excess of budget utilisation will not affect the next government budget but the usage of debt, in the long term could impact the budget deficit. • Additionally, the budget deficit plan in 2010 still relatively high (1.6% GDP) (Table 15).Thus, from the temporary principle, the Indonesia's fiscal stimulus was quite effective.

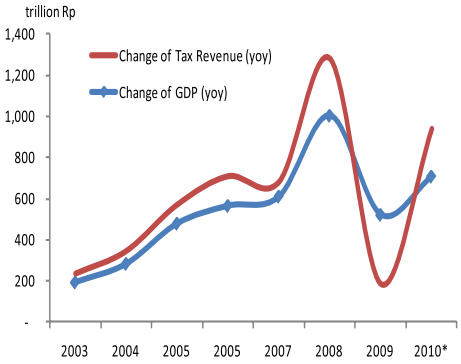
Note: The effectiveness of means is based on the authors' opinion.

4. SILPA : Sisa Lebih Pembiayaan dan Anggaran (Excess of government budget utilisation in the previous year)

Graph 26
Government Expenditure by Quarter



Graph 27
Tax Revenue versus GDP Changes



Source: CEIC

Table 15
Impact of Fiscal Policy on Government Budget

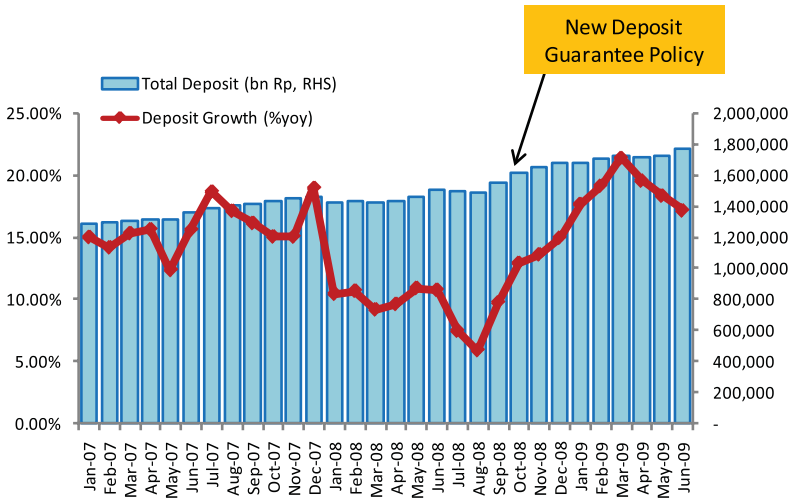
Period	Fiscal Balance as a% of GDP	Primary Balance as a % of GDP
1990-1996 Average	0.26%	2.05%
1997-1998 Average	-1.45%	1.13%
1999	-2.84%	1.05%
2001-2008 Average	-1.16%	1.92%
2009	-1.56%	0.12%
2010 Estimates	-1.59%	0.28%

Source: Ministry of Finance

3.2.3 Financial Sector Reforms

The main purpose of the financial sector reforms during the crisis was to maintain the stability of the banking system, especially to prevent massive withdrawals of bank deposit. As an indicator of the effectiveness of policies taken, we analysed the movement of the deposit data during the crisis as shown in chart below. From the chart we could see that although the deposit growth declined during the crisis, it still remained positive. In addition, the level of total deposits did not decline, an indicator that there was no a rush to withdraw funds. In general, the financial sector reforms were relatively effective.

Graph 28
Bank Deposits



Source: CEIC

4. Relative Effectiveness of Policy Choices: Econometric Model

In examining the relative effectiveness of both monetary and fiscal policies on economic growth, we use the Engle and Granger two-step estimation procedure which allows an explicit testing of co-integration and specification of the Error Correction Model (ECM).

The relationship between monetary policy and economic growth was derived from the general theoretical framework formed by the Quantity Theory of Money with the following identity:

$$MV = PY \quad (1)$$

M refers to money stock, V velocity of circulation, P price level and Y income. If V is constant, then there is a relationship between changes in the stock of money and changes in the value of national income.

$$M = kPY \quad (2)$$

The relationship between fiscal policy and economic growth could be explained through the national income identity.

$$Y = C + I + G + (X - M) \quad (3)$$

4.1 Model Specification, Data Sources and Limitations

The empirical model in this paper is aimed at testing the relationship of economic growth with monetary policy, fiscal policy and other control variables.

$$Y_t = f(MP_t, FP_t, Z_t) \quad (4)$$

Where Y is a measure of economic activity, MP, a measure of monetary policy, FP measure of fiscal policy and Z is other control variables that may affect economic activity.

In the end, the general form of the Error Correction Model (ECM) specification in this paper is:

$$\Delta Y_t = \sum_{j=1}\sum_{k=0} \beta_{1jk} \Delta X_{jt-k} + \sum_{k=0} \beta_{2k} \Delta Y_{t-k-1} + \lambda ECM_{t-1} + C + e_t \quad (5)$$

Where:

Y	=	dependent variables (economic output)
X	=	independent variables, consist of monetary variables, fiscal variables, and other control variables
ECM	=	residuals from long-run relationship between variables
n	=	number of explanatory variables in the model
p	=	number of lags used to represent the short-run dynamics in the model

There are several variables which could be used as proxies for economic activity, fiscal policy, monetary policy and control variables as outlined in the table below. We use quarterly data from Q1:1990 to Q2:2010. Some of variables were adjusted for seasonality using Census X12 method.

Table 16
List of Variables

Indicator	Variable	Sources	Notes
Growth	GDP Real	IFS, staff estimated	
	GDP Nominal	IFS	
Fiscal	Fiscal Balance	BI	
	Government Revenue	BI	
	Government Expenditure	BI	
	Primary Expenditure		Government Expenditure – Interest Payment
	Primary Balance	BI	
Monetary	M1	IFS	
	M2	IFS	
	Policy Rate	BI	Prior to Q3:2005, we use SBI 1 month as proxy for policy rate
Inflationary Effect	GDP Deflator	IFS, staff estimated	
	CPI	BI	
External Sector	Exchange Rate	IFS	
	Current Account Balance	IFS	
Dummy Recession	1997/1998 Recession	Estimated	Q1:1997 – Q4:1998
	2008/2009 Recession	Estimated	Q4:2008 – Q2:2009

Note: All variables are in logarithm, except fiscal balance, primary balance, current account balance (because they contain negative values) and dummy recession (binary 1/0).

4.2 Results

4.2.1 Unit Root Test Statistics

Before testing for the presence of a co-integrating relationship, we need to examine the properties of the individual economic data series. If there is no unit root in the series, then the series is said to be stationary in levels or integrated of order zero (I (0)). If there is unit root in the individual series, but differencing the series once makes it stationary, then it is said to be integrated of order one or denoted as I(1).

To characterise the time series property of the variables, instead of using the Augmented Dickey-Fuller (ADF) tests, we also use Phillips Perron (PP) method. This PP approach is more appropriate than the ADF since the data shows a structural break as effect of 1997/1998 crisis. Both of the ADF and PP tests indicate that most of the series are non-stationary when the variables are defined in levels, except Fiscal Balance, Primary Balance, Policy Rate and Current Account Balance. But first-differencing the series removes the non-stationary components in all the cases and the null hypothesis of non-stationary

is clearly rejected at the 5% significance level, suggesting that all the variables are integrated of I(1). Thus, the next step of testing for possible cointegration relationship will be done only with the I(1) variables.

Table 17
Unit Root Test for Variables

Variables	Abbreviation	ADF Test Result					Phillips Perron Test Result				
		Level		1st difference		Level of	Level		1st difference		Level of
		t-stat	p-values	t-stat	p-values	integration	t-stat	p-values	t-stat	p-values	integration
Real GDP	RGDP	-2.631	0.268	-2.139	0.032	I(1)	-2.327	0.415	-8.320	0.000	I(1)
Nominal GDP	NGDP	-2.038	0.572	-5.929	0.000	I(1)	-2.117	0.529	-5.491	0.000	I(1)
Real GDP_Adjusted	RGDP_SA	-2.214	0.475	-5.216	0.000	I(1)	-1.921	0.634	-5.159	0.000	I(1)
Nominal GDP_Adjusted	NGDP_SA	-1.913	0.639	-1.957	0.049	I(1)	-1.869	0.661	-2.939	0.004	I(1)
Fiscal Balance	FB	-4.231	0.006	-6.526	0.000	I(0)	-9.025	0.000	-29.488	0.000	I(0)
Government Revenue	GR	5.943	1.000	-17.544	0.000	I(1)	2.972	0.999	-42.299	0.000	I(1)
Government Expenditure	GE	5.327	1.000	-20.666	0.000	I(1)	2.100	0.991	-36.833	0.000	I(1)
Primary Expenditure	PRIM_GE	5.137	1.000	-20.657	0.000	I(1)	1.976	0.988	-42.757	0.000	I(1)
Primary Balance	PB	-5.436	0.000	-6.289	0.000	I(0)	-7.132	0.000	-26.702	0.000	I(0)
Fiscal Balance_Adjusted	FB_SA	-3.074	0.003	-12.525	0.000	I(0)	-8.552	0.000	-20.894	0.000	I(0)
Government Revenue_Adjusted	GR_SA	4.040	1.000	-15.234	0.000	I(1)	3.211	1.000	-15.292	0.000	I(1)
Government Expenditure_Adjusted	GE_SA	3.562	1.000	-10.192	0.000	I(1)	4.154	1.000	-18.761	0.000	I(1)
Primary Expenditure_Adjusted	PRIM_GE_SA	4.400	1.000	-11.337	0.000	I(1)	3.046	0.999	-18.449	0.000	I(1)
Primary Balance_Adjusted	PB_SA	-1.843	0.063	-12.502	0.000	I(0)	-7.297	0.000	-23.681	0.000	I(0)
M1	M1	-2.348	0.404	-1.880	0.058	I(1)	-2.369	0.393	-7.610	0.000	I(1)
M2	M2	-0.933	0.947	-8.250	0.000	I(1)	-0.933	0.947	-8.248	0.000	I(1)
M1_Adjusted	M1_SA	-1.496	0.823	-3.371	0.001	I(1)	-1.641	0.768	-5.250	0.000	I(1)
M2_Adjusted	M2_SA	-0.864	0.955	-6.885	0.000	I(1)	-0.941	0.946	-3.738	0.000	I(1)
Policy Rate	PR	-3.265	0.020	-7.633	0.000	I(0)	-3.000	0.039	-7.646	0.000	I(0)
GDP Deflator	GDPDEFL	-2.125	0.524	-4.443	0.000	I(1)	-1.871	0.661	-4.293	0.000	I(1)
GDP Deflator_Adjusted	GDPDEFL_SA	-2.271	0.444	-3.798	0.000	I(1)	-1.849	0.672	-3.798	0.000	I(1)
CPI	CPI	-2.402	0.376	-3.049	0.003	I(1)	-2.208	0.478	-4.278	0.000	I(1)
Exchange Rate	ER	-1.845	0.673	-5.637	0.000	I(1)	-1.221	0.899	-6.479	0.000	I(1)
Current Account Balance	CAB	-3.021	0.003	-11.764	0.000	I(0)	-3.021	0.003	-16.024	0.000	I(0)
GDP US	USGDP	-0.215	0.992	-2.199	0.028	I(1)	-0.249	0.991	-3.144	0.002	I(1)
GDP Japan	JPGDP	1.014	0.917	-3.321	0.001	I(1)	1.351	0.955	-16.482	0.000	I(1)

4.2.2 Co-integration Equations

Following the Engle and Granger two step-method, in the next step we estimate the long-run equilibrium relationship among variables by OLS and test for stationarity of the residuals, in the form:

$$y_t = \alpha_0 + \alpha_1 x_t + e_t \quad (6)$$

To identify the unit root in the residuals, we use critical values for the Engle - Granger Cointegration test provided in Enders (2004). After estimating several alternative models based on the variables, we found the best long-run cointegration equations as follow:[5]

$$RGDP_SA = \underset{(0.05)***}{5.13} + \underset{(0.03)***}{0.88\ RM1_SA} + \underset{(0.25)***}{0.20\ RGE_SA} \quad (7)$$

R2 = *0.94*

The critical value of the residual unit root test from this equation is -6.61, and given the critical value of Engle-Granger Cointegration test for 2 variables which is -4.123 for significance at 1%, then the variables real GDP, real M1 and real government expenditures are said to be cointegrated.

4.2.3 Error Correction Models

We next switch to a short-run model with an error correction mechanism in the form:

$$\Delta RGDP_SA_t = \sum_{j=1}\sum_{k=0}\beta_{1jk}\Delta X_{jt-k} + \sum_{k=0}\beta_{2k}\Delta RGDP_SA_{t-k-1} + \lambda ECM_{t-1} + crisis + C + e_t \quad (8)$$

Where X consists of real M1, real government expenditure and other control variables, meanwhile ECM is residuals from Equation (7). To address the impact of the crisis, we also use dummy recession variables CR97 and CR08. With the general to specific approach to several combinations of cointegrated variables and lags, we found the best models as follows:

---

5. RM1_SA defined as real seasonally adjusted M1 which equal to nominal M1/GDP Deflator. RGE_SA defined as real seasonally adjusted government expenditure which equal to nominal government expenditure/GDP Deflator, *value in ( ) shows standard error.* *** *significant at a = 1%, ** significant at a = 5%, * significant at a = 10%* . We realise that there might be endogenity relationship between RM1_SA and GDP_SA, but to be in line with the agreed methodology, we assume the one-way relationship between them and use ECM. For robustness, we also use the VECM and found the long-run relationship between those variables (in Appendices).

Table 18
Error Correction Models

Variables	Dependent : Real GDP	
	Coefficient	t-stat
Real M1(-3)	0.07	2.17 **
Real Gov_Exp	0.03	3.92 ***
ECM(-1)	-0.06	-1.91 *
Exchange Rate (-1)	-0.04	-2.95 ***
Inflation (-1)	-0.29	-5.63 ***
Crisis 97	-0.01	-2.06 **
Constant	0.02	11.36 ***
R2	0.66	
DW-Stat	2.00	
SIC	-5.76	

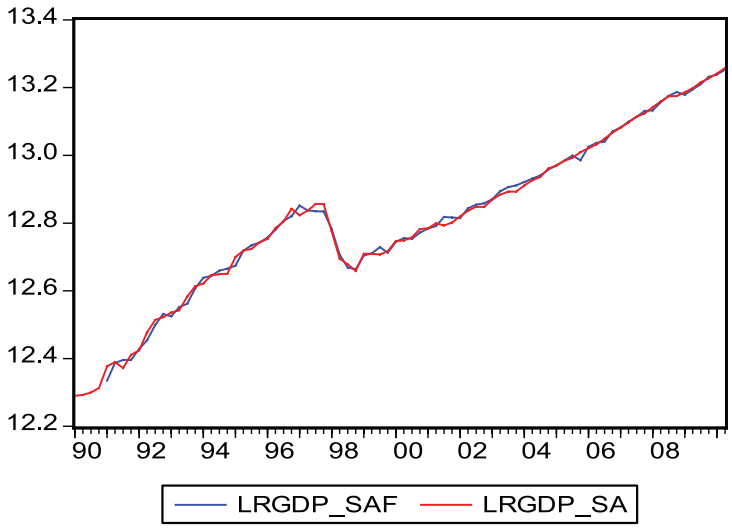
*** significant at α = 1%, ** significant at α - 5%,
* significant at α = 10%

4.2.4 Analysis of Results

The empirical results show that real GDP cointegrates with real M1 and real fiscal expenditure. On the basis of this information, an error correction model was developed which was shown to be well specified relative to its own information set and capable of parsimoniously representing the data set.

From the error correction models, we could conclude that in the short run the changes in real GDP are significantly affected by changes in real fiscal expenditures and real monetary changes. The previous real GDP changes are not significant to affect real GDP changes. The crisis in 1997 decrease the real GDP significantly, meanwhile the 2008/2009 crisis effect is not significant. The result also shows a well defined error correction term, and indicates a feedback of 6% of the previous quarter's disequilibrium from the long-run money supply, and fiscal expenditure to economic activity. To evaluate the goodness of the model, we did some sample forecasting and compared the result with the actual data. The result was quite good as shown in Graph 29. The root mean square error (RMSE) of the forecast was only 0.01.

Graph 29
Evaluation of Model



The lag in the effect of monetary changes relative to fiscal policy, as shown in Table 18, indicates that the impact of fiscal policy on GDP is relatively faster than monetary policy. This result is in line with the study of Elmendorf and Furman (2008) which considered that a key potential advantage of fiscal stimulus relative to monetary stimulus is that it could boost economic activity more quickly, and true fiscal stimulus implemented promptly can provide a larger near-term impetus to economic activity than monetary policy.

5. The Way Forward

5.1 Current Development and Outlook

It could be seen from the figures and tables in Section 3 that there have been improvements in the Indonesian economy during 2009 and 2010 which boosted optimism over the sustainability of the on-going economic recovery. The positive economic performances include an improvement in the risk indicators, performance in stock market, balance of payment, the strengthening of rupiah, and the fairly high economic growth.

Economic growth in Q2:2010 has increased to 6.17%, which was 2.07% points higher than economic growth in the same quarter on the previous year.

From the demand side, the highest contribution to economic growth came from domestic demand, especially from investment (gross fixed capital formation) 2.35% and consumption 2.06%. From the sectoral perspective, the main contributors were transportation and communication (1.61%); trade, hotel and restaurants (1.13%); and manufacturing (1.12%).

Table 19
Sector Contribution to GDP Growth 2010

Sector	2010	
	Q1	Q2
Agriculture	0.42	0.43
Mining and Quarrying	0.25	0.31
Manufacturing	0.97	1.12
Electricity, Gas and Water Supply	0.06	0.04
Construction	0.45	0.45
Trade, hotels and Restaurant	1.55	1.61
Transportation and Communication	1.02	1.13
Financial, rental and Business Services	0.52	0.58
Services	0.44	0.50
GDP	5.69	6.17

Table 20
Demand Side Contribution to GDP Growth 2010

Demand	2010	
	Q1	Q2
Consumption	1.65	2.06
Gross Fixed Capital Formation	2.82	2.35
Net Export	1.18	0.42
Export	7.85	6.02
Import	6.67	5.60
Statistic Discrepancy	0.04	1.34
GDP	5.69	6.17

Source: Bank Indonesia

The indications that the global recovery is proceeding sooner than previously expected have boosted optimism over the Indonesian economic outlook. Such optimism is also supported by domestic economic resilience that endured the effects of the global crisis. The increased optimism over the Indonesian economic outlook is confirmed by the upgrading of Indonesia's rating by international rating agencies in early 2010.

However, there are several challenges for Indonesian economic development. From the external side, the challenge is primarily related to the impacts of the likely strategies of the developed countries in unwinding the measures adopted by them in response to the global crisis, which included monetary easing and fiscal expansion, the polarising trend of global trade and the large imbalances in global economic performance. From the domestic side, the challenges are related to several issues that could disrupt the effectiveness of monetary policy, such as excess bank liquidity, the dominance of short-term inflows in the structure of capital inflows, the potential asset price bubble, a shallow financial market, and numerous structural problems in the real sector.

5.2 Exit Strategy

5.2.1 Monetary Policy

The economic recovery from the global crisis has also posed many challenges that need to be anticipated. The impact of lower rates in the developed countries has induced capital inflows to emerging economies, including Indonesia. Added with the excess domestic liquidity resulting from the expansionary monetary policy during the crisis, the massive capital inflows potentially augment substantially the excess liquidity which is likely to create inflation pressures in the future.

To avert inflation expectation that could disrupt monetary stability and reduce the persistent levels of excess banking liquidity, BI decided to raise the primary statutory reserve requirement for rupiah funds to 8% and to introduce an LDR-based reserve requirement. The new reserve requirement has been set in consideration of the present condition of banking liquidity. Hence, it does not diminish the capacity of banks to pursue credit expansion in line with the existing bank business plans, while upholding prudential banking principles. With this new policy, the rupiah statutory reserve requirement consists of 8% primary reserves + 2.5% secondary reserves + Loan Deposit Ratio-based reserves. The primary reserve requirement policy was implemented on 1 November 2010. Meanwhile, the LDR-based reserves will be implemented on 1 March 2011.

Until now, BI maintains its policy rate at 6.5%. Although BI has taken note of the rising inflationary pressures amid the heavy inflows of foreign capital and considerable levels of excess liquidity, at this time, the Board of Governors regard the economic liquidity management as of a higher priority. The current level of the BI Rate is still consistent with achievement of the inflation target and remains conducive in safeguarding financial stability and promoting bank intermediation for supply-side response to accelerated demand.

5.2.2 Fiscal Policy

The government still continues with its fiscal policy of supporting the recovery from the impact of the global crisis and increasing economic growth. The main policies of 2010 fiscal policy consist of:

- Continuing/increasing all programmes related to citizen welfare, such as PNPN, BOS, Jamkesmas, Raskin, PKH and other subsidies;[6]
- Continuing fiscal stimulus through infrastructure, agriculture, energy development and labour intensive programmes; and
- Pushing the recovery of the business environment, including tax incentives.

5.3 Other Policies

5.3.1 Policy Package on Strengthening Monetary Management and Financial Market Development

The crisis experiences of 1997/1998 and 2008/2009 have encouraged the government and BI to keep strengthening the foundations of macroeconomic fundamentals, particularly through the management of consistent and prudent fiscal and monetary policies. The primary challenge of the prospective Indonesian economy ahead involved balancing the structure of growth through greater investment and deepening the financial market to support robust economic growth. In fact, the onshore financial market operates with excess liquidity but with lack of instruments available for channeling liquidity to the business sector. To address this challenge, BI implemented new policies to deepen the financial market by providing a wider range of instruments and by encouraging more banks to conduct more transactions in the secondary market (demand creation). By implementing these policies (see Table 21), BI also hopes to shift the maturity profile of transaction between BI and banks into a longer tenor in order to absorb unnecessary excess liquidity (lengthening the maturity profile). The new policies are expected to enhance the effectiveness of monetary policy, maintain the macro stability and also strengthen the momentum of economic recovery.

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6. PNPM : Programme Nasional Pemberdayaan Masyarakat Mandiri (fund for small-scale business)
   BOS : Bantuan Operasional Sekolah (fund for education)
   Jamkesmas : Jaminan Kesehatan Masyarakat (fund for health programme)
   Raskin : Beras untuk Rumah Tangga Miskin (fund for poor household food programme)
   PKH : Programme Keluarga Harapan (fund for family hope programme)

Table 21
New BI's Policy Packages

Policies	Objectives
• Open Standing Facility (repo) for 3 month tenor (September 2009).	• To facilitate the longer-term bank liquidity requirement.
• Widening the corridor for Standing Deposit Facility (Fasbi) to BI Rate – 100 bps and Lending Facility (Repo) to BI Rate + 100 bps (17 June 2010).	• To further develop the interbank money market by encouraging banks to involve frequently in interbank money market in fulfilling short-term liquidity needs prior to standing facilities provided by BI.
• Implementation of the minimum holding period for SBIs (Central bank bills) of 1 Month for both primary and secondary market purchases for all tenors, applicable to both resident and non-resident.	• To support the deepening of domestic money market and the effectiveness of the monetary management.
• Introduction of 9-month and 12-month SBI Auction starting August/September 2010.	• To support the deepening of the domestic money market in terms of the availability of instruments, maturity profile, and the formation of the short-term interest rate structure
• Introduction of non-monetary instrument (term deposit securities) with tenor of 1 month (7 July 2010).	• To give banks other options to place the excess of short-term liquidity.
• Revisions of regulations on bank's FX net open positions (NOP) (July 2010).	• To increase the number of transactions and the depth of the domestic foreign exchange market to support the rupiah exchange rate stability while monitoring bank prudential aspects.

5.3.2 Improvement of Monetary Policy Framework with Flexible ITF

A lesson from the financial crisis has raised some arguments about the effectiveness of the Inflation Targeting Framework. Price stability and interest rate policy are not enough to achieve financial system stability; meanwhile the macroeconomic instability often comes from the financial system. However, the ITF that has been adopted by BI since 2005 and it had shown several positive contributions, such as: (1) Different from monetary and exchange rate targeting, it gives more flexibility for BI to respond to the inflation and economic outlook; (2) The ITF has improved BI's institution especially with regard to the good governance principle in the monetary policy decision-making; and (3) Improve the transparency and communication strategy of BI which strengthen the monetary transmission via inflation expectation.

The idea of improving the monetary policy framework with flexible ITF in order to face the challenge of the economic condition now and in the future is still under consideration and will be researched further by BI.

6. Conclusion and Policy Implication

Indonesia has been affected by the sudden stoppage of capital inflow into the emerging market economies and decline in global economic growth following the global financial crisis. Their first- and second-round effects on the macroeconomic indicators were identified. The first lesson from the recent crisis is that Indonesia as an emerging country clearly demonstrated the effectiveness of timely monetary, fiscal and financial sector policies which helped Indonesia to recover from the economic crisis. Indonesia and most Asian economies had experienced two financial crises over the past ten years. The first Asian crisis of 1997 resulted in the introduction of significant reforms, both policy and institutional reforms, in the financial sector. However, in the second crisis, the global financial crisis of 2008, the reforms introduced can be categorised as soft reform.

The second lesson is that close cooperation and coordination among the policy makers is very important in identifying and dealing with challenges posed by a global crisis. During the crisis period, some policy measures in the monetary, fiscal and financial sectors had been taken in response to the global financial crisis. As the central bank authority, BI had implemented an accommodative monetary policy in order support moderate growth with a relatively low inflation. The policy rate commenced sliding on December 2008 with the intention of decreasing the banks' lending rates. Some unconventional monetary policy had also been taken to address the liquidity issues. On the fiscal side, the government responded keeping up domestic demand by several fiscal stimulus and trade policies. There were also coordination between the Ministry of Finance, Central Bank and other institutions in order to maintain financial market and macroeconomic stability.

The policy measures taken during the crisis had been formulated in a timely manner with the ultimate objective of sustaining economic growth while maintaining macroeconomic stability in Indonesia. Based on the Error Correction Models, we concluded that, in the short run, the changes in real GDP are significantly affected by changes in real money supply in the previous three quarters and real fiscal expenditures. This indicated that the impact of fiscal policy on the GDP is relatively faster than monetary policy.

As conclusion of this research, the policy implications concerning the future are as follows:

1. The cooperation and coordination among the policy makers and timely responses are very important in tackling the crisis. Thus, in addressing the crisis, monetary policy could not stand alone but requires coordination with fiscal policy and other sectoral policies.

2. An effective conventional monetary policy in normal times may become less effective in times of crisis because of the high degree of uncertainty particularly with pressure from external circumstances. Thus, unconventional monetary policy indeed is necessary as a timely policy response.

3. Regarding fiscal policy, more timely disbursement of government expenditure is important to increase the effectiveness of this policy in the stimulation of economic output.

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Table A.1
Key Indicators: Measuring Vulnerability of Economy to External Shocks – 1997/98 and 2008/09 Recession

Indicator	1996		2007	
	US $ Billions	% of GDP	US $ Billions	% of GDP
GDP (Current)	227.37		432.04	-
Exports of Goods and Services	50.19	22%	118.01	27%
Foreign Currency Reserves	17.82	8%	54.74	13%
Imports of Goods and Services	44.24	19%	85.26	20%
Average Monthly Imports	3.69	-	7.10	-
Months of Imports Covered	4.83	-	7.70	-
Balance on Current Account	-7.80	-3%	10.49	2.4%
Total Government Debt			147.51	34.1%
Foreign Debt	110.17	48%	141.18	32.7%
Composition of External Liability				
Short term	22.03	9.7%	27.49	6.4%
Long term	88.14	38.8%	113.69	26.3%
Debt Service Payment (foreign)	2.82	1.24%	2.8	0.7%
Primary Balance	4.55	2.00%	3.3	0.8%
Fiscal Deficit	1.73	0.76%	-5.5	-1.3%

Indicator	1996	2007
Bank Loan to Deposit Ratio (LDR)	109.26	69.22
Non Performing Loan %		4.64
Bank Capital Adequacy Ratio	11.82	19.30
ICRG	70.00	70.50
Stock Market Index (last position)	637.43	2,745.83
GDP Growth (yoy)	7.8%	6.3%
S & P Rating		BB -
Inflation	5.12%	5.60%
Output Gap*	149.293	10.852

Note: * Calculated by HP Filter Method using annual Real GDP data in Billion Rp.

Source: IFS, CEIC, Bank Indonesia and staff estimates

Table A.2
Similarities and Differences between 1997/1998 Crisis and 2008 Global Crisis in Indonesia

Similarity	Difference
• Both crises were the consequence of the global economy, because of the economic and financial interdependence among countries; • The impact of the crisis led to falling value of the rupiah against foreign currencies; • The impact of the crisis will affect the economic sectors which resulted in losses for the community.	• 1998 crisis was multi-dimensional with economic crises, political, social, ideological, defense and security, meanwhile global crisis tended to be caused by financial and economic crises; • 1998 crisis started from currency crisis in the Thai baht while the global crisis started from the breakdown of sub-prime mortgage in the United States; • 1998 economic crisis led to societal anarchism while the global crisis did not; • 1998 crisis led to demand for change of leadership, while global crisis did not; • Focus of monetary policy in 1998 crisis was on tightening, meanwhile in global crisis it was on loosening.

Table A.3
Robustness Check of Econometric Model
a. Cointegration Test using Johansen Cointegration Test

Sample (adjusted): 1990Q4 2010Q2
Included observations: 79 after adjustments
Trend assumption: No deterministic trend (restricted constant)
Series: LRGDP_SA LRGE_SA LRM1_SA
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.225069	36.77270	35.19275	0.0335
At most 1	0.123492	16.62912	20.26184	0.1470
At most 2	0.075670	6.216177	9.164546	0.1747

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

1 Cointegrating Equation(s): Log likelihood 375.0509

Normalized cointegrating coefficients (standard error in parentheses)

LRGDP_SA	LRGE_SA	LRM1_SA	C
1.000000	-0.586331	-0.352755	-6.538769
	(0.12134)	(0.17528)	(0.76079)

Adjustment coefficients (standard error in parentheses)

D(LRGDP_SA)	-0.081454
	(0.02598)
D(LRGE_SA)	0.443445
	(0.23217)
D(LRM1_SA)	0.072460
	(0.05290)

b. Optimal Lag length

VAR Lag Order Selection Criteria
Endogenous variables: LRGDP_SA LRM1 LRGE_SA
Exogenous variables: C
Date: 12/27/10 Time: 14:16
Sample: 1990Q1 2010Q2
Included observations: 74

Lag	LogL	LR	FPE	AIC	SC	HQ
0	124.5506	NA	7.51e-06	-3.285152	-3.191744	-3.247891
1	320.4901	370.6963	4.81e-08	-8.337571	-7.963939*	-8.188524*
2	329.0803	15.55522	4.87e-08	-8.326495	-7.672639	-8.065664
3	339.5938	18.18550	4.69e-08	-8.367400	-7.433320	-7.994784
4	351.2378	19.19683	4.39e-08*	-8.438859*	-7.224555	-7.954458

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Result : Optimal lag length for data in level based on SC and HQ is 1, thus in the next step we use the optimal lag for data in difference which is 2.

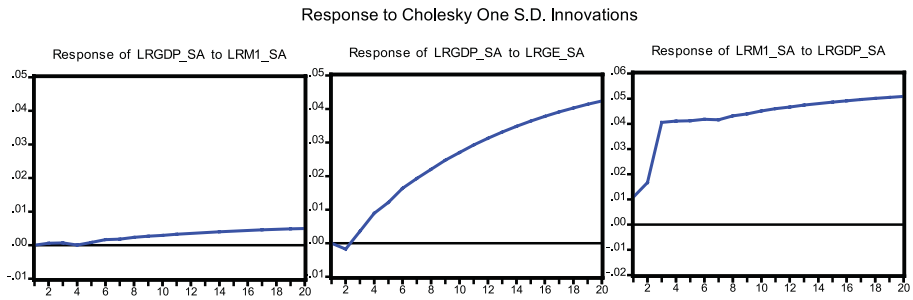
c. Result from VECM

Vector Error Correction Estimates
Sample (adjusted): 1990Q4 2010Q2
Included observations: 79 after adjustments
Standard errors in ( ) & t-statistics in [ ]

Cointegrating Eq:	CointEq1
LRGDP_SA(-1)	1.000000
LRM1_SA(-1)	-0.352755
	(0.17528)
	[-2.01248]
LRGE_SA(-1)	-0.586331
	(0.12134)
	[-4.83196]
C	-6.538769
	(0.76079)
	[-8.59469]

Error Correction:	D(LRGDP_SA)	D(LRM1_SA)	D(LRGE_SA)
CointEq1	-0.081454	0.072460	0.443445
	(0.02598)	(0.05290)	(0.23217)
	[-3.13554]	[1.36966]	[1.91002]
D(LRGDP_SA(-1))	0.418408	0.411927	1.449805
	(0.11412)	(0.23240)	(1.01989)
	[3.66649]	[1.77250]	[1.42154]
D(LRGDP_SA(-2))	0.077181	1.211976	1.479353
	(0.12281)	(0.25011)	(1.09762)
	[0.62843]	[4.84573]	[1.34778]
D(LRM1_SA(-1))	-0.017391	-0.242617	-0.725631
	(0.05144)	(0.10475)	(0.45969)
	[-0.33811]	[-2.31616]	[-1.57851]
D(LRM1_SA(-2))	-0.025673	-0.115986	0.591922
	(0.05106)	(0.10399)	(0.45636)
	[-0.50278]	[-1.11536]	[1.29704]
D(LRGE_SA(-1))	-0.057581	-0.017430	-0.728941
	(0.01553)	(0.03163)	(0.13879)
	[-3.70777]	[-0.55113]	[-5.25202]
D(LRGE_SA(-2))	-0.023617	-0.038254	-0.392219
	(0.01245)	(0.02535)	(0.11124)
	[-1.89751]	[-1.50923]	[-3.52604]
R-squared	0.167929	0.345329	0.592680
Adj. R-squared	0.098590	0.290773	0.558736
Sum sq. resids	0.029078	0.120597	2.322579
S.E. equation	0.020096	0.040926	0.179605
F-statistic	2.421849	6.329811	17.46085

d. Impulse Response



Chapter 4

RELATIVE EFFECTIVENESS OF POLICY CHOICES DURING FINANCIAL CRISIS IN SEACEN ECONOMIES: THE CASE OF MONGOLIA

By
Avralt-Od Purevjav[1]

1. Introduction

On the eve of the global economic and financial crisis, Mongolia enjoyed a classic commodity boom fed by a sustained run-up in copper and gold prices, which saw cuts in taxes and social security contributions, generous increases in civil service wages and a dramatic expansion of untargeted social transfers. As a result of this, the non-mineral fiscal balance deteriorated and reached about 10% of GDP. In the meantime, private sector credits expanded rapidly and the overall the growth of deposits in the banking system accelerated. Not only the Government of Mongolia's (GoM) expansionary policy but also the Bank of Mongolia's (BoM) expansionary monetary policy between 2004 and 2007 contributed to sharp increases in inflation in 2008, reaching at one point 32.4%.

The global economic recession which originated in the sub-prime mortgage market put many countries into economic difficulties. The economies of the developed countries with tightly interconnected financial markets were impacted by the global financial crisis directly whereas the developing countries were becoming increasingly vulnerable to the economic crisis indirectly. The global financial crisis had little direct impact on the Mongolian economy since its financial system is not tightly interconnected with the world financial system. Instead, it had an indirect but strong impact on the Mongolian economy.

During the global economic and financial crisis, the prices of Mongolia's major export goods fluctuated and the demand for Mongolian export goods decreased dramatically as its major trading partner countries' economies were afflicted by the crisis. A dramatic decline in commodity prices and a sharp drop in external demand due to the global downturn of 2008 and 2009 were the external shocks which were transmitted to the Mongolian economy. These shocks

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exposed underlying weaknesses in the economic structure and the policy environment. The first- round effect of the crises had impacts on the economy through the worsening of the current and fiscal account deficits, exchange rate, and the market liquidity. Then, the economic difficulties started affecting the social aspects of the country through the second-round effect, resulting in slower real economic growth, high inflation, and reduced government spending.

The impact of the external shock was a sharp widening of the fiscal and current account deficits. Mongolia's trade revenue from copper, coal and zinc decreased significantly in H2:2008, which resulted in a widened current account deficit in 2008, and further in 2009. The national currency togrog came under significant pressure to devalue on account of the trade deficit. After initial unsuccessful attempts at maintaining a peg, the currency was allowed to depreciate by 40% against the US dollar between late 2008 and early 2009. Demand for the local currency dropped and reserve losses were incurred in support of the de facto exchange rate, which depreciated sharply through early 2009. While this helped reverse its inflation-induced appreciation since 2007, it had a negative impact on the balance sheet of banks.

The erosion of confidence associated with the crisis saw outflows from the banking system and depletion of foreign reserves. Confidence in the banking sector fell, when several banks failed in late 2008 and local currency deposit outflows mounted. The banking sector was overheating as loan growth boomed, outpacing deposits. Banks were highly exposed to sectors such as construction, which suffered badly during the downturn, and to adverse shocks to single creditors due to a concentrated loan book. Asset quality continued to worsen. Loan dollarisation of around one-third in a situation where there has been large currency depreciation could make it difficult for borrowers without effective hedges to service their debt. The three largest banks, which account for almost 60% of the market, were not able to meet the minimum capital adequacy ratio requirement of 12%. As a result, these banks had to submit recapitalisation plan to the relevant financial supervision authorities.

After several years of growth rates in the high single digits, the economy slowed and GDP growth declined to 1.6% in 2009. In particular, the slowdown of the economy resulted in a high unemployment rate and had side effects on poverty incidence. The GoM's major strategy to alleviate poverty was to concentrate on providing financial assistance to the poor through social assistance programmes. However, high inflation reduced the real social spending on health, education and social transfers. In addition, the government spending on social transfers was affected by the current economic crisis. During the economic

boom years, government social spending increased significantly through several social transfer programmes. However, it proved to be a difficult task to maintain the level of social transfers at the pre-crisis level during difficult economic times.

Facing with the reality of a severe downturn, BoM and the GoM in early 2009 undertook strong actions particularly in monetary and exchange rate policy, fiscal, and financial policies to mitigate the impacts of the crisis.

Prior to the crisis, the country's fiscal position was highly reliant on mineral revenues. Public policy was not encouraging people to set aside adequate savings during the boom. It triggered large increases in unsustainable, inefficient, and broad expenditures and, as a result, the government budget revenue decreased significantly. In fact, the government budget deficit in 2008 reached 5% of GDP. In H2:2009, the government revenue decreased by 20% in comparison to the same period last year. The GoM reduced its spending from the initially planned level in order to keep the budget deficit within the target. Spending restraint which has emphasised a wage and hiring freeze and cuts in capital expenditures, was key to the restoration of a sustainable non-mineral fiscal balance.

Rising inflation and unstable nominal exchange rate led the BoM to significantly tighten its monetary policy to restrain inflation, which had been running at 23.2% in 2008, and stem capital outflows. With the easing of food and fuel price increases and the onset of the world recession, inflation slowed down to 1.9% in 2009. This, together with the stabilisation of nominal exchange rate and the restoration of confidence through improvements in the deposit guarantee system, was reflected in deposits flowing back onshore into the banking system, and allowed the central bank room for some cuts in its policy rate. However, the normal channels of transmission of monetary policy were ineffective. Concerns about credit quality constraint, banks' willingness to lend as well as the slowing economy dampened the demand for credit.

It has become obvious that bank regulation and supervision were not adequate to ensure high quality financial services during the crisis. Given that two failed banks had been placed under receivership by the authorities, fixing the financial system was a high priority. The authorities initiated various steps to strengthen on-site enforcement, introduced legal protection for supervisors, strengthened fit-and-proper review process for new shareholders as well as developed deposit guarantees.

Only a limited number of studies have evaluated the impact of the global financial and economic crisis on the Mongolian economy (for example, Narantuya,

Ch., et al., 2009a, 2009b, 2009c, 2010; Tuvshintugs, B., 2009a, 2009b, 2010; World bank, 2010; and ADB, 2010). Most of these studies were basically focused on the dynamics of the macroeconomic variables during the crisis. A good number of empirical researches have examined the impact of fiscal and monetary policies on various aggregates for developed and under-developed economies (for instance, Anderson and Jordan, 1968; Gramlich, 1971; Chowdhury, Fackler, and McMillin, 1986; Chowdhury, 1988; Blanchard and Quah, 1989; Clarida and Gali, 1994; Ansari, 1996; Kim, 1997; Chari and Kehoe, 1998; Latif and Chowdhury, 1998; Reynolds, A., 2000; Jayaraman, 2002; Feldstein, M., 2002; and Rahman, 2005). From the existing literature, much of the attention is given to descriptive analysis of the impact of the crisis on the Mongolian economy, while empirical studies on the relative effectiveness of the fiscal and monetary policies for Mongolia have not been undertaken. Given that the studies and reports indicate Mongolia as one of the countries that was strongly impacted by the global downturn, it is essential to fill this gap through the undertaking of this research.

This paper aims to investigate the key economic, financial, and policy developments during the last decade. The scope of the study includes Mongolia's pre-crisis economic condition, major trends in the real economy and economic policy making, and the indirect channels of the impact of the current economic crisis on the Mongolian economy. In addition, we assess the policy measures taken by the GoM and BoM in mitigating the impacts of the crisis. Based on the survey, an effort is made to investigate the relative effectiveness of the policy options that would mitigate the impact of the current economic crisis by employing empirical approaches and using quarterly time-series data for the periods of Q1:2000 through Q3:2010. The reason for focusing more on this period is a shortage of detailed data prior to that. This approach allows us to perform tests on the effectiveness of monetary policy relative to fiscal policy for the Mongolian economy, which is especially important for instituting economic policies to make Mongolian economy less vulnerable to similar economic disturbances in the future.

The remainder of this paper is organised as follows. Section 2 presents a review of the literature on the impact of the global financial and economic crisis on the Mongolian economy as well as some of the empirical papers that have applied empirical approaches to evaluate policy effectiveness. Section 3 provides an overview of the first- and second-round effect of the crises on the Mongolian macroeconomic indicators focusing on the significant changes during the crises. Section 4 discusses the relative effectiveness of the policy measures taken by the GoM in nullifying the impacts of the crisis. Section 5 outlines the model specifications and data used in the empirical study. Also, included is the analysis

of the empirical findings. Finally, the policy implications are highlighted in Section 6, followed by the conclusions in Section 7.

2. Impact of Global Financial Crisis on Mongolian Economy

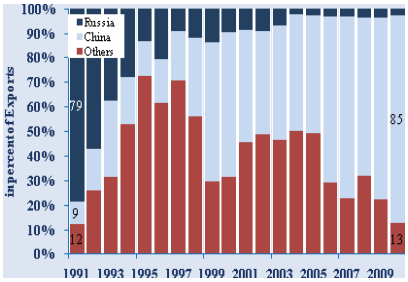
2.1 First-round Effects of Global Financial Crisis

2.1.1 Mongolian Exports Destinations and Its Dependence

Mongolia was hit hard by the global financial crisis because its increasing dependence on the export of primary goods made it vulnerable to the sharp decline in international trade.

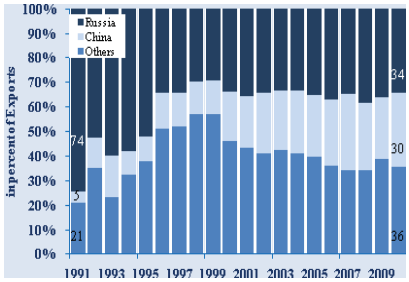
It is important to remember that Mongolia is a landlocked country, with Russia and China as its neighbours. Because of this, the shipment of goods must be transported by land and through neighbouring countries, which makes Mongolian-produced goods expensive and uncompetitive in the international market.

Figure 2.1
Exports Shares by Countries



Source: National Statistics Office, Mongolia

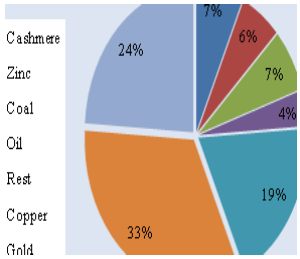
Figure 2.2
Imports Shares by Countries



Source: National Statistics Office, Mongolia

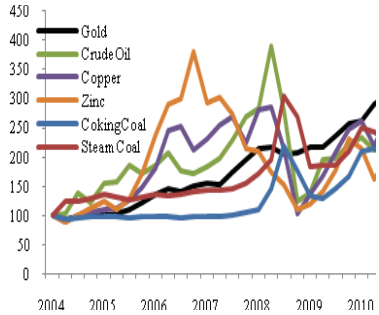
As a result, China and Russia are Mongolia's main trading partners, which are developing countries themselves. China has become its biggest trading partner, accounting for more than 85% of exports (Figure 2.1) and more than 30% of imports, while Russia accounted for 34% of imports (primarily energy products) (Figure 2.2). China imports raw primary goods and exports manufactured goods, putting Mongolian producers in direct competition with Chinese manufacturers.

Figure 2.3
Share of Commodities
(as of 2008)



Source: National Statistics Office

Figure 2.4
Commodity Price Indices
(2004=100%)



Source: Bloomberg

On the other hand, Mongolia is a country with vast natural resources. It is estimated that there are over 6000 known mineral deposits of 80 different minerals[2]. Mongolia's abundance in natural resources makes it increasingly reliant on these natural resources. Export revenue grew on average 30% year-on-year for the last four years. As of 2008, total export was equivalent to 48% of GDP. Therefore, the total export revenue is heavily dependent on exports of these commodities. The top six accounted for 81% of total export revenues in 2008 (Figure 2.3).

The crisis affected Mongolia primarily through a sharp decrease in its terms of trade. The Mongolian economy experienced a drastic reversal in its terms of trade in H2:2008 because of the prices of major exporting commodities decreased dramatically. Starting mid-2008, copper and other mineral prices relevant to Mongolia collapsed. In particular the copper price fell to US$3,155 per ton at the end of January 2009 from its peak of US$8,549 per ton in April 2008, a 63% drop and coal by more than 33%. Prices of other key export commodities - coal, zinc, cashmere, and crude oil-also fell significantly. Only the price of gold held up, because of its role as a safe-haven investment (Figure 2.4).

This external price shock was combined with an external demand shock resulting from the downturn in economic activity of Mongolia's major trading partners. For example, China's industrial production growth, which absorbs about

2. Tuvshintugs (2010)

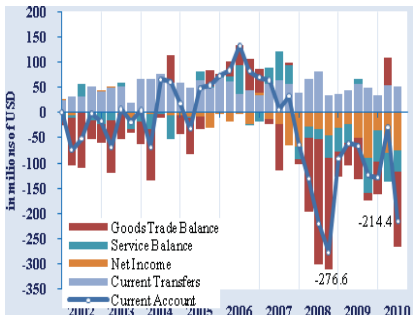
85% of Mongolia's exports (Figure 2.1), slowed from about 16% year-on-year in mid-2008 to 5% in Q1:2009. Chinese import demand for copper and Mongolian goods generally fell sharply, reaching around 50% year-on-year in H1:2009.

2.1.2 Current Account Balance

Due to the drop in prices of mineral products, the current account balance swung from surplus to deficit, and as it widened, international reserves declined, togrog began to deteriorate.

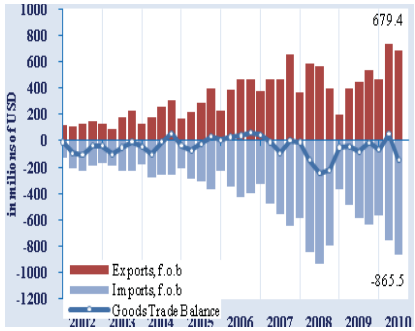
Since Q3:2007, imports grew faster than exports. Exports actually contracted in nominal terms in Q3:2008, but imports continued to grow until Q4:2008. Due to the sharp fall in the value of exports, the current account balance moved from a surplus of 6.7% of GDP in 2007 to a deficit of 14% in 2008 and climbing to over 15% in Q1:2009 and Q2:2009 (Figure 2.5 and 2.6).

Figure 2.5
Current Account Balance
(in US$ million)



Source: Bank of Mongolia

Figure 2.6
Goods Trade Balance
(in US$ million)



Source: Bank of Mongolia

2.1.3 Capital and Financial Account

The Mongolian financial market was deeply impacted by the consequences of the global recession. As the prices of the main exports fell sharply and FDI inflows and remittances declined, Mongolia's external balance swung from positive to negative, driven by a boom in domestic demand. International organisations recalled the loans granted to Mongolian banks and firms, scheduled investments were postponed, remittances from Mongolians living abroad diminished, capital

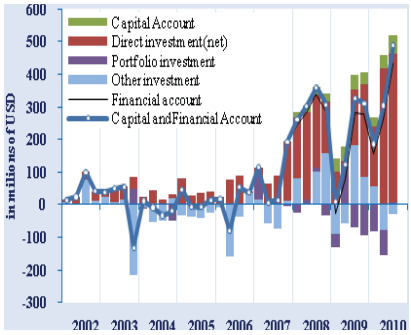
inflow receded which led to capital shortage in the domestic banking sector. Consequently, the sources of the banking sector's growth declined and a "credit crunch" occurred (Figure 2.7 and Figure 2.8).

A. Foreign Direct Investment

Foreign investment, which comprised 14% of the GDP in 2008, was concentrated in the mining sector, mostly related to mineral deposit exploration and start-up costs, with small scale inflows to the service sector.

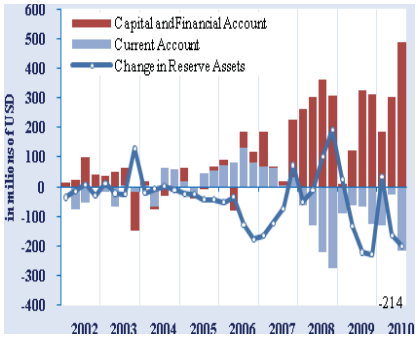
Mongolia's improving terms of trade attracted foreign direct investment (FDI). It increased rapidly for the past few years. Between 2004 and 2008, FDI rose from US$129 million, which is equivalent to 5.8% of GDP, to US$683 million, which is equal to 13% of GDP. However, FDI flow was mostly related to exploration and start-up costs in big strategic mineral deposits of copper, gold and coal. Therefore, the FDI inflow into the country was highly concentrated in the mining sector. In order to reduce the country's reliance on commodities, more FDIs are needed in other sectors of the economy. Currently, most of the small-scale FDI inflows go to the services sector.

Figure 2.7
Capital and Financial Account
(in US$ million)



Source: Bank of Mongolia

Figure 2.8
Current Account Balance
(in US$ million)



Source: Bank of Mongolia

B. Remittances

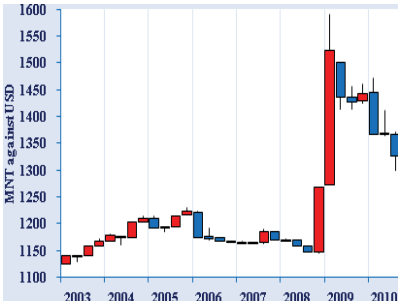
Mongolia has experienced a dramatic migration in labour force outward. There is an informal estimation of over 100,000 migrants living and working abroad. Most of the migrant workers send money back to Mongolia to support their families. There is no reliable data on the number of migrant workers working abroad and the amount of money they send home. According to the statistics, Mongolia received US$200 million in remittances in 2008, which is equivalent to 3.8% of GDP. During the economic boom years, migrant workers remitted significant amounts of money home, which further increased the supply of foreign currency in the economy putting upward pressure on togrog to appreciate, whereas during the economic crisis, remittances were less which lowered the supply of foreign currency in the economy. Decreasing remittances pressured the domestic currency togrog to depreciate. Due to inadequate data on migrant labour, it is not clear that how much remittances are being affected by the economic crisis.

2.1.4 Exchange Rate Movements

Globally, the currencies of all the mining-dependent countries in the world came under pressure due to the fall in mineral prices. Mongolia was no exception. Its trade deficit placed the national currency togrog under significant pressure to devalue. In response, and as a first defence mechanism to absorb the shock, many of these countries allowed their currencies to depreciate substantially against the US dollar, starting mid-2008, while Mongolia held on to the peg (Figure 2.10). After initial unsuccessful attempts at maintaining the peg, the demand for the local currency dropped and reserve losses were incurred in support of the de facto exchange rate. As a result, the currency was allowed to depreciate by 40% against the US dollar between late 2008 and early 2009 (Figure 2.9). While this helped reverse its inflation-induced appreciation since 2007, it had a negative impact on the balance sheet of banks.

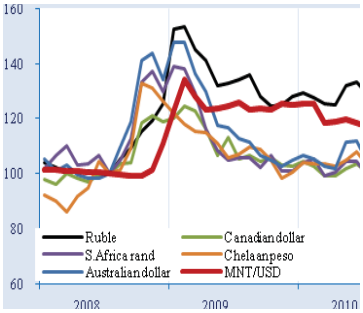
The demand for foreign currency at the official exchange rate quickly outstripped supply, As a result, a “parallel market” for foreign exchange developed, where the US dollar started trading at much higher levels than the interbank rate (Figure 2.11 and 2.12), reaching MNT1,590 in the Q1:2009. The policy of the BoM was to strongly defend the currency and even let it appreciate by selling US dollars, in exchange for togrog, to the commercial banks.

Figure 2.9
MNT/US$ rate
(+ depreciation of togrog)



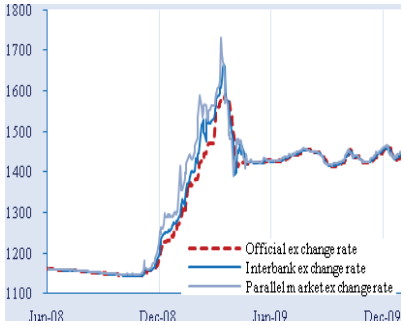
Source: Bank of Mongolia

Figure 2.10
Commodity Currency Indices
(July 2008=100%)



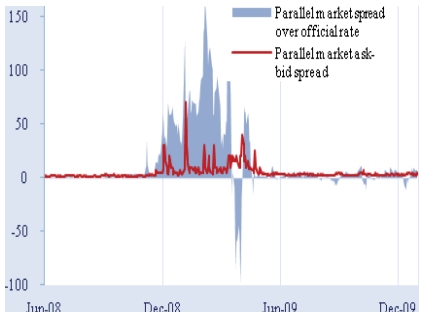
Source: Bloomberg

Figure 2.11
Official, Interbank, Parallel Market Exchange rates
(MNT per S$)



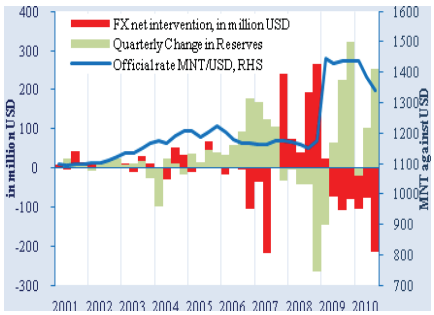
Source: Bank of Mongolia

Figure 2.12
Parallel Market Exchange Rate Spreads
(Spread1=Ask-Bid, Spread2=Parallel-Official)



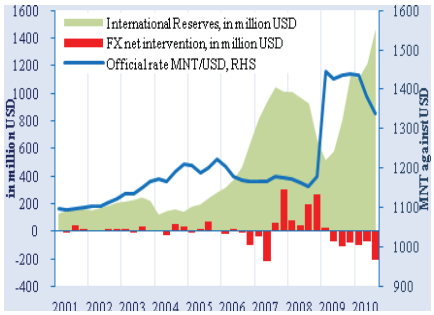
Source: Bank of Mongolia

Figure 2.13
Intervention & Exchange Rate



Source: Bank of Mongolia

Figure 2.14
International Reserves & Intervention



Source: Bank of Mongolia

In addition, the BoM started rationing foreign exchange by administratively allocating it to priority goods (food, fuel and drugs). Currently, foreign exchange is rationed in all markets. The private sector is struggling to deal with the increased currency risk—some by simply stopping activities.

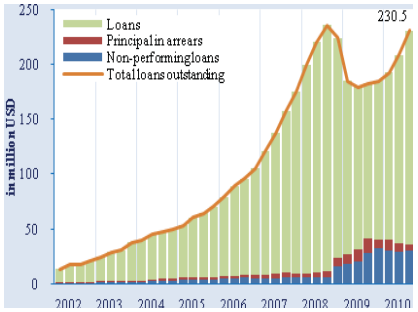
As the price of copper collapsed together with the BoM intervention in the domestic market for foreign exchange, the continuation of the existing stance led to a drop of US$527 million of its reserves during the period from its peak point in Q3:2007 and Q1:2009.

2.1.5 Financial Sector and Market Liquidity

At the end of 2007, the financial sector aggregate value was MNT 3.2 trillion, with commercial banks forming 95.7% of the market value and non-banking financial organisations 4.3%. Among the non-banking financial organisations, non-banking financial companies made up 1.9%, savings and credit cooperatives 1%, insurance companies 0.8%, and brokerage firms 0.5% of the market value.

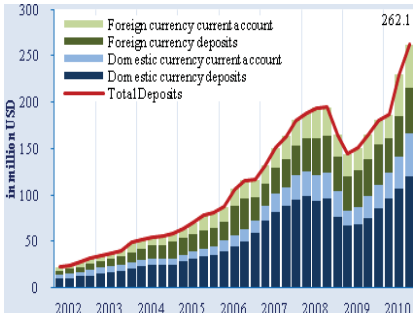
The banking sector expanded credit rapidly, with loan growth outstripping deposit growth since 2006. Currently, the loan-to-deposit ratio is quite high, increasing to over 135% in 2008 from 98.2% in 2007 (Figure 2.15, 2.16, 2.17 and 2.18). Much of the loans are short term in nature and disbursed to sectors such as construction, which have been hit by the recent economic downturn.

Figure 2.15
Loans Outstanding
(in US$ million)



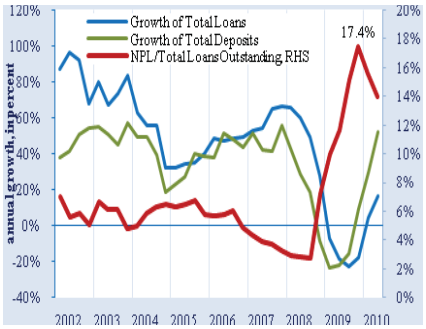
Source: Bank of Mongolia

Figure 2.16
Total Deposits in Banking System
(in US$ million)



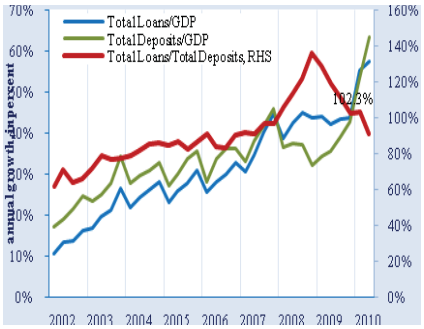
Source: Bank of Mongolia

Figure 2.17
NPL and Growths of Loans and Deposits
(year-on-year growth)



Source: Bank of Mongolia

Figure 2.18
Total Loans and Deposits to GDP ratio
(in percent)



Source: Bank of Mongolia

The world financial crisis and economic downturn influenced our financial market through the decline in demand for Mongolia's main export goods which subsequently decreased the liquidity in foreign currency and weakened the domestic currency against foreign currencies; a lack of financing sources, which was resulted from foreign institutions retracting their loans from both banks and enterprises; delays in investment proposals; and a decline in overseas worker

remittances. As a result, the banks faced liquidity shortages and both lending activity and repayment of bank loans were troubled. The outstanding loans have remained broadly flat in nominal terms since mid-2008, up only 3.7% from the Q2:2009 to the end of Q4:2009. The level of new loan issuance fell markedly in late 2008 and early 2009 both in nominal terms, down 57% year-on-year for example in the Q1:2009, and relative to the outstanding loans (Figure 2.15).

Fortunately, the banks entered the downturn with no direct exposure to "foreign toxic assets" and little exposure to foreign credit, with a low level of non-performing loan (NPL). However, due to the slow economic growth and decline in entrepreneurs' sales turnover, the capacity of borrowers to repay their loans deteriorated, and thus credit risk increased. The amounts added to NPL of banks eroded the banking sector's profitability. The total NPL outstanding of the banking sector increased 2.8 fold within 2009. The non-performing loan ratio reached 17.4% of total loans. This compared with a ratio of around 3% in late 2008, when the economic crisis began. The quality of loans was showing signs of deterioration as the real sector and business growth have been slowing down (Figure 2.17). The banks limited their extension of loans to the public sector due to higher credit risk in public sector. It has been noted that the number of borrowers declined by 2.8%[3].

In addition to that, foreign currency assets increased by 11.9% in 2008 and foreign currency denominated liabilities grew by 41.4%. The share of foreign currency assets in total assets increased by 0.4 percentage point to 39.3%, while the share of foreign currency denominated liabilities increased by 8.7 percentage points to 40.2%. This indicates that there was high degree of dollarisation in the Mongolian system, which makes the banking system more vulnerable to exchange rate shocks. Total foreign currency loans, of which 83.6 % were in US dollar loans, equals 33.6% of total loans outstanding. In addition, 5.4% of total foreign currency loans were classified as non-performing, which was 2.3 percentage points higher than during the previous year. Consequently, the jump in the US$/MNT rate weakened the quality of the total loan portfolio of banks, negatively affecting the solvency of foreign currency borrowers.

As NPLs have risen, banks have become more reluctant to provide loan, making it more difficult for companies and individuals to obtain loans. Total loans outstanding to individuals contracted sharply, as loan growth to the private sector slumped compared to the year-earlier levels. The fall in lending and the problems in the banking sector will continue to weigh heavily on the economy.

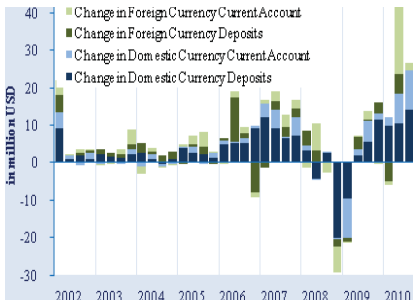
3. BoM Annual Report (2008)

Comparing the sectoral composition of the changes in NPLs and loans with principal in arrears between Q4:2008 and the Q1:2009, we find that the largest increases were recorded in the manufacturing, construction, and wholesale and retail sectors. These three sectors also accounted for the majority of all NPLs and loans with principal in arrears at the end of the Q1:2009.

For instance, a domestically generated housing bubble has now burst and negatively affected outstanding loans to the construction sector. Loans to the livestock sector have also been under pressure due to the falling prices of cashmere and other livestock-originated raw material (hides, skin, wool, hairs, etc.) which led to declining income and collateral against the loans. The collapse of the cashmere price, the largest price shock in the last few years, has become far worse than the change in prices of beef and mutton. The banks are trying to restructure loans to this sector to address these emerging problems.

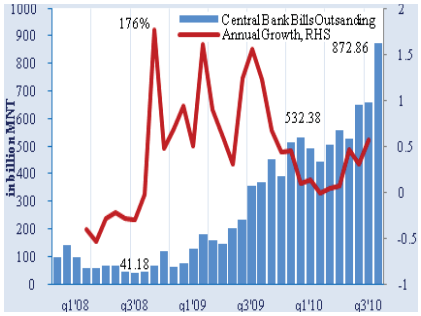
Against this background, rumours began circulating in Q4:2008 that some banks were suffering as nervous depositors rushed to withdraw funds. The crunch finally came in November when regulators took over one of the top five lenders, Anod Bank; several board members were detained amid fears that the bank's loans were higher than reported. This not only eroded the public's trust in the banking system, but it also made banks unsure about lending to each other, because it was not clear what the other banks' exposure to Anod was. In general, the banks' liquid assets have been increasing since October 2008, showing the banks' unwillingness to extend new credit but instead to increase their reserves.

Figure 2.19
Shift in Deposits
(in US$ million)



Source: Bank of Mongolia

Figure 2.20
Central Bank Bills Outstanding
(in US$ million)

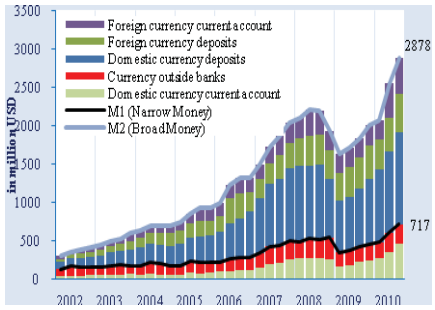


Source: Bank of Mongolia

Banks have reduced lending and are buying less risky central bank bills instead, making it very difficult for companies and individuals to access to loans. In 2009, loans have declined further, and outstanding loans were below their in 2008 level (Figure 2.15). Loan growth to private individuals has become negative. Instead, banks have started to buy the central bank bills from the BoM instead, which currently provide a high risk-free return with inflation on a downward trend (Figure 2.20). This means that businesses have great difficulty to obtain bank credit.

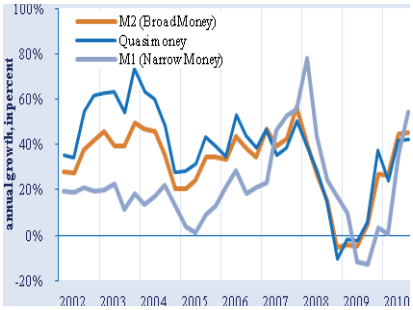
An added effect of the sale of foreign currency was that the BoM took togrog out of the banking system. At the same time, the government was also withdrawing deposits from the banking sector and depositors were becoming concerned about the low interest rates on their togrog savings. The real interest rate had in fact turned negative, as inflation rose, while nominal interest rates stayed flat. This led to a flight out of togrog deposits and into US dollar deposits (Figure 2.19). The combination of all these factors (high inflation, the tight monetary policy, the global economic crisis, capital-run from the country and the lack of sources within the banking system) has curbed growth in deposits and led to liquidity problems in the banking sector.

Figure 2.21
Narrow and Broad Money (in US$ million)



Source: Bank of Mongolia

Figure 2.22
Growth in Narrow and Broad Money (in percent)



Source: Bank of Mongolia

The market liquidity in Mongolian banking system declined significantly and it reflected through the change in narrow money (M1) and broad money (M2) (Figure 21, 22).

Prior to the crisis, average growth of M1 and M2 was around 35% and 40% year-on-year, respectively. Year-on-year growth in broad money (M2) slowed from almost 56% in Q4:2007 to just over -5% in the Q4:2008 and Q2:2009.

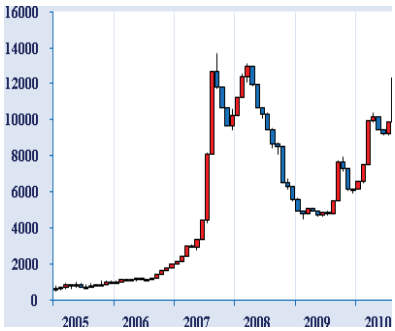
2.2 Second-round Effects of Global Financial Crisis

2.2.1 Stock Market Trends

During the crisis a sharp drop in the Mongolian stock market was observed. The market capitalisation which was estimated at MNT131 billion at the end of 2006 increased 5.6 times to MNT740 billion in August 2007 (Figure 2.24). It shows that the issuing or reissuing of bonds in the stock market had become an important source of refinancing for many Mongolian firms. Since 2004 policy makers have been implementing a policy which supports the secondary market and which had a positive influence on its development. The other important factor that influenced the extension and accretion of stock market was the acceleration of growth in the Mongolian economy due to favourable external factors.

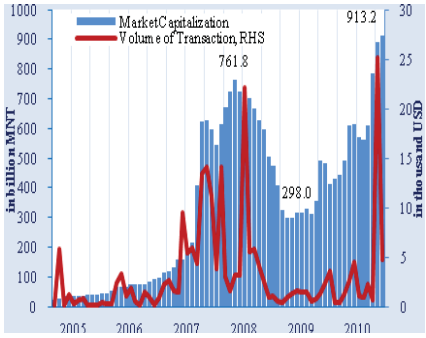
The increase in the market capitalisation in H1:2008 demonstrates the fact that the Mongolian financial system is not deeply interconnected with the world financial system. In other words, the world financial crisis did not have a direct impact on the stock market in Mongolia. By H2:2008, the stock price indices of the top 20 Mongolian firms were at the level of 2007, while the price indices of firms in the developed countries fell by 20% and in some developing countries by 30-50%.

Figure 2.23
TOP 20 Index



Source: Bank of Mongolia

Figure 2.24
Market Capitalisation
(in US$ million)



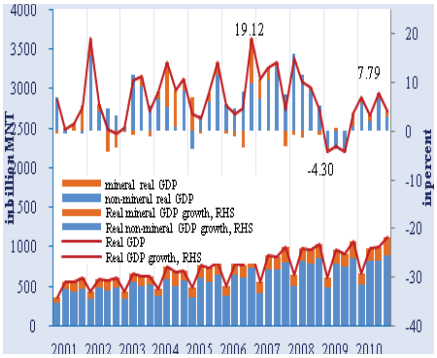
Source: Bank of Mongolia

In line with the decline in prices of mining and raw products, significant difficulties occurred in the economy of Mongolia from August 2008 which in turn had negative impact on the stock market, decreasing price indexes by 52% and the aggregate value of the market dropped by 37% in one year. The Mongolian stock market is not strongly dependent on the external financial market, that is why the world financial crisis did not have any direct impact on it, but the world financial and economic recession's indirect impact was a sharp depreciation particularly in prices in the stock market (Figure23.23 and 2.24).

2.2.2 Real Sector

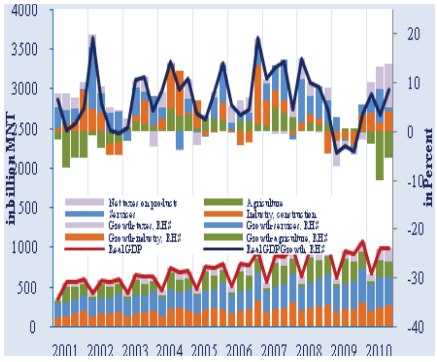
The Mongolian economy had been growing rapidly, about 9% year-on-year, for the last four years. The country has vast mineral wealth and is increasingly dependent on earnings from these resources. The per capita income was US$/ MNT 1,960 in 2008, which classifies the country as a low-middle-income country. The total GDP had grown from US$1.8 billion in 2004 to US$5.2 billion by the end of 2008. Growth of this magnitude came about due to the increase in the prices of minerals. The price of copper and gold, the two main export commodities, doubled or trebled during this period, which made the economy increasingly reliant on them. These two minerals currently constitute 57% of total export earnings. The top six commodities, copper, gold, cashmere, coal, oil and zinc together, accounted for 81% of exports in 2008. Year- on-year export revenues grew 30% on year earlier on average for the last four years and made up 42% of the GDP in 2008.

Figure 2.25
Real GDP and Growth by Sectors (in MNT billions, in percent, and 2005=100%)



Source: NSO

Figure 2.26
Real GDP and Growth by Sectors (in MNT billions, in percent, and 2005=100%)



Source: NSO

The economic growth which recorded 8.9% in 2008 slowed down to -1.6% in 2009. Real GDP in Q1:2009 fell by 4.3% in comparison to the previous year. The economy continued to decline in the subsequent quarters of 2009, with decline rates of 3% and 4.1 % in Q2 and Q3, respectively. However, in Q4:2009, the GDP increased by 3.8%. Overall, the annual growth rate was -1.6% in 2009.

The decreasing inflow of foreign capital and currency led to sharp decreases in domestic demand for goods and services. Agricultural, retail, transportation and construction sectors slowed down significantly from their recent high growths as well. In 2008 these sectors grew 9-20% in real terms. Only the industry and transportation sectors contributed to the economic growth in 2009.

The industrial sector, consisting mainly of mining and quarrying and accounting for more than 30% of GDP, fell by 1.9% in 2009. The transport sector struggled in H1:2009 with an 11% decrease in total carried freight. The construction sector experienced a boom between 2005 and 2008, fuelled by an increased demand for housing made possible by the availability of mortgage financing for citizens. This sector was also hard hit by the economic downturn. The agricultural sector shows signs of stability where the sown area for crops increased by 47%. The sector increased by 2% in 2009. The statistics show that due to the financial

and economic deterioration in some sectors, the economy experienced significant downturns. As compared to 2005, prices in 2009 increased significantly in the following sectors: construction sector 48.8%, commodity trade 26.6%, financial sector 20.4%, tax on goods and service 16.6%

The aggregate output in 2009 amounted to MNT 1,704.7 billion and it declined by 3.3% (compared to 2005). The reduction in the manufacturing sector by 14.2% and in the metal ore dressing sector by 6.2% had negative impact on output decline. Aggregate production fell by 18.3% in Q1, 7.9% in H1, and 10.5% in Q3:2009 and in Q4:2009 total decrease in output was 3.3%. Owing to the sharp rise in the NPL ratio, and also because of the poor state of the economy, bank lending to companies and individuals slowed sharply. This is making it increasingly difficult for companies to obtain credit at affordable rates, which risks making the economic downturn even worse.

For the past three years, the mining sector started to become stagnant in real terms. In 2006 the growth rate of this sector was 6.3 %, whereas in 2008 it grew only by 0.1%. This stagnation is related to the fact that Mongolia is starting to exhaust easily accessible and exploitable mineral deposits.

2.2.3 Unemployment

Mongolia is considered a young nation as most of the population is of working age. In the last four years, the proportion of the working age population was consistently around 62% of the total population. Official figures from the Labour Bureau indicate that the unemployment level in 2008 was 2.8% of the labour force, but it is widely recognised that this is an underestimation as it does not reflect and take into account the informal sector, estimated to employ up to 60,000 workers contributing as large as 30% of the GDP.

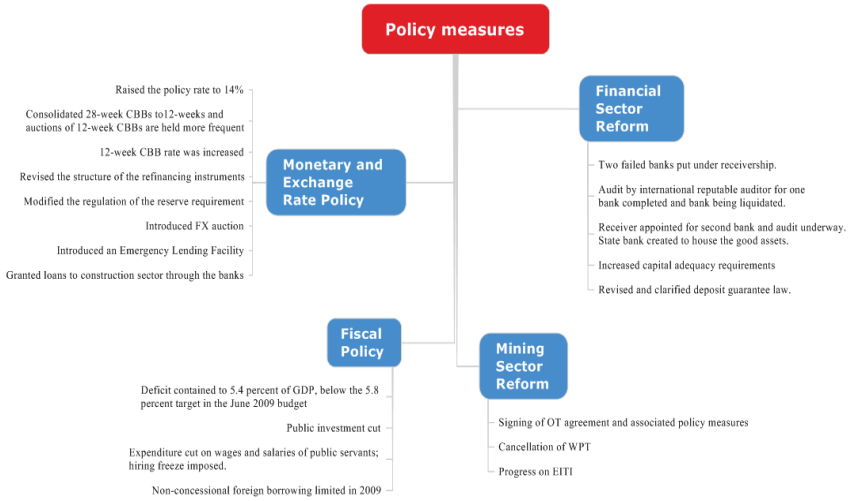
This has led to a 20.4% increase in the number of registered unemployed in May 2009 compared to May 2008. The registered unemployment rate increased to 3.6% of the labour force. This does not capture the entire picture, as it excludes those who are not registered at the Employment Office and are actively looking for work or are available to work immediately. The actual rate of unemployment may be as high as 9% to 12% of labour force. A recently commissioned survey on the informal sector shows that the effects of the economic slowdown have a widespread social and poverty impact in Mongolia.

3. The Relative Effectiveness of Policy Choices

3.1 Policy Measures Taken During Crisis

A series of policy measures were taken by the BoM and the GoM in late 2008 and early 2009 to address the crisis. These policy measures which include monetary and exchange rate policy, fiscal policy, financial sector reform, and mining sector reform, are summarised in Figure 3.1.

Figure 3.1
Policy Measures Taken To Address The Crisis



Source: Bank of Mongolia, Annual Report 2008, 2009, World Bank, 2010

3.1.1 Monetary and Exchange Rate Policy

By the Central Bank Law of Mongolia, the BoM's main objective is to maintain a stable togrog, the Mongolian national currency, directed at stabilising both the price and exchange rate. The BoM announces the tolerance band of CPI inflation for every year in its monetary policy guidelines, targeting single-digit inflation.

In 2007, the BoM introduced a policy rate used for monetary policy direction. The governor of the BoM is empowered to make a decision on whether to change the policy rate based on the suggestion of the board of directors. The BoM uses the policy rate as a 7-day central bank bill (CBBs), which is seven

days to draw money from banks, considered as having the lowest risk in the interbank market.

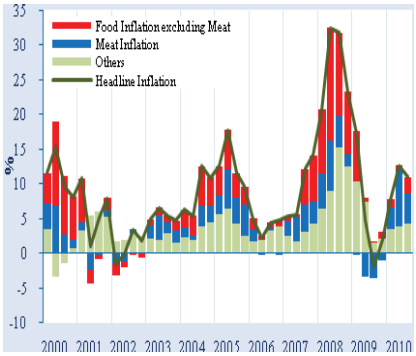
Overall, monetary policy has limited policy space in mitigating the adverse effects of the current economic crisis. Timely decisions and measures prevented the crisis from deeply affecting the economy. With the rapid worsening of the terms of trade, net foreign assets decreased and the exchange rate of the togrog depreciated dramatically. It was considered an extremely difficult economic and social situation. Monetary policy during the crises has been conducted towards increasing the togrog's yield, stabilising the national currency, maintaining macroeconomic and financial sector stability, preventing any misunderstandings and difficulties that may have arisen among depositors, keeping inflation at targeted levels and supporting sustainable economic growth[4].

A. Inflation, Exchange Rate and Policy Rate Changes

Prior to the crisis, non-sustainable increases in public wages and social welfare expenditure, money supply and bank lending in combination with a sharp increase in food and fuel prices amplified by infrastructure bottlenecks, put inflation under severe pressure. By the end of 2008, the CPI inflation rate reached 22.1%. Even though inflation in Mongolia is subject to seasonal fluctuations, it shows a pattern that is greatly influenced by the fluctuations in meat prices and it also tightly follows the cycle of the economy, measured by Real GDP gap (Figure 3.3)

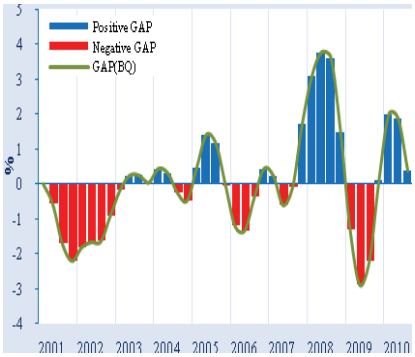
4. Annual Report 2008, 2009

Figure 3.2
Annual CPI Inflation
(in percent)



Source: NSO, Bank of Mongolia

Figure 3.3
Real GDP Gap
(in percent)



Source: NSO, Author's calculation, Blanchard-Quah decomposition

The monetary policy rate has been the indicator of the policy stance of the BOM. The BoM sets its policy rate consistent with the current economic situation and its anticipated future tendency. Therefore, the policy rate is not only an indicator of the Central Bank's policy direction, it is also the main instrument of disseminating information to the public about decisions based on calculating its future impact on the ever-changing economy.

In March 2008, the policy rate was increased by 1.35 percentage point from 8.4% to 9.75% per annum in consideration of the increasing inflationary pressure, expanding budget account and future trend of price increase in food products and oil products as well as the strengthening of CH¥. Given a sudden price increase of 30% in oil products in August 2008, which intensified the risk of raising inflation, the policy rate was again increased by 0.5 percentage point to 10.25 in September 2008. There was not any determined decision made to bring down prices of food products. As inflation and prices of the main export declined and the main trading countries' economies slowed down, the BoM lowered its policy rate in November of 2008 to 9.75% (Figure 3.4).

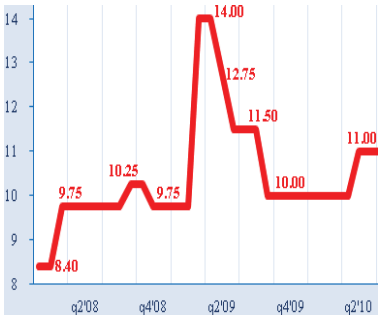
In the H1:2009, the BoM continued its policy of dampening the inflationary pressure and stabilising the foreign exchange market. The global financial crisis that severely impacted the Mongolian economy from H2:2008 caused Mongolia's foreign exchange market to become highly unstable. The financial market

instability caused by a capital outflow resulted in sudden stoppage in the foreign currency inflows to the banking sector. Decreasing inflow of foreign currency, worldwide economic instability, vulnerability of the Mongolian economy and, most importantly, the country's increasing trade deficit, all contributed to an increased demand for foreign currency, pressuring togrog to depreciate.

As mentioned above, in this unstable financial environment, the BoM sold its international reserves to mop up excessive supply of togrog and injected more foreign currency into the economy. The BoM's intervention in the foreign exchange market weakened BoM's holdings of international reserves. Therefore, the BoM could no longer directly intervene in the foreign exchange market because its international reserves were at low level. The official international reserves of the BoM decreased from US$0.9 billion prior to crisis in August to US$ 0.52 billion by the end of 2008, which was equivalent to only 9 weeks of imports. As a result, by the end of 2008, money supply decreased by 3.2% for the year and togrog depreciated by 24.5% against the US dollar in 2008 and a further 12.7% in 2009 (Figure 3.5).

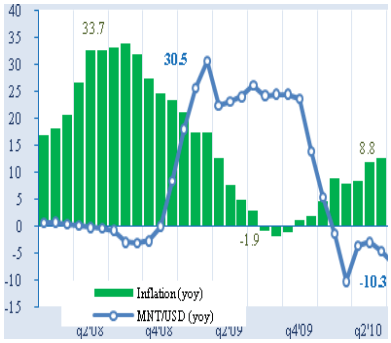
The drastic depreciation of the togrog's exchange rate in an economy with foreign currency shortages and one third of the banking sector loans provided in foreign currency, created an environment that could have interrupted the supply of needed imports, increased inflation and stagnated the economy, which would have eventually led to a currency crisis and even triggered banking sector instability.

Figure 3.4
Policy Rate
(annual rate, in percent)



Source: Bank of Mongolia

Figure 3.5
Inflation, Exchange Rate Growth
(annual rate, in percent)



Source: Bank of Mongolia

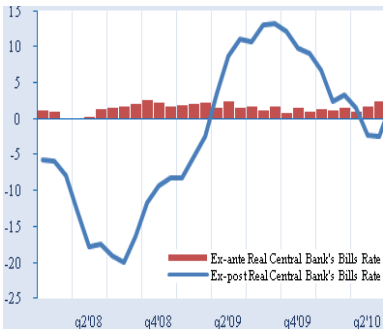
Although the implementation of a tight monetary policy has been a challenge, it was a necessary step to take in Q1:2009 by allowing the economy to avert a full-scale crisis or a currency crisis. The following measures were taken by the BoM in strengthening the country's international reserve position and administering monetary policy so as to prevent undue overshooting of the exchange rate and to keep inflation on a downward path. In order to protect our national currency against destabilisation and restore confidence in the togrog, the BoM raised its policy rate to 14% from 9.75% sharply (Figure 3.4). In addition, it started conducting foreign currency auctions twice a week, which also supported a revival of confidence in the togrog and stability in the foreign exchange market.

This was in response to the unfolding financial and economic crisis mentioned above and a necessary ingredient of the Stand-by arrangement signed between the GoM and the IMF. These measures had a positive impact in restoring reliability and stability in the national currency and stopping deposit flight out of the togrog and deposit and account withdrawals in the banking system. By making the togrog more attractive to dampen speculative currency attack on the togrog, it avoided the rationing of foreign exchange and facilitated the conditions in loosening the monetary policy.

The BoM's tightening monetary policy helped stabilise the money markets, restore confidence in the local currency and stem rapid depreciation. Moreover, these measures led to a convergence of the official BoM and the market exchange rates. These positive conditions brought about an opportunity to ease the tight monetary stance in H2:2009. The sharp fall in the inflation rate since March as well as the stabilisation of the currency in recent months, have given the BoM room to cut interest rates. Accordingly, the BoM had latitude to cut the interest rate from 14% to 12.75% in May, and again, to 11.5%, in June, which was signaling a softer monetary policy for the rest of the year.

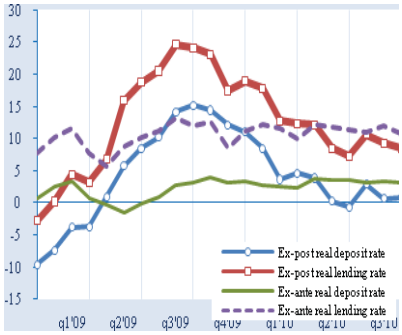
Though the financial markets were stabilised and the pace of inflation decreased significantly, the economy was still experiencing a credit crunch and a lack of liquidity. The unemployment situation and credit crunch in the banking sector resulted in an economic slowdown. It led to a serious crisis in some economic sectors. Therefore, the main purpose of the measure was supporting the real sector through lending channels. However, the policy rate increased in real terms due to deflation, and thus the cost of funding increased significantly, adversely affecting cash flows and repayment of bank loans. Therefore, in September 2010, the BoM decreased the policy rate once more by 1.5 percentage point to 10.0 percentage point.

Figure 3.6
Ex-Post, Ex-Ante Real CBBR (annual rate, weighted average, in percent)



Source: Bank of Mongolia, Author's calculation

Figure 3.7
Ex-Post, Ex-Ante Real Lending & Deposit Rates (annual rate, domestic currency, in percent)



Source: Bank of Mongolia, Author's calculation

Despite the BoM having cut its official policy rate three times since May, from 14.0% to 10% in September, the nominal interest rates on both local currency deposits and loans barely fell in 2009. On the deposit side, the search for funds by banks facing liquidity difficulties may have been an important driver of the high rates while the lending rates likely reflected concerns over credit quality, and high funding costs. Combined with the sharp decline in the CPI inflation rate over 2009, the trend in the nominal rates resulted in raising real economy-wide borrowing costs as measured by the ex-post real interest rate (Figure 3.6 and 3.7), posing a constraint to the recovery in private sector activity. Although the upward trend in inflation resulted in falling ex-post real rates, they remained over 20% on loans in 2009. However, the growth recovery in 2010 led to higher inflation expectations in recent months and lowering of ex-ante borrowing costs.

B. Other Conventional Measures

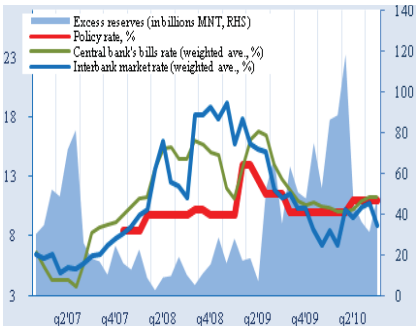
Due to the macroeconomic and financial market conditions, the BoM implemented its monetary policy using its conventional policy instruments, namely, the Central Bank Bill (CBB), repo and reverse repo financing facility, and reserve requirements. It took measures to improve the effectiveness of these policy instruments and to support the banks' liquidity management. The BOM revised some regulations and introduced new regulations pertaining to repo and reverse repo financing facilities, and reserve requirements.

Central Bank Bills Liquidity pressures in the banking system increased from the end of 2007 and the excess reserves in the interbank market had been falling constantly. During the period with liquidity shortages, the weighted average rate of CBBs and the interbank average rate were significantly higher and they started decreasing as the excess reserves in the interbank market increased (Figure 3.8). The increase in CBBs rates brought interest rates closer to the prevailing inflation rate, supporting efforts by the banking sector to restore confidence and attracting new deposits by increasing their return on togrog assets in the money market. Since H2:2009, excess reserves in the banking system increased significantly due to a more cautionary credit policy of banks and loan issues declined resulting from the market conditions and credit risks.

The BoM conducted CBB auctions of two types, the fixed rate tender and variable rate tender. The one-week CBB auction was conducted as a fixed rate tender with pre-announced full allotments in H1:2009 and the fixed rate tender with a pre-announced allotment volume in H2:2009. That was one of the policy measures to maintain the reserve money target in accordance with the Stand-by programme of the IMF and to loosen the monetary policy. However, the 12- and 28-week CBB auctions were conducted as variable rate tenders.

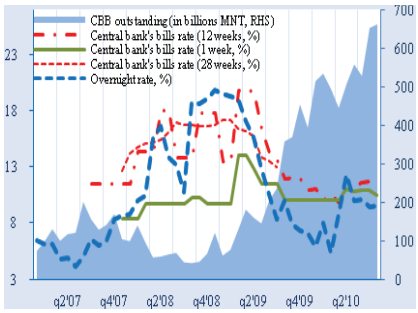
Since March 2009, to reduce the maturity mismatches, the BoM stopped selling 28-week CBBs and conducted 12-week CBBs auctions once every two weeks. As a result of this policy measure, the CBB maturity and average maturity of banks' deposits became closer, causing the duration gap of banks' assets and liabilities to be reduced. By conducting the 12-week CBB auctions once every two weeks, the opportunity was given to banks to manage their liquidity more flexibly to match the rapid changes in the financial markets.

Figure 3.8
Excess Reserves and Money Market Rates (in MNT billions, in percent)



Source: Bank of Mongolia

Figure 3.9
CBBs Outstanding and Rates (in MNT billions, in percent)



Source: Bank of Mongolia

Repo and Reverse Repo Financing Facility In 2008, the reverse repo facility was introduced as a tool for improving the liquidity management of the banks and for meeting the temporary liquidity needs of the interbank market. As a result of introducing the reverse repo facility, the BoM is able to affect banking sector stability and liquidity shortage in the interbank market. The decision to conduct reverse repo auctions was made in line with a monetary policy target, demand and supply projection for liquidity in the interbank market and the financial market situation. In addition, due to the liquidity shortage in the banking system and the deterioration of liquidity of the banking sector, the principal regulation of financing instruments was enhanced by providing repo instruments in the forms of a standing facility and a non-standing facility.

Reserve Requirements The reserve requirement set for banks by the BoM is one of the main instruments used to control money supply and manage liquidity within the interbank market. In early 2008, when inflation was soaring, a comparatively tight monetary policy was implemented in order to decrease money supply. This entailed an increase in the required reserve rate by 0.5 percentage points to 5.5%. In Q4:2008, as inflation rates decreased, the price of food products and crude oil stabilised, and with the government's decisive action against inflation, the economy saw a progressive decline in the inflation rate in the subsequent year. Thus, the reserve requirement ratio set by the BoM was brought down by 0.5 percentage points to 5.0%, which provided banks with the opportunity to place their funds in liquid assets.

In the Q1:2009, to assist interbank market development, with the intention of lowering the spread between the deposit and loan rates, increasing the return on assets and minimising the volatility within the interbank market, the BoM added a premium equals to one-fourth of the policy rate on the Statutory Reserve Requirement ratio and took measures to require adherence to the International and National Required Reserved ratios to be of no less than 50% in a day. Aside from these changes, due to the sharp depreciation of the MNT in Q1:2009, the BoM started paying remuneration on banks' MNT required reserves. In November 2009, the BoM, taking into account the stabilisation of the exchange rate in Q4:2009, increase in the banks' excess reserves and significant improvement in the liquidity conditions of banks, decided to stop remunerating banks' required reserves.

C. Non-conventional Measures

Besides the abovementioned conventional monetary policy measures against liquidity shortage and solvency problems in the banking sector, the BoM took some unconventional monetary policy measures, including the introduction of an emergency lending facility, foreign exchange swap, collateralised loan, construction loan, gold financing and government bond issuing.

Emergency Lending Facility An Emergency Lending Facility was introduced at the end of 2008 to make loans to the banks that were facing a temporary liquidity shortage. The purpose of that regulation was to solve banks' financial problems related to liquidity problems due to deposit outflow from the banks and to manage the financial sector instability. The BoM offers emergency lending if a commercial bank is only considered to be able to solve its difficulties by itself in the short run or in 90 days in a special case. For the banks, the Central Bank's injection is the last source of lending. Before requesting for that loan, banks must have availed all possible funding options available at the interbank market, as well as the regular financing facilities offered by the Central Bank.

Collateralised Loan In November 2008, the BOM started issuing collateralised loans to banks that encounter temporary liquidity problems but are solvent. Collateralised loans can be extended up to 90 days if the following conditions are met: i) the BoM considers that the borrower-bank's liquidity needs are of a temporary nature not exceeding three months, and that the borrower-bank is able to repay the loan and resolve its liquidity problem itself; and ii) the bank has eligible collateral assets acceptable to the BOM. The interest rate of collateralised loans was 8 percentage points above the policy rate.

Construction Loan In order to support the real sector of the economy and to reduce the large exposure to the construction sector of the banks, the BOM extended two loans through the banks to construction companies, totaling MNT 55.7 billion. However, due to misuse of the funds by both the banks and construction companies, these loans were soon withdrawn.

Gold Financing The MoF raised US$89.5 million through its bond issues and total funding of US$66.25 million loans with the maturity of one year and interest rate of 13% was given to 5 banks, of which US$44.9 million was lent to 23 companies via those banks, to support the gold mining activities and to reduce the liquidity crisis. The BoM participated in the process by assuming control over the use of these funds.

MoF Deposits to the Banks In 2008, the excess reserves in the interbank market had been falling constantly due to temporary short-term actions. Given the liquidity difficulties of the banks, there were a range of measures needed to be taken by the Central Bank and the commercial banks. The BoM successfully cooperated with the MoF and other agencies in order to support the liquidity of the commercial banks and to secure financial stability. In particular, the BoM assisted in the allocation of government assets in banks by the GoM and the MoF. A total fund of MNT 65 billion was put into 3 banks as deposits. As of the end of 2009, all of these deposits were repaid.

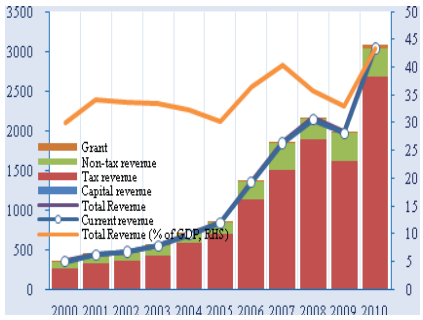
Government Bond Financing Moreover, to finance the budget deficit, the BoM purchased 3 pools of government securities with the same maturity period of one year, in amounts of 60, 55 and 55 billion MNT. The respective rates were 5%, 7.5% and 10%.

3.1.2 Fiscal Policy

The declining copper prices had a severe impact on the fiscal account since revenue from the crucial mining sector had collapsed. For the past few years, the current fiscal account was running surpluses where one third of the government revenue was collected in the form of the windfall tax on copper and gold mining. A decrease in terms of percentage in GDP was related to the general weakness of the economy and a sharp decrease in major export commodities. In particular, the falling world copper prices hit the government revenue. A sharp decrease in copper prices in H2:2008 led to a sudden shortfall in the government revenue. The government revenue had grown consistently over the past few years. By the end of 2008, it reached MNT2,136.1 billion (equivalent to US$1754.6 million) or 35.8% of GDP, which declined from 40.2%

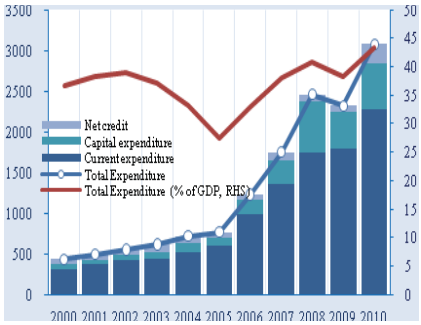
in 2007. In 2009, total government revenue stood at MNT1,993 billion (US$1,377 million) or 32.9% of GDP, down by 7.6% as compared to that of 2008, mainly due to a collapse in tax revenue (Figure 4.9). Tax revenue from "windfall" profit taxes on copper and gold exports was MNT 388.7 billion in 2008, which was equivalent to 6.5% of GDP. In 2009 it was only MNT186.5 billion or 3.1% of GDP. Enterprise income taxes had declined by 18.9% as well.

Figure 3.10
Fiscal Revenue
(in MNT billions)



Source: Ministry of Finance

Figure 3.11
Fiscal Expenditure
(in MNT billions)



Source: Ministry of Finance

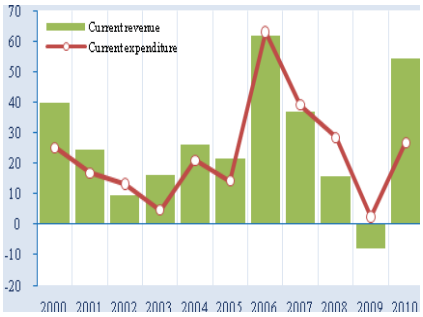
Government expenditure grew rapidly in the years leading up to 2008. In 2008, it increased by 40.8% and reached a level equivalent to 40.9% of GDP. The growth in government expenditure was mostly financed by "windfall" tax revenue. With the current economic downturn, this rapid increase proved to be unsustainable. In 2009, the government spent MNT2321.6 billion which was equivalent to 38.3% of GDP, a 2.6 percentage point decrease in terms of share in GDP. In particular, the GoM reduced its expenditure by cutting off investment projects with no feasibility study and concentrating on maintaining the current infrastructure. It also froze up wages and salaries of government officials and stopped new hiring. Moreover, social transfer programmes such as "Child Money Programme" and "Newly Wedded Couples Programme" were cut totaling a combined sum of MNT54 billion.

With a sudden drop in the fiscal revenue and low fiscal savings from "windfall" tax revenues from previous years, the GoM's fiscal policy has limited space in promoting aggregate demand to mitigate the effects of the economic crisis. The

priority of the government was to keep the budget deficit within a range that can be financed through domestic and foreign resources.

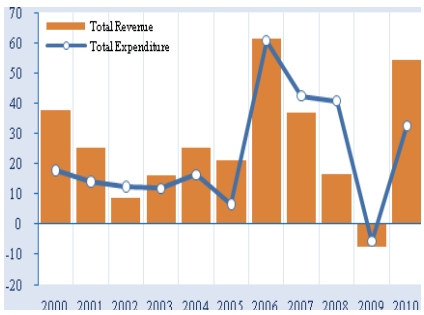
The government's original budget for 2009, passed in late 2008, targeted a fiscal deficit of 6.1% of GDP. However, the collapse in revenue, combined with the slowing economic growth, indicated that the deficit could have been higher than predicted. Therefore, the government passed a revised budget with a deficit of 5.8% of GDP for 2009 that predicted a fall in revenue and introduced cuts in expenditure. In order to keep the budget deficit at this level, the government took steps to cut its expenditure. Significant cuts had to be made since there was almost no fiscal savings from the "windfall" profit taxes from previous years and the GoM's ability to finance its budget deficit by borrowing was very limited.

Figure 3.12
Current Revenue and Expenditure
(year-on-year change, in percent)



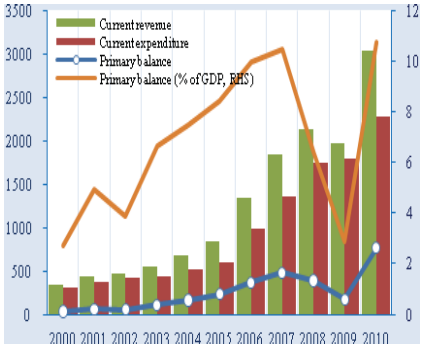
Source: Ministry of Finance

Figure 3.13
Total Revenue and Expenditure
(year-on-year change, in percent)



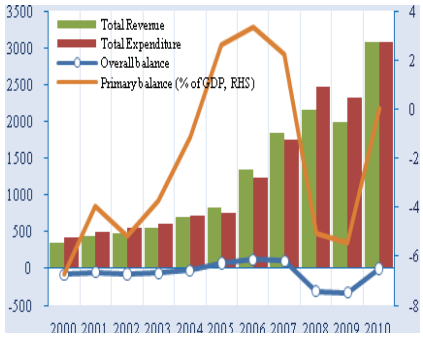
Source: Ministry of Finance

Figure 3.14
Primary Balance
(in MNT billions)



Source: Ministry of Finance

Figure 3.15
Overall Balance
(in MNT billions)



Source: Ministry of Finance

In March 2009, as a first step in combating the economic crisis, the GoM put forward a fiscal stimulus package of MNT 1.6 trillion (about US$1 billion), including funds to stabilise the exchange rate and the banking sector, promote growth in jobs (in part through investment in infrastructure projects), encourage mineral and metals exports to China, and support the agricultural sector. This was in addition to a MNT 455.1 billion bailout package intended to stabilise the banking sector that was approved in December 2008. The government had planned to cover the cost of the stimulus package through a sovereign bond issue or increased commercial borrowing.

According to this anti-crisis programme, the central budget spending would have increased by 1.5 trillion togrog or almost a quarter of GDP. However, the GoM could not find the financing for this programme internally as well as externally. This is partly because Mongolia's debt rating according to Standard and Poor's is BB-, which hampered the GoM's ability to borrow from the external markets, especially during the global financial crisis.

The government was successful in seeking external support to stabilise the economy. In order to mitigate the adverse impacts of the economic crisis, the GoM adopted a Stand-by Agreement with IMF in April 2009. The IMF approved an 18-month stand-by loan of US$224 million in response to the sharply deteriorating macroeconomic conditions. In exchange, the GoM is expected to control the budget deficit and public debt levels. The programme will also

introduce more targeted payments to support the poor. Following an IMF statement praising the government's impressive efforts to stabilise the economy, in mid-March the World Bank, Asian Development Bank and the government of Japan agreed to offer additional loans worth a combined sum of US$160 million.

3.1.3 Financial Sector Reforms

During the crisis, the weaknesses in the banking sector were exposed by the failure of two major banks which had to be taken into receivership. Loan quality, in particular to the private sector which encountered a drastic increase in recorded NPLs, deteriorated markedly over this period. Therefore, addressing the fundamental vulnerabilities revealed during the recent crisis remains the priority for the authorities, bank management and shareholders. It is vital that the bank restructuring reforms move forward in order to clean up the bank balance sheets, enhance corporate governance, build adequate capital buffers, and increase credit availability within the banking system with enhanced credit risk management. To make the banking sector stable and healthy, the implemented restructuring measures include introduction of a blanket guarantee law, reduction of NPL, extension of loans to private and household sectors, and refinancing of the under-capitalised but performing banks.

In order to restore confidence in its banks and to prevent the sudden withdrawal of deposits from the banking sector or run on banks, the Mongolian Parliament passed "The Law on Guaranteeing the Deposits in Banks" on November 25, 2008. As stated in the law, all deposits (current deposits and savings accounts) in the banks licensed to undertake banking activities are blanket-guaranteed for the four-year period ending in 2012. However, the 100% government guarantee on deposits of banks creates moral hazard and may lead some banks and creditors to take excessive risks. Therefore, the Deposit Guarantee law was amended on 6 March 2009 to cover only current or transactional accounts of households and other entities. A deposit insurance scheme, which can be funded by charging premiums depending on the deposits acquired, should be established to reduce the potential costs of the blanket guarantee of the government. The BoM has begun research to have a deposit insurance law approved to create a deposit insurance agency.

The blanket guarantee of the government caused the deposit outflows in the banking sector that had begun since October 2008 to decrease gradually. This resulted in the total deposits reaching the pre-crises level of MNT 2.5 trillion. It was significantly important to lower the pressure on liquidity of the

banks. In particular, the loan portfolio quality of Zoos Bank, the second bank taken into receivership under the BoM in November 2009, deteriorated significantly. The bank was unable to fully commit to repayment of customers' money having violated the limit of a single borrower's exposure. However, the collapse did not negatively affect the overall confidence of depositors.

In 2009, the total capital of the banking sector was reduced by MNT 178.1 billion or 52.2% from 2008. Excluding the banks, which came under receivership, the capital adequacy ratio of the overall sector was 14% which was below the previous year's CAR by 1.3 percentage points. Given the under-capitalisation of banks, a further additional capital of MNT 64.1 billion was required by banks in order to comply with the capital adequacy ratio requirement. The required amount of the additional capital equaled 1% of GDP. In March 2009 the BoM raised the capital adequacy requirement from 10% to 12%, again in order to strengthen the risk management capacity of the commercial banks to protect them from the increasing risks.

The loan loss provision rate was lowered by a joint agreement of the BoM and MoF on 4 March 2009. It allowed banks to use provisions set up when the potential output was stable and the profitability of the banking sector was higher during the crises period. The loan loss provision rate declined from 40% to 25% for the substandard classification and from 75% to 50% for the doubtful classification. Given that borrowers were facing temporary problems with their business operations, the Central Bank allowed banks and lenders to extend the duration of their loans twice.

The BoM discussed with international donors the policy actions required to address the rights of depositors and customers with the view of maintaining the stability of the banking sector during the crisis. To investigate and assess the reliability, independence, and completeness of accounting of NPL and off-balance sheet commitments, Price Waterhouse Coopers, Germany, assessed and audited 4 banks. In addition, 3 of the world's leading 4 auditors were contracted by the BoM to conduct inspections of commercial banks in Mongolia in Q1:2010[5].

3.1.4 Mining Sector Reforms

One of the biggest investment plans in the mining sector in Mongolia is Oyu Tolgoi copper plant investment and implementation. Resolving the issues related to this mining project will have big implications for other mining developments

5. Bank of Mongolia, Annual Report 2009

in Mongolia, since the Oyu Tolgoi deal is seen by many as a test case for future agreements. The huge Oyu Tolgoi mine is expected to provide a significant boost to Mongolia's economy. Although production is not scheduled to begin until 2013, a 2005 estimate by Ivanhoe said that production will average 1 billion lbs. of copper and 500,000 oz. of gold year on year. Significant progress in mining sector reform and development was also made during 2009 with the signing of a large, world-class mining project agreement: the OT Investment Agreement with Ivanhoe Mines and Rio Tinto.

In the process leading up to the signing of this agreement, a number of policy issues were clarified and some key disincentives to investment were removed. Under the terms of the finalised investment agreement, the Mongolian government will own 34% of the mine, with Ivanhoe holding the remainder. However, the main investor in the project will be Rio Tinto, an Anglo-Australian mining company, which bought a 10% stake in Ivanhoe in 2006, with the option of increasing its stake to 47% over the next two years. Also, the Windfall Profits Tax was repealed with effect from January 2011.

The bulk of Oyu Tolgoi's copper will be exported to China, which has emerged as the world's biggest consumer of the metal. Over the past three years China's imports of copper have tripled, and the demand is expected to continue to soar. Given the mine's vast reserves, the Oyu Tolgoi project can operate for several decades, generating tens of billions of dollars in revenue.

Other positive changes included permitting private sector construction and management of roads and water supply facilities, liberalising the policy environment and changing the income tax regime to extend loss carry-forward provisions. In addition, the OT agreement can be used as the draft standard agreement upon which future projects will be negotiated. These include one concerning the Tavan Tolgoi project, a reserve located in the Gobi desert, which is thought to hold the biggest unexploited coking coal deposit in the world. Companies from the US, China, Russia and Australia have already expressed an interest in the project.

Nevertheless, other measures were introduced that provided strong disincentives to new exploration and development. Just as the OT negotiations were being completed, amendment to the VAT Law was introduced. This amendment excluded exports of mineral products from claiming refunds for the VAT paid on the inputs used for the mineral products. This constitutes a significant increase in operating costs to miners and reduces profitability. In addition, progress in important regulatory developments, in relation to mineral licensing, has been slow.

3.2 Adjustments in Macroeconomic and Financial Variables during Crisis

In late 2009 and the beginning of 2010, however, the Mongolian economy has begun to recover significantly, supported by the abovementioned policy measures undertaken by the BoM and the GoM as the global economy rebounds. As a result, Mongolia chalked up significant positive trends including the decrease of inflation, stabilisation of the exchange rate, improvement in the trade deficit, rise in international reserves and recovery in credit as well as improvement in the fiscal stance and growth of the economy.

Following Harding and Pagan (2002) in defining duration, amplitude, and cumulative loss of a recession, we calculated and summarised duration (length of a recession), amplitude (peak-to-trough fall in the logarithmic value of the variable), and the cumulative loss (sum of all losses from the peak value during the recession) and the slope (ratio of amplitude to duration) for the macroeconomic and financial variables during the crisis (Figure 3.16).

A dramatic decline in commodity prices and a sharp drop in external demand due to the global downturn of 2008 and 2009 were the external shocks which were transmitted to Mongolia's economy. These shocks exposed underlying weaknesses in the economic structure and the policy environment which manifested in the mining sector weaknesses, worsening of the current and fiscal account deficits, exchange rate, banking sector instability, the market illiquidity, and contraction in credit. Then, the economic difficulties started affecting the social aspects of the country through real economic slowdown, deflation, and reduced government spending (Figure 3.16).

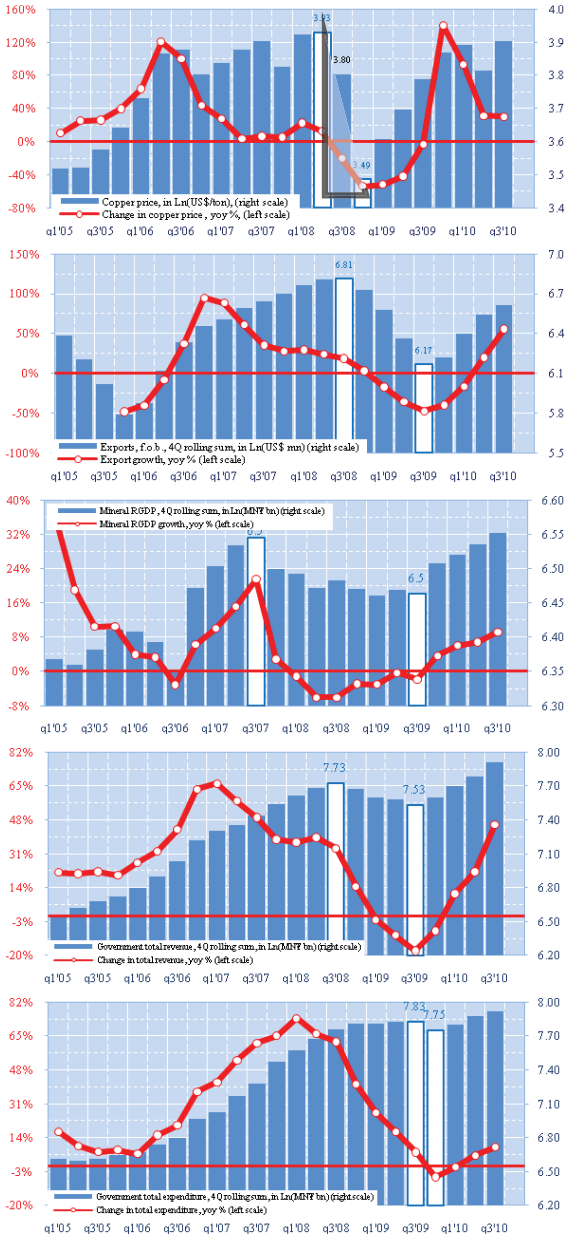
Following growth of 8.9% in 2008, Mongolia's economic downturn was particularly severe with the duration of 3 quarters from Q3:2008 and the decrease amplitude of 0.02. The GDP growth was been negative for 2 quarters (-1.5 in Q3:2009 and -1.6 in Q4:2009). The sector most affected was mineral. Following the copper price decline which started in 2007, the sector contracted for 8 quarters from Q4:2007. The amplitude of the downturn in mineral GDP growth was 0.08, which was 4 times deeper than that of the overall GDP growth. However, growth started picking up in the Q1:2009 and reached 9.2% in Q3:2010. In contrast, the non-mineral sector declined for a shorter period with small amplitude.

Copper price declined by about 60% from its historic peak in Q2:2008 within 2 quarters. As a result, Mongolia's trade revenue from copper and export revenue decreased significantly from Q3:2008 to Q3:2009 by 47.5%. The export growth was negative for 5 consecutive quarters and it resulted in the widened trade

deficit in 2008, and further in 2009. The trade deficit put the national currency togrog under significant pressure to devalue and it depreciated by 40% against the US dollar between Q3:2008 and Q1:2009. Demand for the local currency dropped and reserve losses were incurred in support of the de facto exchange rate and it contributed a positive effect on inflation and a negative impact on the balance sheet of banks. Due to both the rise in the price of imports following the depreciation and contraction in consumption with the fall in economic activity, imports fell by up to 35% from its peak (Q4:2008) to its trough (Q4:2009). However, improvements in external demand and recovery in commodity prices fed by China's strong economic activity have contributed to the strong current account adjustment in H2:2009. With the recovery of the domestic economy, the decline in imports moderated. Since then imports have also strongly rebounded, driven mainly by a surge in shipments from Russia and China.

Before entering the crisis, the country's fiscal position was highly reliant on mineral revenues. Policy was not encouraging the people to do adequate saving during the boom. As a result, the government budget revenue decreased significantly from Q3:2008 for 4 quarters in line with the decline in commodity prices. However, the government expenditures were almost stable in order to keep the previous year's level which triggered large increases in unsustainable, inefficient, and broad expenditures.

Figure 3.16
Adjustments in Macroeconomic and Financial Variables During Crisis (Duration, Amplitude, Slope and Cumulative loss)



Copper Price

Duration:	2 quarters
Period:	2008 Q3 – Q4
Amplitude:	3.93-3.49=0.44
Slope:	0.44/2=0.22
Cumulative loss:	0.13+0.44=0.57

Exports

Duration:	4 quarters
Period:	2008 Q4 – 2009 Q3
Amplitude:	6.81-6.17=0.64
Slope:	0.64/4=0.16
Cumulative loss:	0.08+0.23+0.45+0.64= 1.4

Mineral Real GDP

Duration:	8 quarters
Period:	2007 Q4 – 2009 Q3
Amplitude:	6.54-6.46=0.08
Slope:	0.08/8=0.01
Cumulative loss:	0.04+0.05+0.07+0.06 +0.07+0.08+0.07+0.08 =0.52

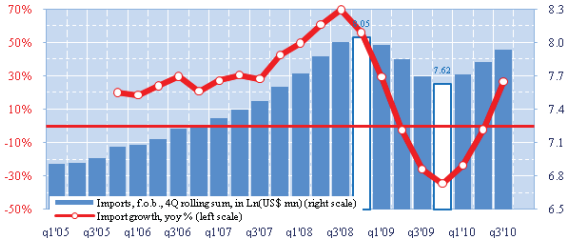
Government Revenue

Duration:	4 quarters
Period:	2008 Q4 – 2009 Q3
Amplitude:	7.73-7.53=0.20
Slope:	0.20/4=0.05
Cumulative loss:	0.05+0.13+0.15+0.20 =0.53

Government Expenditure

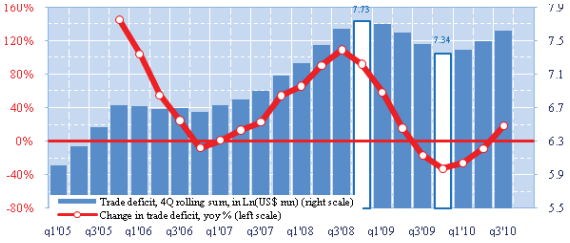
Duration:	1 quarter
Period:	2009 Q4
Amplitude:	7.83-7.75=0.08
Slope:	0.08/1=0.08
Cumulative loss:	0.08

Figure 3.16 (continued)
Adjustments in Macroeconomic and Financial Variables During Crisis
(Duration, Amplitude, Slope and Cumulative loss)



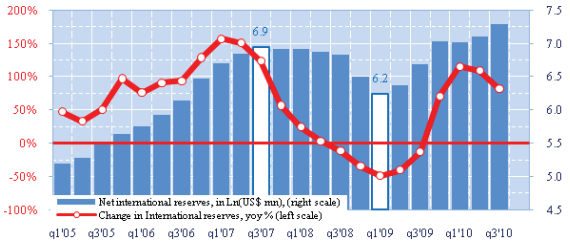
Imports

Duration:	4 quarters
Period:	2009 Q1 – 2009 Q4
Amplitude:	8.05-7.62=0.43
Slope:	0.43/4=0.11
Cumulative loss:	0.07+0.02+0.35+0.43= 1.05



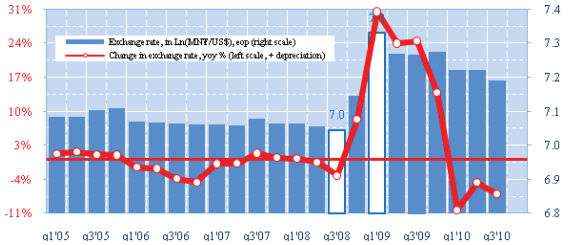
Trade Deficits

Duration:	4 quarters
Period:	2009 Q1- 2009 Q4
Amplitude:	7.73-7.34=0.39
Slope:	0.39/4=0.10
Cumulative loss:	0.04+0.14+0.28+0.39= 0.85



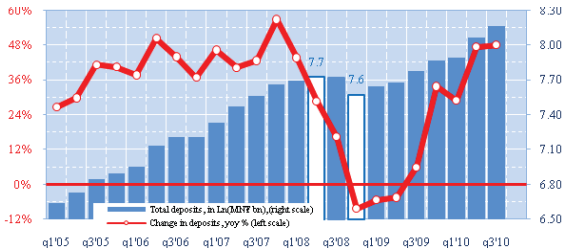
Net International Reserves

Duration:	6 quarters
Period:	2007 Q4 – 2009 Q1
Amplitude:	6.95-6.24=0.71
Slope:	0.71/6=0.12
Cumulative loss:	0.03+0.03+0.08+0.12+0.46 +0.71=1.43



MNT/USD Exchange Rate

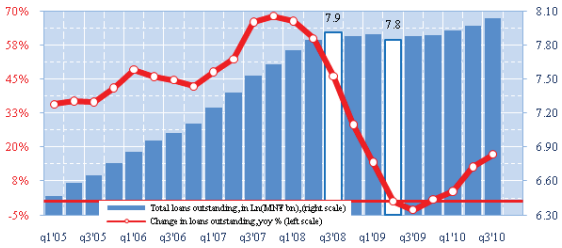
Duration:	2
Period:	2008 Q4 – 2009 Q1
Amplitude:	7.04-7.33=0.29
Slope:	0.29/2=0.145
Cumulative loss:	0.1+0.29=0.39



Total Deposits

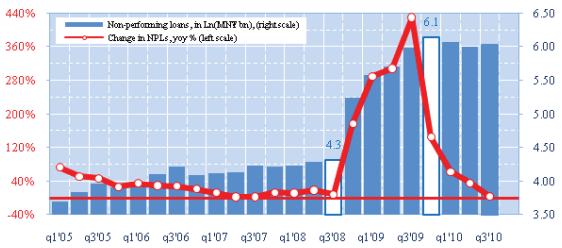
Duration:	2 quarters
Period:	2008 Q3 – 2008 Q4
Amplitude:	7.72-7.57=0.15
Slope:	0.15/2=0.075
Cumulative loss:	0.01+0.15=0.16

Figure 3.16 (continued)
Adjustments in Macroeconomic and Financial Variables During Crisis (Duration, Amplitude, Slope and Cumulative loss)



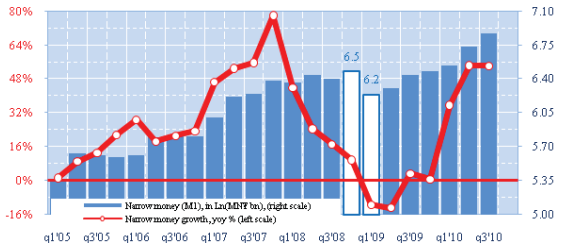
Loans Outstanding

Duration:	3 quarters
Period:	2008 Q4 – 2009 Q2
Amplitude:	7.91-7.85=0.06
Slope:	0.06/3=0.02
Cumulative loss:	0.03+0.02+0.06=0.11



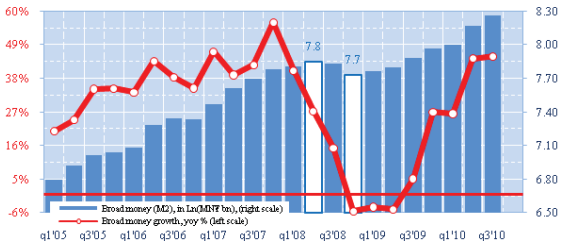
Non-performing Loans

Duration:	5 quarters
Period:	2008 Q4 – 2009 Q4
Amplitude:	4.32-6.14=1.82
Slope:	1.82/5=0.364
Cumulative loss:	0.92+1.26+1.38+1.67 +1.82=7.05



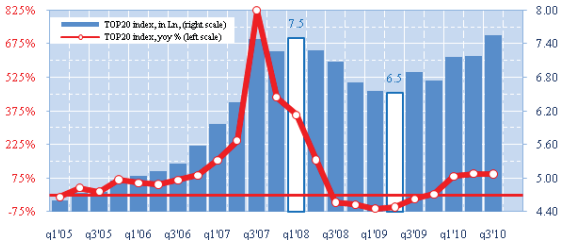
Narrow Money (M1)

Duration:	1 quarter
Period:	2009 Q1
Amplitude:	6.47-6.24=0.23
Slope:	0.23/1=0.23
Cumulative loss:	0.23



Broad Money (M2)

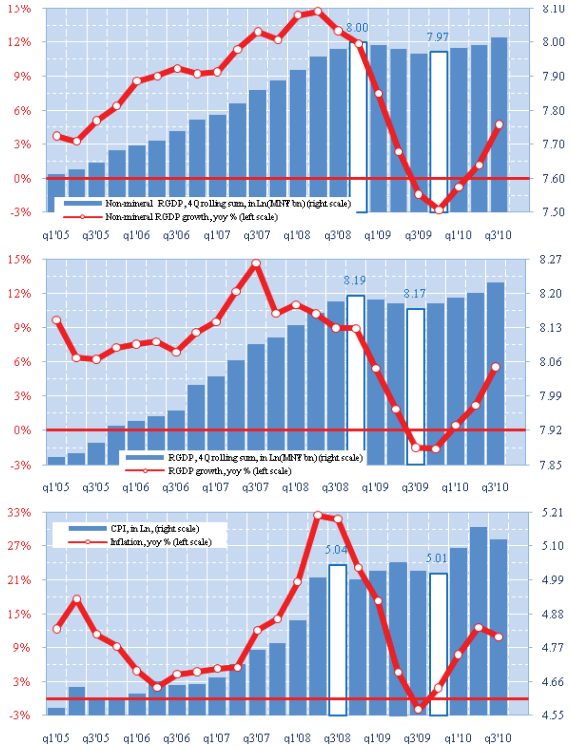
Duration:	2 quarters
Period:	2008 Q2 – 2008 Q4
Amplitude:	7.85-7.73=0.12
Slope:	0.12/2=0.06
Cumulative loss:	0.02+0.12=0.14



Stock Market Index (TOP20)

Duration:	5 quarters
Period:	2008 Q2 – 2009 Q2
Amplitude:	7.49-6.52=0.97
Slope:	0.97/5=0.194
Cumulative loss:	0.20+0.41+0.78+0.94 +0.97=3.30

Figure 3.16 (continued)
Adjustments in Macroeconomic and Financial Variables During the Crisis
(Duration, Amplitude, Slope and Cumulative loss)



Non-mineral Real GDP

Duration:	4 quarters
Period:	2009 Q1 – 2009 Q3
Amplitude:	8.0-7.97=0.03
Slope:	0.03/4=0.008
Cumulative loss:	0.01+0.02+0.03+0=0.06

Real GDP and growth

Duration:	3 quarters
Period:	2009 Q1 – 2009 Q3
Amplitude:	8.19-8.17=0.02
Slope:	0.02/3=0.007
Cumulative loss:	0+0.01+0.02=0.03

CPI and Inflation

Duration:	5 quarters
Period:	2008 Q4 – 2009 Q4
Amplitude:	5.04-5.01=0.03
Slope:	0.03/5=0.006
Cumulative loss:	0.05+0.02+0+0.02+0.03 =0.12

Given the recent rebound in commodity prices and a recovery in the domestic economy, Mongolia's fiscal position has improved significantly. The main reason for the improvement has been the continuing recovery in revenue from the mining sector. The revenue receipt in 2009 was some 7.5% lower than in 2008 in nominal terms mainly reflecting the fall in mining revenues due to the fall in copper prices. Overall, revenues and grants increased by 66% year-on-year in Q1:2010.

Following its depreciation in Q1:2009, the nominal exchange rate has remained stable since Q2:2009 due to the policy actions on the exchange rate, which included removal of the exchange rate peg and the raising of nominal interest rates, combined with the narrowing of the trade deficit resulting from a rebound

in copper and gold prices. This led to the stabilisation of the nominal exchange rate. The stabilisation of the exchange rate has allowed the BoM to continue with the process of rebuilding the country's foreign-exchange reserves which have been increasing at a stable rate.

The availability of credit also declined during the crisis period. The overall stock of outstanding loans has remained broadly flat in nominal terms since Q3:2008. The level of new loan issuance fell markedly in late 2008 and early 2009 both in nominal terms, down 57% year-on-year for example in Q1:2009, and relative to the outstanding stock of loans. There has been some recovery in new issuance levels in recent quarters, however, in particular in the mining sector. With the economy rebounding, the nominal stock of loans outstanding grew for the third consecutive quarter in Q3:2009, increasing by 17% on a year earlier. As the immediate threat of a liquidity crisis receded, weaknesses in the quality of banking sector balance sheets became increasingly apparent throughout 2009. Loan quality, in particular to the private sector, deteriorated markedly with a rise in NPLs. In contrast, MNT deposits have continued to rise, hitting a new peak in Q3:2010, up 48% from a year ago. This is attributed mainly to expectations of a currency appreciation and the "blanket guarantee law" covering bank deposits, which was introduced as an instrument for restoring confidence in the banking system in late 2008.

After peaking at 32.4% in Q2:2008, inflation fell sharply to -1.9 in Q3:2009, owing to the weak economy and falling food and commodity prices. However, the annual CPI inflation has been accelerated in late 2010, reaching 12.6% in Q2:2010 due to the rising food prices and the recovery of the economy, which contributed to squeeze the size of the positive output gap. The economic recovery and the prospects of continued strong growth in 2010 have contributed to the recent increases in consumer prices.

4. Empirical Model Specifications And Results

4.1 Model Specifications

The purpose of this section is to empirically investigate whether fiscal policy or monetary policy has significant impact on economic growth in the case of Mongolia. We examine the relative effectiveness of both types of policies using modern time series econometrics. To capture the impact of the policy variables on economic growth (measured by GDP growth rate), the following empirical equation is applied:

$$y_t = c + B_1 y_{t-1} + B_2 y_{t-2} + \ldots B_p y_{t-p} + C x_t + \varepsilon_t$$

Where:

$y_t = [Y,F,M,P]$; x_t = exogenous variables; Y = Output; F = Fiscal variables; M = Monetary variables; P = Price level related variables; x_t = a set of exogenous variables

4.2 Variable Selection and Data

Four endogenous variables, indicating fiscal and monetary policies, price level and external sector, are chosen to be included in the model. Consistent with the monetarist propositions, output, prices, and money stock are, respectively, represented by gross domestic product, GDP deflator (2005=100), and M1 or M2. Also, we have tested the choices of GDP, as opposed to RGDP or NGDP, and of GDP deflator, as opposed to CPI. Similarly, the inclusion of M1 is preferred because the financial market in Mongolia is not fully developed as it has been argued that M1 is more relevant than M2 in the existing literature. Government expenditure has been included as the fourth variable in the system to capture the effect of fiscal policy and as opposed to government revenue, fiscal and primary balance. Also, we should note that as the number of exogenous variables increases, the degrees of freedom problem decreases given the limited number of observations.

A quarterly time series data-set for periods from 2000 through 2010 was used to estimate the model. The data was obtained from the monthly bulletins of the BoM and the National Statistic Office. The year of 2000 was chosen as the starting date for two reasons: first, the Mongolian economy has become more stable since 2000; and second, prior to 1999, there were no sufficient data available for quarterly GDP. In order to minimise the seasonal and scale effects and to maximise the chances of core relationships among variables, all the series have been seasonally adjusted and some transformed into natural logarithms.

4.3 Unit Root Test Statistics for Variable Used

Our next aim is to apply tests which will determine the order of integration of the variables. We will apply two asymptotically equivalent tests: the augmented Dickey-Fuller (ADF) test and the Phillips-Perron (PP) test. We begin the ADF test to identify the probable order of stationarity of the variables using the procedure to examine the optimal lag length by Schwarz's Information Criteria (SIC).

The results of the tests for all the variables and for the four alternatives are presented in Table 5.1, first for their levels, second for logarithmic levels (the growth, price indices and balance variables are not in logarithms but are expressed in percentages or differenced), third for seasonally adjusted ones (variables seasonally fluctuated are seasonally adjusted by X-12 ARIMA method) and then (in cases where we found that series contain a unit root) for their first differences, and so on. The results indicate that most of the series are non-stationary when the variables are defined in levels. But first-differencing the series removes the non-stationary components in all cases and the null hypothesis of non-stationarity is clearly rejected at the 5% significance level, suggesting that all our variables are integrated of order one. The results of the PP tests are reported in Table 4.1, and are not fundamentally different from the respective ADF results, except for government expenditure and revenue and GDP deflator. Analytically the results from the tests in the levels of the variables clearly point to the presence of a unit root in most cases. The results after first-differencing the series robustly reject the null hypothesis of the presence of a unit root, suggesting therefore that the series are integrated of order one.

Table 4.1
Unit Root Test

		Augmented Dickey-Fuller				Phillips-Perron				Order of Integration	
		None		1st order dif.		None		1st order dif.		ADF	PP
VARIABLES	Equation type	Critical	P value	Critical value	P value	Critical value	P value	Critical value	P value		
1 Growth											
i Real GDP growth	Constant	-3.10	0.03 **			-3.11	0.03 **			I(0)**	I(0)**
ii Nominal GDP growth	Constant	-4.61	0.00 *			-4.54	0.00 *			I(0)*	I(0)*
2 Fiscal variable											
i Overall balance	Constant	-3.89	0.00 *			-2.57	0.01 **			I(0)*	I(0)**
ii Primary balance	Constant	-4.24	0.01 *			-3.97	0.02 **			I(0)*	I(0)**
iii Government Revenue	Constant & Trend	-2.29	0.43	-4.15	0.01 **	-8.64	0.00 *			I(1)**	I(0)*
iv Government Expenditure	Constant & Trend	-1.23	0.89	-3.30	0.08 ***	-6.43	0.00 *			I(1)**	I(0)*
3 Monetary variable											
i Narrow Money (M1)	Constant & Trend	0.48	1.00	-4.77	0.00 *	-0.21	0.99	-5.92	0.00 *	I(1)*	I(1)*
ii Narrow Money (M1_SA)	Constant & Trend	-0.15	0.99	-3.78	0.03 **	-0.45	0.98	-4.65	0.00 *	I(1)**	I(1)*
iii LN(M1)	Constant & Trend	-3.07	0.13	-2.60	0.28	-2.80	0.20	-8.55	0.00 *	I(2)**	I(1)*
iv LN(M1)_SA	Constant & Trend	-1.76	0.71	-3.85	0.03 **	-2.08	0.54	-5.50	0.00 *	I(1)*	I(1)*
v Broad Money (M2)	Constant & Trend	-1.04	0.93	-5.42	0.00 *	-0.49	0.98	-4.36	0.01 *	I(1)*	I(1)*
vi Broad Money (M2_SA)	Constant & Trend	-0.76	0.96	-4.14	0.01 **	-0.67	0.97	-4.10	0.01 **	I(1)**	I(1)**
vii LN(M2)	Constant & Trend	-1.67	0.75	-5.39	0.00 *	-1.85	0.66	-5.41	0.00 *	I(1)*	I(1)*
viii LN(M2)_SA	Constant & Trend	-1.88	0.65	-4.63	0.00 *	-1.78	0.70	-4.71	0.00 *	I(1)*	I(1)*
4 Inflationary effect											
i CPI	Constant & Trend	-1.25	0.89	-3.79	0.03 **	-1.57	0.79	-7.61	0.00 *	I(1)*	I(1)*
ii CPI_SA	Constant & Trend	-2.13	0.51	-4.42	0.01 *	-1.25	0.89	-4.51	0.00 *	I(1)*	I(1)*
iii GDP_DEF	Constant & Trend	-2.82	0.20			-2.03	0.57	-6.84	0.00 *	I(0)*	I(1)*
iv GDP_DEF_SA	Constant & Trend	-2.72	0.24			-1.84	0.67	-4.71	0.00 *	I(0)**	I(1)*
5 External sector											
i USDMNT	Constant & Trend	-2.32	0.41	-5.95	0.00 *	-2.44	0.35	-5.95	0.00 *	I(1)*	I(1)*
iii NET EXPORTS	Constant & Trend	-2.92	0.17			-2.93	0.16			I(0)**	I(0)***
iv Current Account	Constant & Trend	-2.48	0.34			-2.39	0.38			I(0)**	I(0)***

(***), (**) and (*) indicate the rejection of unit root at 1, 5 and 10% significance level respectively.

There is an exception for GDP growth, GPD deflator, fiscal balances and trade balance, where the tests indicate that they are I(0). However, the robustness of the two first models allows us to choose variables integrated of order one– I(1) and proceed with cointegration analysis.

4.4 Cointegration Analysis and Long-run Relationships

Given the result of the unit root tests, Real GDP as a growth variable (RGDP), broad money as a monetary variable (M2), GDP deflator as price level variable (DEF), and government total expenditure as a fiscal variable (TGE) are chosen in the model for the performance of cointegration analysis. Data for these variables are firstly seasonally adjusted using X-12 ARIMA method and used in logarithmic levels for the period from Q1:2000 to Q3:2010 (43 observations) for the model.

Since all these variables appear to be integrated in order of one (I(1)), cointegration test of Johansen Juselius (JJ) could be employed. After determining the lag length, the JJ cointegration test was performed to identify the number of cointegration vectors, by using two tests, Maximal Eigenvalue and Trace tests and the result of the cointegration are reported in Table 4.2.

Table 4.2
Johansen Cointegration Tests

Null	Alter-native	Eigen-value	Trace Test[a]			Maximum Eigenvalue Test[b]		
			Trace Statistic	Critical Value (5%)	Prob.*	Trace Statistic	Critical Value (5%)	Prob.**
r=0	r=1	0.64	65.95	47.86	0.00*	41.22	27.58	0.00*
r≤1	r=2	0.28	24.73	29.80	0.17	13.00	21.13	0.45
r≤2	r=3	0.23	11.73	15.49	0.17	10.45	14.26	0.18
r≤3	r=4	0.03	1.29	3.84	0.26	1.29	3.84	0.26

Note: * denotes rejection of the hypothesis at the 5% level
a/ Trace test: Null hypothesis is whether all the Eigenvalues are equal to zero?
b/ Maximum Eigenvalue test: Null hypothesis is whether the largest Eigen value is equal to zero?

Both the Trace (are) and Maximum Eigenvalue tests reject that the null hypothesis is zero cointegrating vectors in favour of the alternative hypothesis of at least one cointegration vector. The results are significant at 1% level. Hence, we conclude that there is only one cointegration vector and need to re-

estimate the VAR imposing this constraint. Due to a change in macroeconomic policy or any internal or external shock to the economy, macroeconomic series such as real GDP, money supply, government expenditure, price level may contain a structural break. Especially, the impacts of the crisis (2007) should be considered. Therefore, a dummy variable (CRISIS) is included in the estimation to capture the impacts of the crisis in all the data series of the selected variables. Having estimated the VECM and derived valid standard errors for the coefficients, the long-run cointegrating vector is shown below.

$$LRGDP_t = -3.85 + 0.11LM2 + 0.06LTGE + 0.17LDEF$$

[*t stat.*] [12.40] [4.67] [13.57]

Since all variables are in logarithmic, the coefficients of all variables are interpreted as elasticities. Accordingly, the long-run elasticity of output with respect to money supply is positive and significant. This elasticity is 0.11 which indicates that a one percentage point increase in the nominal money supply will increase the aggregate demand by about 0.11%. The effect of expansionary nominal government expenditure on aggregate demand is allowed. The long-run elasticity of output with respect to nominal government expenditure is positive at f.o.b. and significant. However, it is less than that of the nominal money supply. The price level effect on aggregate demand is considered. The effect of price level on output is positively significant, which is consistent with the common macroeconomic theory.

4.5 Granger Causality and Weak Exogeneity Tests

Johansen cointegration analysis is only for testing the existence of the long-run relationship between the variables. In this cointegration analysis, if all variables are cointegrated, the finding of non-causality in both directions is ruled out. Although this cointegration indicates the presence or absence of Granger causality, it does not point out the way of causality among the variables. The vector error correction model (VECM) is the only test which can detect the direction of causality among the variables. This VECM permits us to observe the discrepancy between the short-run and long-run Granger causality. Thus, the error correction term determines the long-run equilibrium relationship, whereas the coefficients on lagged difference terms evaluate the short-run causal relation. The results of short-run and long-run Granger causality within VECM framework are shown in Table 4.3. The significance of Chi-square statistics for the lag values of the independent variable demonstrates the existence of a one way short-run causal effect running from the independent variable to the dependent variable.

From Table 4.3, the long-run Granger causality has been found to be statistically significant in real GDP and price level equations; whereas no evidence have been found of long- run causality in money supply and government expenditures equations. In addition, rather than two ways, only one way in short-run Granger causality have been found between money supply and real output; between government expenditure and money supply; and between government expenditure and price level.

Table 4.3
Granger Causality and Weak Exogeneity Test Results

Granger Causality Test		**ΔLRGDP**	**ΔLM2**	**ΔLTGE**	**ΔLDEF**	**ECT_{-1}**
ΔLRGDP	Chi-sq.	-	4.35	0.43	2.08	6.48
	Prob		*0.04***	*0.51*	*0.15*	*0.09****
ΔLM2	Chi-sq.	0.00	-	0.82	0.28	1.23
	Prob	*0.97*		*0.36*	*0.60*	*0.75*
ΔLTGE	Chi-sq.	0.09	3.72	-	0.48	4.16
	Prob	*0.77*	*0.05***		*0.49*	*0.24*
ΔLDEF	Chi-sq.	2.40	1.81	3.13	-	6.62
	Prob	*0.12*	*0.18*	*0.08****		*0.09****

Weak Exogeneity Test		**ΔLRGDP**	**ΔLM2**	**ΔLTGE**	**ΔLDEF**	
	Chi-sq.	7.64	0.06	2.34	0.79	
	Prob	*0.01**	*0.81*	*0.13*	*0.37*	

Notes: **Δ** denotes that variable is formed in the first difference. *, **, *** indicate significance at the 1%, 5% and 10% levels. Values in parentheses are probability.

After determining the cointegration vectors, weak exogeneity tests allow us to examine whether the short-run dynamic specifications are necessary in the system. Since only one cointegration relationship has been found, the weak exogeneity test is utilised under the assumption with rank of 1. The null hypothesis is the existence of weak exogeneity. It is usually examined by restricting the particular coefficient equal to zero. In general terms, this test amounts to assessing whether any variable in the system responds to the lagged residuals of the long-run cointegration equation and are equivalent to testing which of the rows are equal to zero. If the null hypothesis is not rejected, disequilibrium in the cointegration relationship does not feedback on to that variable, but any disequilibrium of a given variable will have impact on the cointegrating relationships. Four variables, namely, LRGDP, LM2, LTGE, and LDEF, are considered in the VAR system. Therefore, four different speeds of adjustment coefficients have been found in this system. Each speed of adjustment coefficient measures the degree to which the variable in question responds to the deviation

from the long run equilibrium relationship. The weak exogeneity test allows a test of whether the four values of the speed of adjustment coefficients are equal to zero. The results of the weak exogeneity test in Table 4.3 show that the null hypothesis is rejected only for real GDP at 1% level of significance.

4.6 Short-run Error Correction Models

The short run dynamic specifications are based on four equations derived from the unrestricted VAR model. When the variables are cointegrated, a long-run relationship is observed in the model. However, the variables moving together in the long run do not mean the existence of a strong relationship in the short run. The short-run disequilibrium is corrected by the error term to restore equilibrium towards the long run. If the variables are non-stationary in level, then the first difference of these variables are stationary and the lagged residual forming the cointegrated regression is added to the error correction model. The sign of the error correction term is expected to be negatively significant. The negative sign indicates that one period positively deviates from the long-run equilibrium; the next period will be adjusted down by the amount of the error correction, towards the long-run equilibrium. Hence the error correction mechanism is continuously adjusted by the short-run deviation to achieve the long-run equilibrium.

The results of the short-run dynamic for each equation of real GDP, money supply, government expenditure, and price level are presented in Table 4.4. Only the coefficients of speed adjustment of RGDP equations are negatively and highly significant. This means money supply, government expenditure, and price level have no role in the movement of output in the short run.

Table 4.4
Speed of Adjustments (Short-run Equilibrium)

Variables	ΔLRGDP	ΔLM2	ΔLTGE	ΔLDEF
Adjustments coefficients	-0.79*	-0.07	0.92	0.18
Standard errors	(0.20)	(0.31)	(0.54)	(0.15)
t-statistics	[-3.91]	[-0.22]	[1.69]	[1.16]

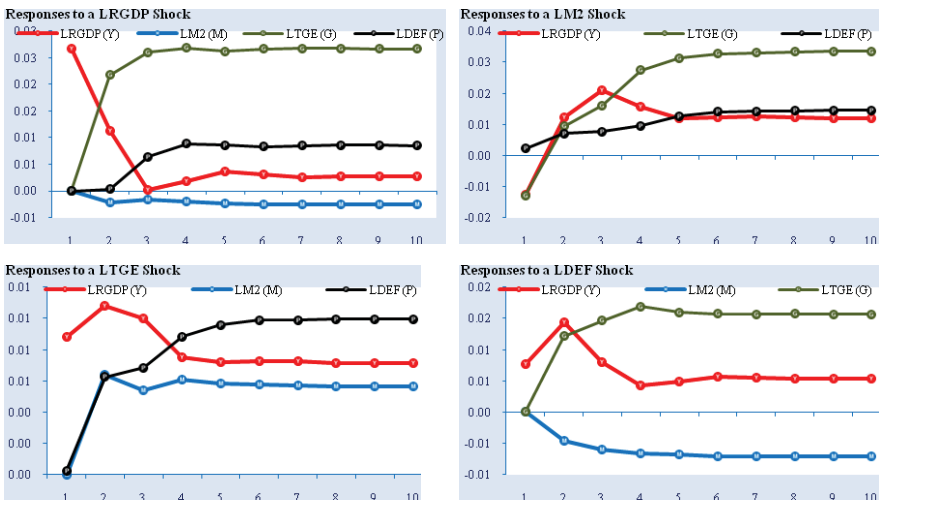
Notes: * indicates 1% level of significance, ** indicates 5% level of significance.

4.7 Impulse Response Functions and Variance Decompositions

In order to take into account the dynamic properties of the model, we need to analyse the impulse response functions and variance decompositions. The impulse response functions trace the dynamic responses to the effect of a shock in one variable upon itself and on all other variables. They are helpful in determining the sign of the response (negative or positive), but they do not show the actual magnitude of the impact. This is accomplished by analysing the variance decompositions. They indicate the proportion of the forecast error in a given variable that is accounted for by each endogenous variable.

In order to capture all possible causal configurations, we have used four alternate orderings. The first ordering is (LM2, LTGE, LDEF, and LRGDP) to capture the maximum effect of M2 on RGDP and other variables. The second ordering is intended to capture the reverse causation (LRGDP, LTGE, LDEF, and LM2). The third one (LRGDP, LM2, LDEF, LTGE) is used to capture the impact of RGDP and other variables on government expenditure. In the final one, (LM2, LTGE, LRGDP, LDEF) is ordered to capture the effect of unanticipated shocks in money stock and other variables on prices. The results are presented in Figure 4.1 and there are no significant differences in impulse responses for the orderings (see Appendices).

Figure 4.1
Impulse Response Functions
(Ordering: LM2, LTGE, LDEF, and LRGDP)



The figure shows how much LRGDP, LM2, LTGE, and LDEF would change one to 10 quarters after a one-time one standard deviation shock to LRGDP, LM2, LTGE, and LDEF. As the result reveals, a one-time one standard deviation shock applied to LRGDP produces a significant positive impact on government expenditure and price level in the short or long run while it has a negative impact on the money supply or money demand. This result supports the government expenditure dependence on mining sector and its pro-cyclical fiscal policy in the past. Also, the shock to LRGDP produces a sharp short-run positive impact on output, yet there is a slight dip in the medium run and the impact decreases in the long run.

A one standard deviation shock to LTGE and LM2 is seen to produce a small positive effect on LRGDP. This suggests that effects of fiscal policy and monetary policy have been slightly significant. There is some indication that an unanticipated shock to prices has had a positive impact on output and government expenditure where it has a negative impact on money supply. This could be taken as evidence in support of a tighter monetary policy stance when price level is expected to be high. Moreover, there is some evidence that money supply and government expenditure seem to have a little effect on prices, suggesting that increase in both government expenditure and money supply has contributed to inflation in Mongolia.

The variance decompositions are presented in Table 4.5. As the Table shows, the direct effect of LRGDP on itself is high in the beginning but declines sharply as the forecast horizon expands, reaching a low of 21.34%. This suggests that there is the endogeneity of output in the long run. Comparatively a small proportion of the variance in LRGDP is explained by innovations in LTGE (between 5% to 23%), while innovations in LM2 seem to explain a proportionately large portion of the variance in LRGDP, reaching a peak in the tenth period at 46%. As the forecast horizon is extended, the innovations in monetary actions dominate those of fiscal adjustments even more. Thus, there is a clear indication that monetary policy has been more effective than the fiscal policy even in the unanticipated sense.

Table 4.5
Variance Decompositions

Dependent Variable: LRGDP ; Ordering: LM2, LTGE, LDEF, and LRGDP					
Period	*S.E.*	*LM2*	*LTGE*	*LDEF*	*LRGDP*
2	0.03	27.53	5.18	2.22	65.07
4	0.04	31.32	7.18	19.03	42.47
8	0.05	41.23	19.01	12.21	27.55
10	0.06	46.23	23.04	9.40	21.34
Dependent Variable: LM2 ; Ordering: LRGDP, LTGE, LDEF, and LM2					
Period	*S.E.*	*LRGDP*	*LTGE*	*LDEF*	*LM2*
2	0.07	38.62	11.60	9.17	40.61
4	0.12	28.75	25.04	20.55	25.66
8	0.19	22.73	34.05	23.39	19.83
10	0.21	21.53	35.10	23.34	20.03
Dependent Variable: LTGE ; Ordering: LRGDP, LM2, LDEF, and LTGE					
Period	*S.E.*	*LRGDP*	*LM2*	*LDEF*	*LTGE*
2	0.08	0.05	20.82	2.04	77.09
4	0.10	1.39	23.03	1.52	74.05
8	0.12	4.35	18.32	1.34	75.99
10	0.14	10.31	16.33	5.76	67.60
Dependent Variable: LDEF ; Ordering: LM2, LTGE, LRGDP, and LDEF					
Period	*S.E.*	*LM2*	*LTGE*	*LRGDP*	*LDEF*
2	0.04	0.65	0.60	6.86	91.90
4	0.06	13.80	2.17	7.15	76.88
8	0.11	34.62	11.18	8.56	45.64
10	0.13	37.92	14.32	7.76	40.01

A significantly large proportion of variance in LM2 (21% to 39%) is explained by output, signifying accommodation in the Mongolian monetary policy. Similarly, a large proportion of variance in government expenditure is explained by shocks to itself in the short run, indicating the exogeneity of Mongolian fiscal policy. That government expenditure and money supply are inflationary is supported by a small proportion of variance in prices (0.6% to 14% and 0.6% to 38%), being explained by shocks in government expenditure and money supply. Income explains between 7% to 8% of the forecast errors in prices. This, combined with the positive sign of the impulse response function, indicates that it is the demand shock that has been responsible for the linkage between prices and RGDP.

5. Way Forward

Looking forward, Mongolia's medium- and long-term growth outlook seems favorable, driven by the mining sector. However, there are sizeable policy challenges going forward.

5.1 Economic Outlook

The economy has grown by 5.5% in Q3:2010 as a whole after recording a decline of 1.6% in 2009. With recovery in the agricultural sector boosting

incomes, coupled with strong growth in construction and service sector activity associated with the booming mining industry, an economic boom is likely in 2011-12. Real GDP growth is expected to average at 13.4% a year.

In terms of expenditure, it is also expected that GDP will grow dramatically because of the investments made in the mining sector which impacts on the surge of mining-related imports, such as plant, equipment and fuel. Even though, the big mining projects, such as Oyu Tolgoi, will not come on stream until 2012, other small mining projects are likely to increase production and exports. Furthermore, this positive trend in the mining sector will provide further growth as tax income from the mining sector supports expenditures particularly in social welfare. However, it is inferred that inflation will be a main challenge as it could undermine consumer confidence, decrease mining investment as well as impact on the neighbouring Chinese economy, which is the main market for Mongolian minerals.

Inflation has been rising rapidly in recent months, reaching 12.6% in Q2:2010. The increase is being driven by both supply- and demand-side factors. On the supply side, higher meat prices have been a driver, reflecting the impact of the cold winter, which killed a large proportion of Mongolia's livestock. Other supply-side factors responsible for the surge include higher energy prices and higher import prices. On the demand side, the rapid economic rebound with a growth of 5.5% in Q2:2010 has helped to close the gap between the economy's actual and potential output, leading to the emergence of supply inputs in several sectors. Strong economic growth and government's cash disbursements programme to the public under the social welfare programme as well as big pay rises for public sector workers have all contributed to high inflation. Therefore, maintaining inflation at an average of 15% to 20% in 2011-2012 is crucial, otherwise a huge increase in inflation may lead to wage-price spiral as workers demand higher wages to compensate for the increase in inflation.

The Mongolian economic prospects seem positive as togrog, MNT, has continued to appreciate gradually against the US dollar since the start of 2010. Although the rate of appreciation will ease in 2012, with strong export prospects and increase in foreign mining-related investments, it is believed that togrog is about to come under further upward pressure, especially in 2011-12.

Exports are expected to remain strong in 2011-12, in line with robust external demand, notably from China, and global prices for metals and coal high. China accounts for over 80% of Mongolia's exports and so the Mongolian economy

would suffer in the event of any sharp downturn in Chinese economic growth. Once the Oyu Tolgoi mining project starts its operation, export earnings will be boosted since 2013 at the earliest. A 2005 estimate by the mining company Ivanhoe suggested that annual output from Oyu Tolgoi would eventually average 1 billion lbs of copper and 500,000 oz of gold, although the mine will not reach full production capacity for almost a decade. Import demand is growing strongly and will continue to recover in the next two years as domestic demand picks up. Investments linked to the Oyu Tolgoi mine as well as other mining operations will stimulate imports, and a trade deficit is likely, but this will be financed by foreign investment into the mining sector.

5.2 Policy Trends

It is said that Oyu Tolgoi, the Mongolia's largest copper and gold deposit, is unlikely to serve as a basis for foreign participation in the mining sector, as it took a long time to conclude the agreement with Ivanhoe, a Canadian company. As for other strategically important mineral deposits, there has to be various models and approaches other than Oyu Tolgoi. For instance, major projects like Tavan Tolgoi could be the template for large projects and the government could cooperate with foreign contractors while maintaining the full ownership. On the other hand, the smaller mining projects could be developed under foreign ownership. However, there is still uncertainty in the mining sector as the President of Mongolia prohibits issuance and transfer of mineral exploration rights in Mongolia until the government comes up with a new, advanced law on mining rights.

Even though, Mongolia is expected to benefit economically from its mineral wealth, it is said that natural resources can hinder long-term development. For instance, exports in agriculture and manufacturing will be less competitive as there is a big rise in commodity exports which will put upward pressure on the togrog. Also there has to be extensive skill development training among Mongolian work force, as capital intensive mining sector requires a high skilled workforce to fill the jobs created by the sector's growth. Moreover, resource-rich countries have faced problems ranging from corruption to internal conflict. Therefore, it is recommended the Mongolian government learn from the best practices of such countries as Chile, for example, and pay more attention on how to manage mineral wealth successfully.

It seems that fiscal policy in Mongolia needs more attention as there is a re-emergent tendency towards pro-cyclical spending. In order to cut the budget deficit gradually, the government has recently introduced a responsibility bill and

try to save revenue generated from high commodity prices. However, without paying much attention on government extravagancy, inflation will rise and the risks of economic volatility will increase. It is certain that high global prices of Mongolia's main mineral exports will certainly boost government revenue in 2011-2012, and this should ensure that the budget remains close to balance, or in surplus. Once forecasts for the development of the mining sector are realised, the strong medium-term outlook for GDP growth will encourage fiscal prospects as taxable activity build up in all sectors of the economy. However, if the prices of minerals fall, the fiscal difficulties could re-emerge as mining-related revenue plays a significant role in the tax base of Mongolia.

One of the major concerns during the mining sector boom is that the BoM is likely to raise interest rates as inflation increases over the period. However, efficiency in using interest rates to curb prices might be limited to restricting expectations of second-round inflation as inflation is largely driven by the global and weather-related food price movements. Moreover, increasing its policy rate might attract more capital inflows into the Mongolian banking sector, which would lead to inflationary credit expansion. Again the increase in inflation may also prompt the BoM to tighten monetary policy by raising interest rates further. This would hit investment spending, further damaging the economy.

Since the banking sector is still not strong in Mongolia, the banks' sluggish lending is unlikely to change rapidly. In fact, bank lending which contracted in 2009 has risen only slowly in real terms in Q3:2010. Therefore, addressing the fundamental vulnerabilities revealed during the recent crisis remains the priority for the authorities, bank management and shareholders. It is vital that the bank restructuring reforms move forward in order to clean up the bank balance sheets, enhance corporate governance, build adequate capital buffers and increase credit availability within a banking system with enhanced credit risk management.

6. Conclusions

The Mongolian economy was hard hit by the global economic crisis through a dramatic decline in commodity prices and a sharp drop in external demand. Mongolia's increasing dependence on the export of primary goods made the Mongolian economy vulnerable to the sharp decline in international trade. These external shocks exposed underlying weaknesses in the economic structure and the policy environment, which manifested in the worsening of the current and fiscal account deficits, a sharp depreciation of local currency, increase in market illiquidity and economic downturn.

The studies that evaluated the impact of the global financial and economic crisis on the Mongolian economy showed that the world financial crisis and economic downturn influenced the Mongolian financial market through the decline in the demand for the main Mongolian export goods, FDI inflows and remittances. Therefore, Mongolia's external balance has swung from positive to negative. Consequently, international organisations recalled the loans granted to Mongolian banks and firms, scheduled investments were postponed, which led to the capital shortage in domestic banking sector. It caused a liquidity shortage in foreign currency and a sharp depreciation of the domestic currency against foreign currencies, like the other currencies of all mining-dependent countries in the world which came under pressure due to the fall in mineral prices. As a result, the banks faced liquidity shortages and exchange rate risk, and both lending activity and repayment of bank loans were troubled and a "credit crunch" occurred. During the crisis, the weaknesses in the banking sector were exposed by the failure of two major banks which had to be taken into receivership. Loan quality, in particular to the private sector which recorded a drastic increase in NPLs, deteriorated markedly over this period.

Facing with the reality of the severe downturn, a series of policy measures were taken by the BoM and the GoM in late 2008 and early 2009 to mitigate the impacts of the crisis.

The unstable nominal exchange rate led the BoM to significantly tighten its monetary policy to stop capital outflows. This, together with the stabilisation of the nominal exchange rate and the restoration of confidence, brought improvements in the deposit guarantee system. It was reflected in deposits flowing back onshore into the banking system, and allowed the central bank room to ease its monetary policy stance. However, the normal channels of transmission of monetary policy were ineffective. Concerns about credit quality constrain banks' willingness to lend as well as the slowing down of the economy had dampened the demand for credit. Besides the conventional monetary policy measures aimed against liquidity shortage and solvency problems in the banking sector, the BoM took some unconventional monetary policy measures including the introduction of emergency lending facility, foreign exchange swap, and collateralised loan, construction loan, gold financing and government bond issuance.

With a sudden drop in the fiscal revenue and low fiscal savings from "windfall" tax revenues from previous years, the GoM's fiscal policy found limited space in promoting aggregate demand to mitigate the effects of the economic crisis. Most of these studies concluded that the impact of the global financial and economic crisis was significant, especially in the mining sector that is dependent

on the dynamics of the world commodity market and the economy. The fiscal expenditure was tightly associated with the revenue from exports of the mining sector. Furthermore, they pointed out that many of the measures to be taken entail correcting past mistakes in the short term and they strongly suggest that the government put in place a better framework going forward in order to manage the boom and bust cycle of its mining revenues. It is highlighted the potential importance of the adoption of the "Fiscal Stability Law" to ensure that a higher proportion of copper revenue is saved, hence limiting pro-cyclicality in fiscal policy and strengthening the institutions of budget management. In late 2009 and the beginning of 2010, the Mongolian economy has to experience significant recovery, supported by the abovementioned policy measures undertaken by the BoM and the GoM as the global economy rebounds. As a result, some significant positive trends have been seen, including the decrease of inflation, stabilisation of exchange rate, improvement in trade deficit, rise in international reserves and recovery in credit as well as improvement in fiscal stance and growth in economy.

Given the shortcomings in the existing literature, this study purposed to empirically investigate the relative effectiveness of monetary policy relative to fiscal policy for the Mongolian economy, which is especially important for instituting economic policies to make the Mongolian economy less vulnerable to similar economic disturbances in the future. A VECM was applied based on the quarterly time-series data for the periods of Q1:2000 through Q3:2010. The empirical results show that there is a long-run relation among real GDP growth, money supply, government expenditure, and price level. As the results reveal, a shock applied to real GDP growth or output produces a significant positive impact on government expenditure and price level in the short or long run while it has a negative impact on the money supply. This finding supports the observation of government expenditure dependence on mining sector and its pro-cyclical fiscal policy in the past. Also, a change in government expenditure or money supply appears to have a small positive effect on output, which suggests that effects of fiscal policy and monetary policy have been slightly significant. Moreover, there is some evidence that money supply and government expenditure seem to have a little effect on prices, indicating that government expenditure and money supply are inflationary. Finally, there is a clear indication that monetary policy has been more effective than the fiscal policy, even in the unanticipated sense.

Lastly, it is argued that expansionary fiscal and monetary policies left the policy makers with very little policy space to counteract the crisis. Moreover, it is highlighted that the risk of the "Dutch Disease" is likely to occur due to the impending expansion of the mining industry. Measures to avoid fiscal boom

and bust cycles include fiscal stability law, enhancement of the budget process, public investment planning and management for more efficient absorption of rising revenues, as well as appropriate policy framework to support future investments in infrastructure.

Abbreviations and Acronyms

ADB	Asian Development Bank
BoM	Bank of Mongolia
CAR	Capital Adequacy Ratio
CBBs	Central Bank Bills
CH¥	Chinese Yuan
CPI	Consumer Price Index
FX	Foreign Exchange
GDP	Gross Domestic Product
GoM	Government of Mongolia
MNT	Mongolian Togrog
MoF	Ministry of Finance
NPL	Non-performing loan
OT	Oyu Tolgoi
US$	United States Dollar
VAT	Value at Tax
WB	World Bank

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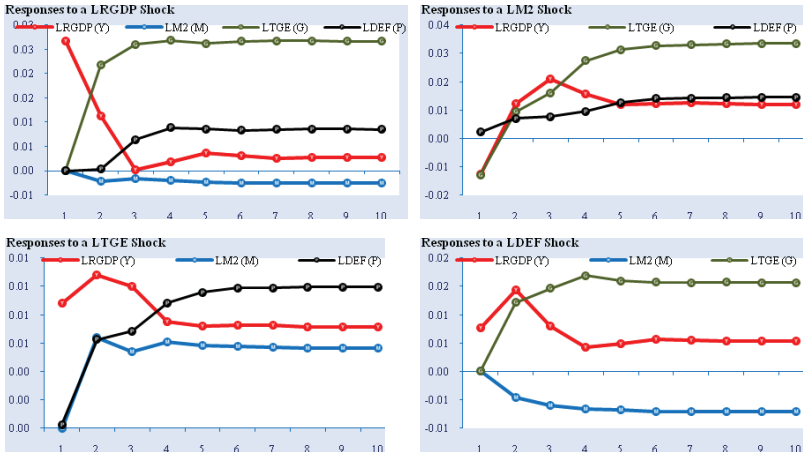
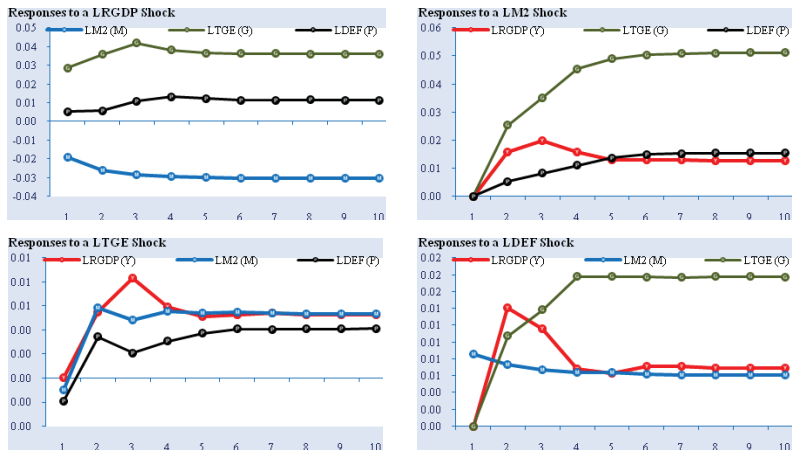
Figure A.1
Impulse Response Functions
(Ordering: LM2, LTGE, LDEF, and LRGDP)



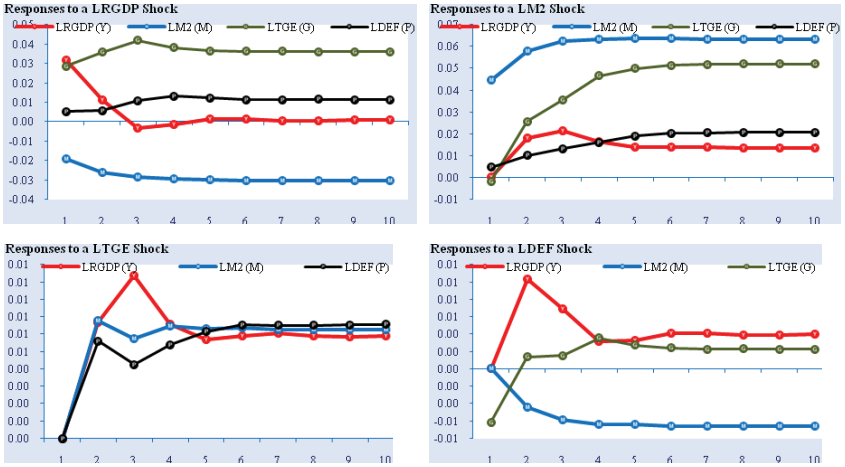
Source: Author's calculation

Figure A.2
Impulse Response Functions
(Ordering: LRGDP, LTGE, LDEF, and LM2)



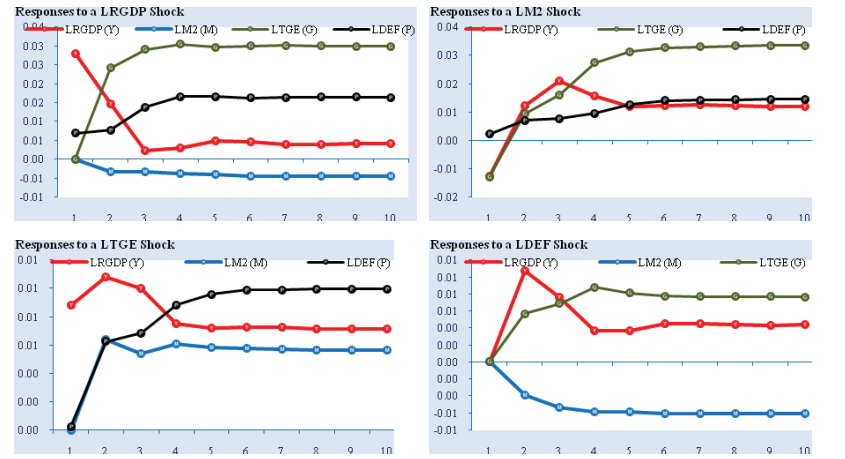
Source: Author's calculation

Figure A.3
Impulse Response Functions
(Ordering: LRGDP, LM2, LDEF, and LTGE)



Source: Author's calculation

Figure A.4
Impulse Response Functions
(Ordering: LM2, LTGE, LRGDP, and LDEF)



Source: Author's calculation

Chapter 5

RELATIVE EFFECTIVENESS OF POLICY CHOICES DURING FINANCIAL CRISIS IN NEPAL

By

Prakash Rai[1]

1. Introduction

1.1 Background

The sub-prime mortgage crisis in the United States triggered the recent global financial crisis that adversely affected output, trade, employment, fiscal structure, and investment climate since the second half of 2007. The capital account of Nepal is not convertible[2]. The Nepalese people have no right to invest in house, land, business entities and shares in abroad. So, there is no direct effect of global financial crisis in the Nepalese economy. The budget of the Government of Nepal (GoN) largely depends upon external grants and loans. The Nepalese economy significantly depends upon its workers' remittance. Nepalese products are exported mainly to the developed countries. The Nepalese economy as such cannot be isolated from the indirect effect of the global financial crisis.

The performance of the Nepalese economy in terms of economic growth remained normal in 2008/09. The overall growth of the GDP at basic prices grew by 3.9% in 2008/09. The annual average consumer inflation increased to 13.2% in 2008/09, which was 7.7% in 2007/08. It was mainly driven by the significant rise in the prices of food and beverages items.

The fiscal situation remained broadly stable in 2008/09. The fiscal deficit stood at only 1.9 % of GDP as against the estimate of 3.9% in the budget of 2008/09. Such a prudent fiscal situation was attributed to an impressive revenue mobilisation and foreign grants. The government's strong commitment in revenue

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2. Foreigners are allowed to invest in the real sector of Nepal, but they are not, so far, allowed to invest in the security market of Nepal.

leakage control, strong implementation of voluntary disclosure of income scheme (VDIS), several reforms in tax administration, growing imports and consumption induced by the significant rise in remittances, the increasing imports of high taxable vehicles and spare parts and increase in non-tax revenue are mainly responsible for the encouraging growth of revenue mobilisation.

In 2008/09, the external sector depicted a mixed performance. Although there was an increase in exports, there was a significant growth in trade deficit as the growth rate of imports was relatively much higher. The ratio of exports to imports declined to 23.6% in 2008/09 from 26.7% in 2007/08. It demonstrates the declining import financing capacity of exports. Nevertheless, owing to the sharp rise in remittances, both the current account and the balance of payments remained a surplus in 2008/09. Consequently, there was a rise in foreign exchange reserves that facilitated the maintenance of exchange rate and external stability.

The total foreign exchange reserves of the banking system reached US$3.64 billion as at mid-July 2009, an upsurge by 31.7% compared to the figure of mid-July 2008. This level of reserves was adequate for financing merchandise imports of 12.0 months and merchandise and service imports of 9.8 months.

The monetary aggregates expanded substantially in 2008/09. Narrow money (M_1) registered a growth of 27.3% in the 2008/09, compared to a growth of 21.6% in 2007/08. Likewise, broad money (M_2) grew by 27.7%, compared to an increase of 25.2% in 2007/08. An upsurge in both the net foreign assets (NFA) and net domestic assets (NDA) contributed to such a higher expansion in the monetary aggregates in 2008/09.

The stock market experienced an impressive growth in 2008/09. The Nepal Stock Exchange (NEPSE) recorded 1,075.38 points on August 31, 2008, which was the highest level recorded during the 2008/09. This index declined to 749.10 points at the end of 2008/09. Likewise, market capitalisation to GDP ratio was 53.4% in mid-July 2009 as compared to 44.6% in mid-July 2008.

The estimated Gross Domestic Product (GDP) at basic prices was 5.5% in 2009/10, but it actually grew by 3.5% only due to the sharp fall in the production of food-grains owing to unfavourable monsoon conditions and non-economic factors, like strikes, labour dispute, fragile industrial security, inadequate power supply and lack of investment-friendly environment in the country.

The monetary management remained challenging in 2009/10. Decline in exports and massive surge in imports led to a deficit in the balance of payments

(BOP). The inflation rate stood at double digit owing mainly to the continuing high food prices. The banking sector faced a liquidity shortage due to slowdown in deposit mobilisation and contraction in foreign exchange reserve. The massive flow of bank credit to the real sector led to the shortage of financial resources for productive sector of the economy. The total government expenditure increased by 20.2% and revenue mobilisation increased by 25.4% in 2009/10. Foreign grants increased by 1.9% and foreign loans rose by 14.5%.

1.2 Monetary Policy

The bank rate, one of the indicators of signaling ex-ante monetary policy stance, was kept unchanged at 6.25% in 2007/08. Considering the difficult situation faced by Nepalese exporters, the refinance rate for export credit in Nepalese currency was lowered by one percentage point to 2.5% in 2007/08. Considering the problems faced by the small and cottage industries, a refinance facility to these industries was introduced in 2007/08 at a refinance rate of 2.5% to commercial banks and development banks. The commercial banks and development banks were not allowed to charge an interest of more than 5.5% to the concerned borrowers for such facility.

The primary objective of the monetary policy of 2008/09 was to anchor the inflationary pressure. Despite the upward revision of petroleum prices and its effects on prices of transportation and other food items, the inflation rate was expected to remain within single digit with anticipation of a good harvest of the summer crops and no further price hike in petroleum products. The monetary policy also focused on facilitating the targeted economic growth of 7.0% along with confinement of inflation rate around 7.5%. However, the industrial activities remained poor, as the investment environment could not improve owing to the continued power shortage, labour disputes, and strikes. The long winter drought also had an adverse impact on the supply of food and other agricultural products, building additional pressure in prices. On the demand side, the voluminous inflow of remittance put some pressure on prices encouraging the domestic demand. Owing to these reasons, the inflation rate went far above the expectation and stood at 13.2%.

The monetary policy of 2009/10 had remained tight to check the high inflationary pressure. It aimed at managing liquidity to facilitate the achievement of the targeted economic growth rate of 5.5% while maintaining price and external sector stability. The cash reserve ratio (CRR) was kept unchanged at 5.5%. Similarly, the bank rate was also kept unchanged at 6.5%. Narrow money (M_1), which had grown by 27.3% in 2008/09, grew by 11.2% in the 2009/10.

Broad money (M_2), which had expanded by 27.1% in the previous year, increased by 14.5% (projected 17.0%) in 2009/10. A deceleration in the net domestic assets and a decline in the net foreign assets accounted for such a lower growth of the monetary aggregates in 2009/10.

The primary objective of monetary policy of 2010/11 is to maintain a comfortable level of foreign exchange reserve by achieving a BOP surplus. Another objective of the policy is to anchor inflationary pressure to contain inflation at 7%. Open market operations are the principal instrument of monetary policy. The existing provision on the statutory liquidity ratio was revised to strengthen financial stability and liquidity management. The refinance rate has been reduced to 7.0% from 7.5%. The domestic credit is expected to increase by 15% in 2010/11.

Table 1
Policy Rates

(Percent per Annum)

Variables	2007 July	2008 July	2009 July	2010 July
Cash Reserve Ratio (CRR)	5	5	5.5	5.5
Bank Rate	6.25	6.25	6.5	7.0
Refinance Rates Against Loans to:				
Sick Industries	1.5	1.5	1.5	1.5
Rural Development Banks (RDBs)	3.5	3.5	3.5	3.5
Export Credit in Domestic Currency	3.5	2.5	2	1.5
Export Credit in Foreign Currency	3.25	3.25	LIBOR*+0.25	LIBOR*+0.25

*London Inter Bank Offer Rate

Source: Nepal Rastra Bank

1.3 Fiscal Policy

The government budget remained prudent in 2007/08. The budget deficit (after grants) soared only by 24.8% to US$0.25 billion, compared to a growth of 26.9% in the previous year. The lower rate of growth of the budget deficit was attributed to the revenue mobilisation and foreign grants. The ratio of the budget deficit to GDP increased to 2.0% in 2007/08 from 1.8% in the previous year. The total government spending including loans and investment recorded a growth of 24.5% to US$2.21 billion in 2007/08, compared to a growth of 21.8% in 2006/07.

Revenue mobilisation (excluding the principal refund) registered a growth of 21.0% to US$1.61 billion in 2007/08, compared to a growth of 22.5% in the previous year. The revenue to GDP ratio increased to 12.8% from 11.9% in 2006/07. Of the total revenue, the share of tax revenue and non-tax revenue stood at 81.1% and 18.9%, respectively, in 2007/08. These ratios were 82.1% and 17.9%, respectively, in 2006/07. The budget deficit (after grants) soared only by 9.3% to US$0.24 billion, compared to a growth of 61.9% in the previous year. The budget deficit to GDP ratio declined to 1.9% in 2008/09 from 2.0% in the previous year.

Table 2
Government Budgetary Operation

(US$ in billion)

Variables	2007/08	2008/09	2009/10
1. Actual Expenditure	2.21	2.49	3.33
2. Resources	1.93	2.19	2.74
Revenue	1.66	1.87	2.41
Foreign Grants	0.27	0.32	0.33
3. Sources of Financing	0.35	0.45	0.52
Internal Loans	0.29	0.40	0.47
Foreign Loans	0.06	0.05	0.06

Source: Nepal Rastra Bank

The total government spending including loans and investment recorded a growth of 34.6% to US$2.49 billion in 2008/09, compared to a growth of 49.6% in 2007/08. A slightly low rate of growth of recurrent expenditure as well as capital expenditure accounted for such a low growth rate of total government expenditure in the review year. The ratio of total government expenditure to GDP remained higher at 20.0%, compared to that of 17.4% in the previous year.

Total government expenditure on cash basis increased by 20.2% in 2009/10. Of the total expenditure, recurrent expenditure rose by 20.7% and capital expenditure 20.2%. The revenue mobilisation of the government up surged by 25.4% in 2009/10, compared to a growth of 33.3% in the previous year.

Table 3
Key Indicators Measuring Vulnerability of Economy for External Shocks

Indicator	1996		2007	
	(In US $ billions)	% of GDP	(In US $ billions)	% of GDP
Real GDP in billion US$	4.09	-	8.68	-
Exports of Goods and Services	0.40	9.7	0.91	10.5
Foreign Currency Reserves	0.59	14.4	3.27	37.7
Imports of Goods and Services	1.64	40.1	3.41	39.3
Average Monthly Imports	0.14	3.3	0.28	3.2
Months of Imports Covered	6.00	-	9.3	-
Balance on Current Account	-0.29	-7.1	0.36	4.2
Total Government Debt	0.15	3.8	0.45	5.2
Foreign Debt	0.16	3.9	0.14	1.6
External Liability	0.05	1.2	0.06	1.0
Debt Service Payment (Foreign)	0.13	3.2	0.15	1.7
Primary Balance	-0.14	3.4	-0.36	4.2
Fiscal Deficit	-0.45	11.1	-0.51	5.9

Source: Nepal Rastra Bank

2. Impact of Global Financial Crisis on Nepalese Economy (Focusing on Key Indicators)

The Asian financial crisis, started in Thailand in July 1997, had its contagion impact on a number of countries affect. Indonesia, South Korea and Thailand were mostly affected. The People's Republic China, India, Taiwan, Singapore, Brunei, and Vietnam were less affected. Nepal, however, was not affected because of the underdeveloped nature of its financial markets, which were not connected to the international financial market.

At the beginning of the global financial crisis which started in July 2007, the key economic indicators of Nepal like workers' remittance, balance of payment, foreign exchange reserve, etc. continued to remain at satisfactory levels as the global financial crisis has not had an immediate impact on the country. Its lagged impact, however, has been felt in the Nepalese economy since the beginning of 2009/10.

The banking sector faced a liquidity crisis. High import, low export, snail pace of remittance growth, BOP deficit and low level of foreign exchange reserve are current major challenges of the Nepalese economy. The global financial

crisis may be one of the causes of these problems. The import of Nepal is on an increasing trend whereas export continues to remain very low. The major importing items are gold, silver, vehicles and their parts, etc. These are unproductive items. The import of productive items is always welcome for the betterment of the economy. The latest export-import ratio is alarmingly low at 0.175 (17.5%). The major sources of foreign exchange of Nepal are workers' remittance and the tourism industry. The global financial crisis affected the inflow of workers' remittance and the tourism industry of Nepal adversely, thereby weakening the current account of its balance of payment and its foreign exchange reserves.

Table 4
Impacts of Global Financial Crisis

Impacts of Global Financial Crisis	In Nepal
1. Outflow of short term capital investment	No
2. Depletion of foreign exchange reserve	Yes since August 2009
3. Reduction in growth rate of workers' remittance	Yes since August 2009
4. Liquidity crisis	Yes since November 2009
5. Reduction of Export	Yes as compared to 2008
6. Reduction in Foreign loan and grant	No
7. Collapse of financial institutions	No
8. Decline in the value of shares	No*

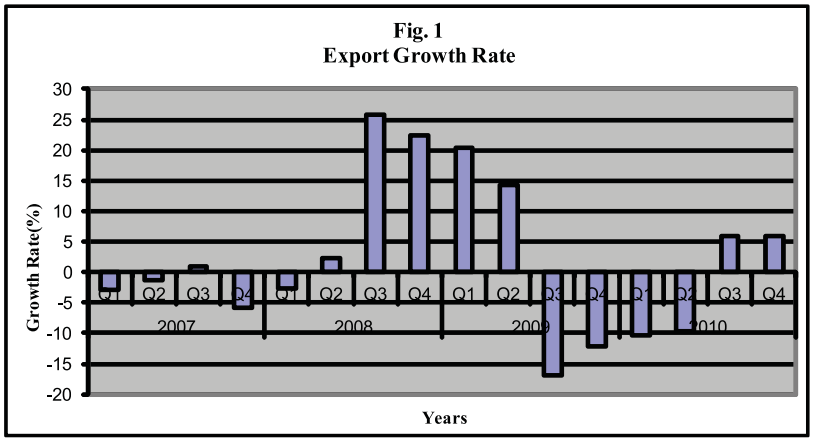
*Value of shares declined since the beginning of 2009 due to internal causes like increase in capital gain tax, strict policy of Nepal Rastra Bank on margin credit and excessive supply, but not due to the global financial crisis.

2.1 Impact on Export

The share of export in the GDP remained 10.5%, 11.4% and 12.6% in 2007, 2008 and 2009, respectively. Handicrafts (metal and wooden), Pashmina, Ready-made garment and Woolen carpet are the major items of export of Nepal. They are mainly exported to United States, UK, Germany and Russia.

The export growth rate remained negative during Q_1, Q_2 and Q_4 of 2007 and Q_1 of 2008 due to domestic factors like labour dispute, strike, power shortage, etc. During Q_2 of 2008 to Q_2 of 2009, the export growth rate remained positive because of favourable domestic and external factors. The performance of export

was poor during Q_3 of 2009 to Q_2 of 2010 due to the lagged impact of the global financial crisis. Better performance was seen in the export of Nepal during Q_3 and Q_4 of 2010 indicating the recovery of the global economy.



2.2 Impact on Foreign Employment

The GoN has opened 108 countries as labour destinations for Nepali workers. Among them, Malaysia, Qatar, Saudi Arabia and United Arab Emirates are the four major destinations, which absorb more than 90% of Nepali workers. Recently, South Korea, Israel and Japan also emerged as new labour destinations. About 30% of households in Nepal receive remittances. The share of remittances from abroad is highest from Qatar (21.3%) followed by Malaysia (19.2%), Saudi Arabia (14.9%), India (13.4%), United Kingdom (2.2%) and other countries (29%) (Nepal Labour Force Survey, 2008).

The global financial crisis resulted in job losses everywhere and migrant workers were compelled to return home country. However, it is difficult to assess the return migration in the wake of the crisis in Nepal. According to the Foreign Employment Promotion Board, only 279 Nepalese migrant workers returned as of June 2010. This number includes only regular migrants, who have claimed social benefits. Anecdotal evidence, however, strongly suggests that Nepalese migrants from the Gulf States and Malaysia did not return in large numbers. They preferred to stay on and work irregularly because they feared they might not be able to return once they leave.

The data of outgoing workers demonstrate that the global recession had a negligible and delayed impact on remittances. Due to the worsening political conflict and the shrinking of economic opportunities, the pace of foreign employment had, until late 2008, dramatically increased. However, the deceleration in the growth of foreign employment, marked from late 2008, could be attributed to the delayed effect of the global recession.

2.3 Impact On Workers' Remittance, Balance Of Payment and Foreign Exchange Reserve

The workers' remittances aggregated US$2.70 billion in 2008/09, a rise by 47.0% compared to that of 2007/08. This upsurge in remittances had led to a surplus in the current account, thereby strengthening the overall balance of payments position. Consequently, the balance of payments recorded a significant surplus and the gross foreign exchange reserves rose to US$3.587 billion, which were adequate for financing merchandise imports of 12.0 months and merchandise and service imports of 9.8 months as at mid-July 2009.

There were a number of reasons for the surge in remittances in 2008/09:

i. Weaker Nepalese Currency (NC)

Usually remittances grow with the depreciation of NC as it enables receivers to obtain more NC for each US dollar. Faced with a large outflow of short-term capital investment due to the global financial crisis, there was a rapid depletion of foreign exchange reserve in India. As a result, the Indian currency (IC) became weak and note the NC also weakened as compared to US dollar. In the beginning of 2009, the value of US$1 moved to as high as NC80, a depreciation of 25% compared with the beginning of 2008.

ii. Uncertainty

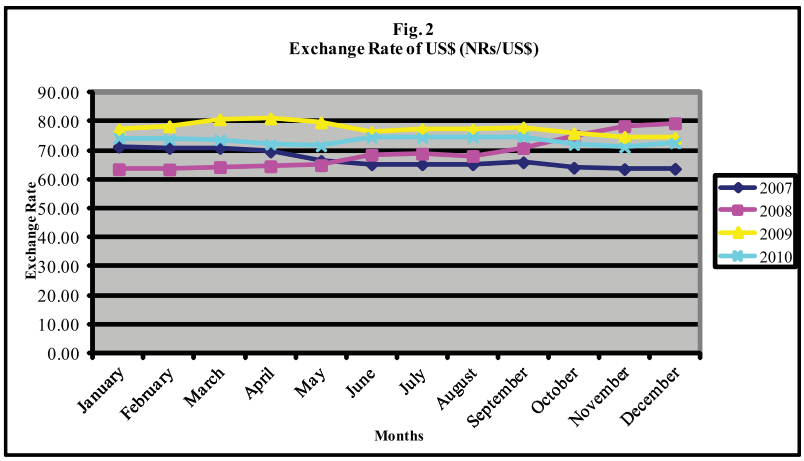
The global financial crisis made the job of the Nepali migrant workers uncertain and they sent earned money.

iii. Reliance on Formal Channels

There is a growing reliance of migrant workers to send their income home through formal channels. Accordingly, the global crisis had a favourable impact on the flow of remittances at its early stage.

Though the number of Nepali migrant workers for blue-collar jobs abroad has not decreased currently, the workers' remittance inflow has slowed down. Nepal was one of the top ten recipients in terms of share of remittance in GDP

in 2008/09. During 2008/09, the BOP remained in surplus by US$0.48 billion because of the significant growth in the workers' remittance. In 2009/10, the workers' remittances grew by 10.5% to US$3.11 billion, compared to a growth of 47% of 2008/09. The slowdown in the growth of remittances coupled with the rising trade deficit resulted in a current account deficit of US$0.43 billion and BOP deficit of US$0.035 billion in 2009/10. Consequently, the gross foreign exchange reserves declined to a level, which is sufficient financing the merchandise imports of 8.6 months and merchandise and service imports of 7.3 months as at mid-June, 2010.



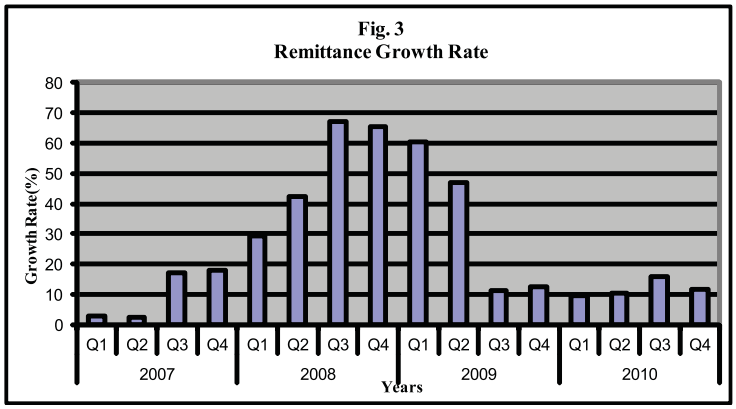
The ratio of remittances to the GDP increased from 11.1% in 2004/05 to 17.5% in 2007/08 and further to 21.6% in 2009/10 (Table 5). The share of remittances in foreign exchange earnings increased from 29.5% in 2004/05 to 57.2% in 2009/10. Remittances have emerged as a source for financing Nepal's growing trade deficit. These ratios clearly demonstrate that any significant decline in receipts from remittances could disturb the macroeconomic environment of the country.

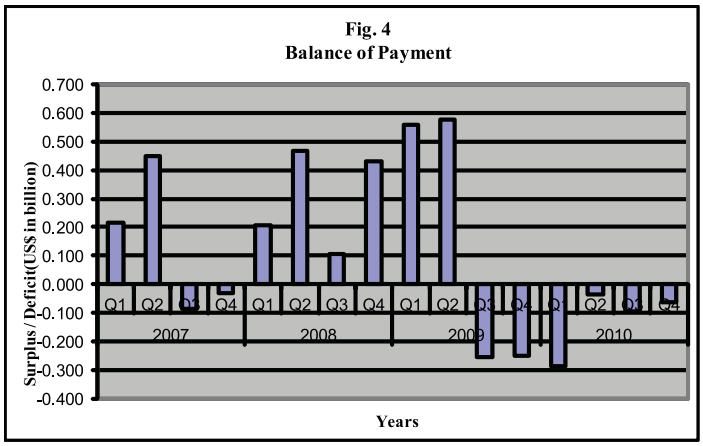
Table 5
Remittance Ratios

(In percent)

Ratios	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Share of remittances to current a/c receipts excluding grants	38.2	46.7	45.3	51.1	56.7	59.3
Share of remittances to overall receipts	29.5	36.6	36.8	41.7	48.6	57.2
Ratio of remittances to GDP	11.1	14.9	13.8	17.5	21.2	21.6

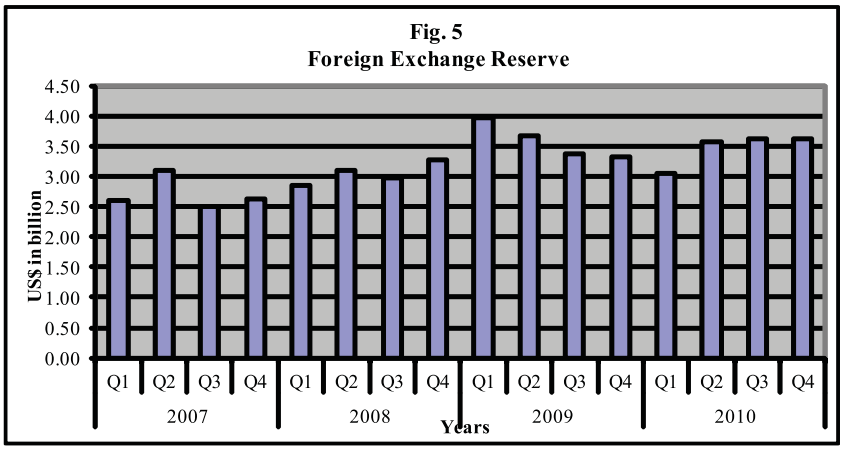
Source: Nepal Rastra Bank





The gross foreign exchange reserves were only US$3.58 billion as at mid-July 2010 and US$3.61 billion as at mid-December 2010, which was US$3.67 billion as at mid-July 2009 and US$3.10 billion as at mid-July 2008. The major reasons for the decrease in the foreign exchange reserves during mid-October of 2009 to mid-June of 2010 were the low growth rate of workers' remittance, high import, low export, and capital flight via illegal channel. It is suspicious that remittance money is being invested somewhere outside Nepal so that the incomes earned from abroad is not visible in the formal account. The rise in the trade deficit and the slow growth of remittance hurt the current account deficit.

Fig. 5
Foreign Exchange Reserve



3. Relative Effectiveness of Policy Choices

3.1 Policy Measures Undertaken

On the eve of the global financial crisis, a number of measures were initiated to encourage the inflow of remittances and promote foreign employment through the official channel.

The Nepal Rastra Bank (NRB) made a policy arrangement to offer a commission in addition to the prevailing buying rate to licensed private firms to encourage the inflow of remittances through the official channel. Moreover, a provision was also made to include the commercial banks' loan of up to US$1,538 per head for the individuals wishing to go abroad for foreign employment under the category of deprived sector credit in order to promote foreign employment.

Manpower agencies involved in sending Nepalese nationals to work overseas have been granted permission to open foreign currency accounts in the Nepalese commercial banks out of the foreign currency income that they realised under the prevailing rules. An arrangement was made with the joint initiative of the NRB and Reserve Bank of India for remitting funds from India to Nepal through the National Electronic Fund Transfer (NEFT) system.

A provision was made to issue the "Infrastructure Development Bond" of an amount equivalent to US$0.093 billion by the NRB fixing pegged exchange rates targeting the Nepalese working abroad through the Nepalese Embassies in South Korea, Malaysia, United Arab Emirates, Saudi Arabia and Qatar, as a part of the domestic borrowing for 2009/10. Such bonds can be purchased only by workers working abroad. From this arrangement, the remittance can be used for infrastructure development and the remittance itself remains free of additional charges when transmitted to Nepal.

Because of the trade deficit and snail pace growth of workers' remittance, both the current account and overall BOP remained deficit since August 2009 depleting foreign exchange reserve, due to the lagged impact of global financial crisis. In the short term, the expenditure reducing and switching policies are not suitable to correct the unfavourable policy. The GoN has envisaged export and tourism industry promotion and import substitution policies because workers' remittance is not a reliable source of foreign exchange as compared to the tourism industry and export.

Taking into account the global financial crisis issue, the GoN constituted a high level task force under the chairmanship of the vice chairman of the National Planning Commission to monitor the possible impact of global financial crisis in the Nepalese context. The major duty of this task force was to recommend to the Finance Minister timely measures (to be initiated by the government) for mitigating the impact of the global financial crisis on the Nepalese economy.

On the government's part in tackling the adverse impact on foreign employment and remittances, a consultation mechanism between the Foreign Ministry, Ministry of Labour and Transport Management was established at the Secretariat Level. The diplomatic missions abroad were given instructions to monitor and assess the situation regularly.

As a diplomatic initiative, high level visits were made to different countries (Saudi Arabia, UAE, Qatar, Bangladesh, Malaysia and Philippines) during 2009. The government has started sending industrial workers to Japan as trainees

under the Japan Industrial Technical Cooperation (JITCO) programme. Efforts are underway to sign labour pact with other countries.

The GoN also established the "Foreign Employment Promotion Board" on January 4, 2009 to promote foreign employment activities, make foreign employment safe, respectful and well organised and to preserve the welfare of workers and foreign employment service providers. To mitigate the impact of the global financial crisis on Nepalese migrants, the government adopted two measures as counter-cyclical polices: i) requesting foreign government and companies not to lay off Nepalese workers immediately; and ii) provision of financial support to the workers who had lost their jobs due to the effect of the financial crisis and returned. Under the financial support scheme, 40% and 25% of the expenses will be provided as compensation if a worker returns within 6 months and 6 months to 12 months, respectively. So far, 279 returnees have been provided the compensations under this scheme.

The NRB, the central bank of Nepal, took the following steps to correct the unfavourable BOP situation (19 December, 2009):

i. Requirement of 40% cash margin for issuing L/C for gold and silver import.
ii. Commercial banks were not allowed to provide any loan for such margin.
iii. No provision for amendment to increase the time period and quantity of earlier L/Cs for gold import.
iv. Provision of import payment through drafts/TT was reduced to US$25,000 from US$ 50,000.
v. Passport facility of foreign exchange US$2,000 is provided for twice a year.
vi. Provision to provide only US$500 as passport facility to the people going for foreign employment with the approval of the concerned office of the Nepal Government.

The NRB injected US$1.74 billion liquidity into the banking sector through repo auction in 2009/10 to solve the liquidity shortage. In 2008/09 and 2007/08, it was US$0.136 billion and US$0.143 billion, respectively.

Table 6
Remedial Measures

Remedial Measures	By Government of Nepal (GON) and Nepal Rastra Bank (NRB)
1. Swift combination of monetary and fiscal measures	No
2. Exchange rate interventions	No
3. Injection/Pumping of liquidity into the banking sector	Yes since November 2009 via repo auction and refinancing
4. Reduction in policy rate	Yes (Reduction in refinancing rate for export credit only from 3.5% to 1.5%)
5. Non-conventional monetary policy	Yes
6.Guaranteed lending to small and medium enterprises	No
7. Purchase of commercial paper	No
8. Fiscal stimulus packages	No

Table 7
Repo Auction*

(US$ in billion)

Mid-Month	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
August	-	-	-	-	-	-
September	-	-	-	-	-	-
October	-	-	-	-	-	0.013
November	0.014	-	-	-	-	0.026
December	0.021	-	-	-	-	0.174
January	-	-	-	0.03	-	0.321
February	0.037	0.0062	-	0.076	0.052	0.25
March	0.004	-	-	0.03	0.065	0.204
April	-	-	-	-	-	0.28
May	0.0081	-	0.028	-	-	0.16
June	-	-	-	-	0.026	0.16
July	0.0043	-	-	-	-	0.16
Total	**0.088**	**0.0062**	**0.028**	**0.136**	**0.143**	**1.74**

* Since 2004/05, the repo auction of treasury bills has been used as a monetary instrument to inject liquidity, which takes place at the initiative of NRB.

Source: Nepal Rastra Bank

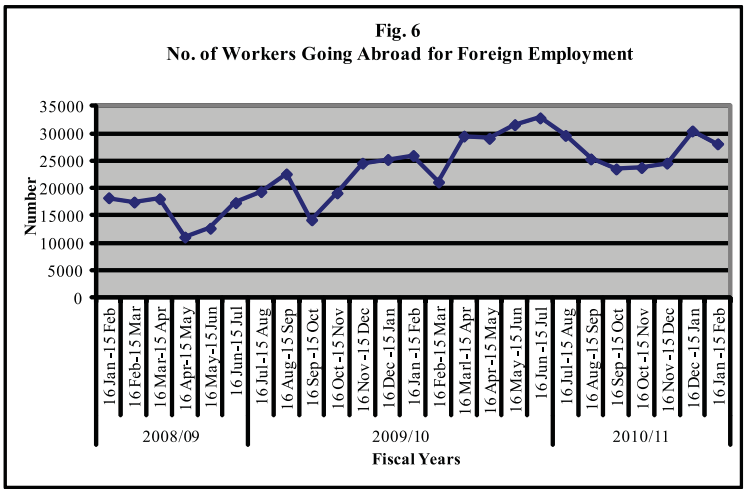
Table 8
Policy Measures

Policy	First 3 Quarters of 2008	Last Quarter of 2008 & first half of 2009	Latter half of 2009 & 2010	Objectives /Targets
Monetary Policy · Conventional · Non-Conventional	Only conventional like -Refinance rate (export credit in domestic currency) reduction to 2.5% from 3.5%.	Only conventional like - Increase in CRR from 5% to 5.5%. -Increase in bank rate from 6.25% to 6.5%. -Refinance rate (export credit in domestic currency) reduction to 2.0% from 2.5%.	Non-conventional like -Requirement of 40% cash margin for issuing L/C for gold and silver import -Provision of import payment through drafts/TT reduced to US$ 25,000 from US$50,000	Price stability, External sector stability and Financial sector stability
Fiscal Policy ·Tax Measures ·Expenditure Driven	None	None	None	Economic growth, Poverty reduction and Social justice
External Sector ·Exchange rate ·Other related	None	None	None	
Financial sector reforms	None	None	None	

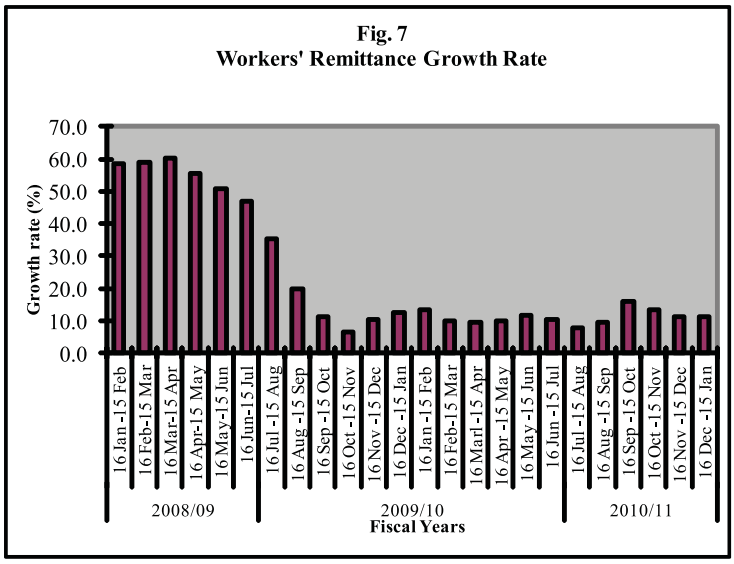
3.2 Effectiveness of Policy Choices

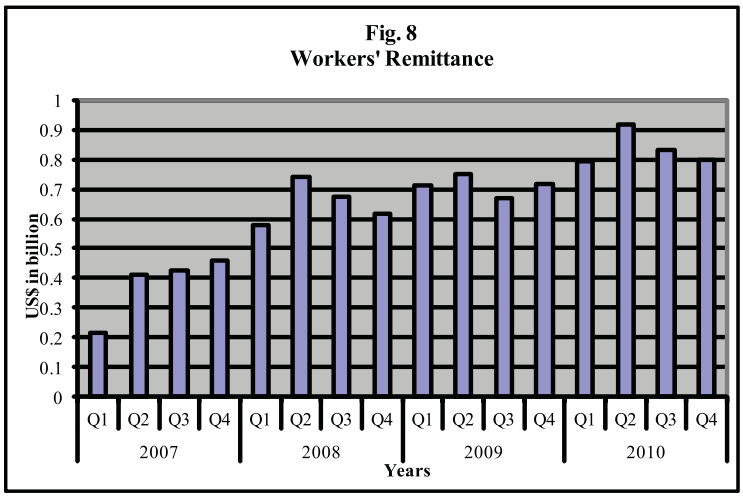
Some improvements have been seen in the growth of foreign employment, workers' remittance growth rate, BOP deficit, and foreign exchange reserve. The problem of liquidity shortage in the banking channel has been solved. The banking sector currently has sufficient liquidity.

The number of Nepali migrant workers was 18,278 during 16 January to15 February 2009, which declined to 11,105 during 16 April to15 May 2009. It rose to 32,876 during 16 June to15 July 2010 and to 28,136 during 16 January to 15 February 2011, attributed to the recovery of the world economy and the diplomatic initiation of GoN.

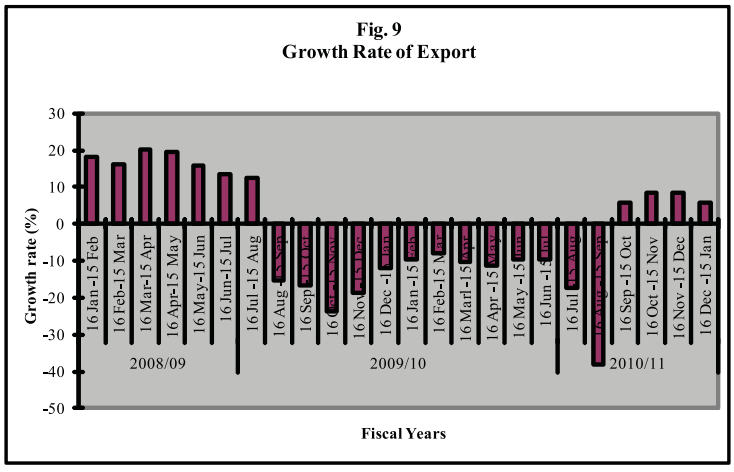


The remittance growth rate was 58.6% in 16 January to15 February 2009, which plunged to 6.6% in 16 October to15 November 2009. It rose to 10.5% in 16 June – 15 July 2010, to 16.0% in 16 September - 15 October 2010 and to 11.5% in 16 December 2010 – 15 January 2011. Both foreign employment and inflow of remittance are improving in recent months on account of the increasing demand for labour in the world labour market.

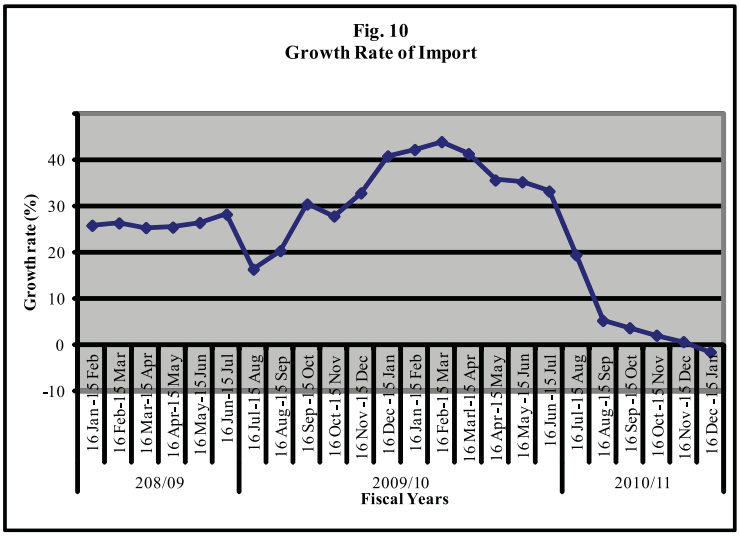




Export grew by 18.3% in 16 January - 15 February 2009, but went down to 15.2% in 16 August - 15 September 2009. It improved slightly in 16 June - 15 July 2010 with growth rate –9.7 % and it rose by 5.9% in 16 December 2010 - 15 January 2011, attributed to the recovery of the world economy.



Import grew by 25.8% in 16 January - 15 February 2009 and by 43.9% in 16 February - 15 March 2010. It rose only by 33.2% in 16 June - 15 July 2010 and it declined by 1.6% in 16 December 2010 - 15 January 2011, due to the somewhat tight policy of the NRB in stipulating specific measures to contain imports.



BOP recorded smart gains. It was surplus by US$0.33 billion in February 2009 and remained in deficit of US$0.32 billion in March 2010. A rise in the capital account surplus contributed in bringing down the BOP deficit to US$0.035 billion in 2009/10 though the current account registered a deficit of US$0.445 billion. The large deficit in goods and services trade led to such a huge current account deficit.

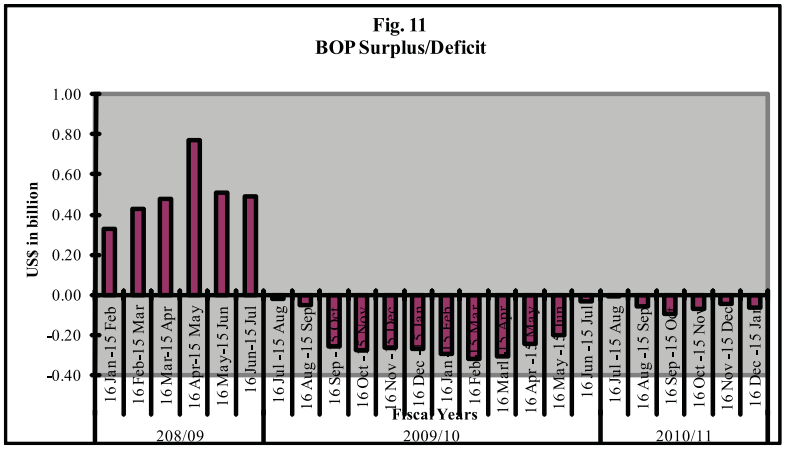
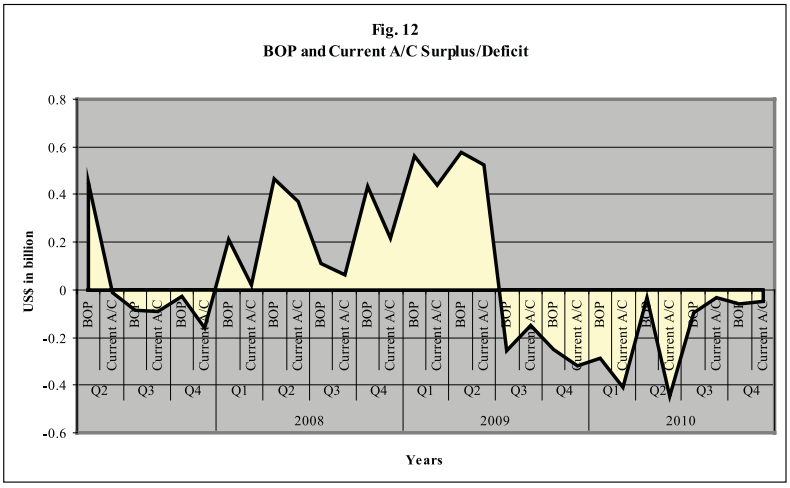


Fig. 12
BOP and Current A/C Surplus/Deficit



The average fiscal balance of 1990 – 1996 as a percent of GDP was 19.1%. The average fiscal balance of 2001 – 2008 as a percent of GDP was 8.6%. It increased to 17.7% in 2009. The primary balance as a percent of GDP also follows same trend. The average primary balance of 1990 – 1996 as a percent of GDP was 7.65%. The average primary balance of 2001 – 2008 as a percent of GDP was 3.4%. It increased to 8.5% in 2009. Nepal experienced 10 years of the Maoist people's war (1996 to 2006). Development activities more or less stopped entirely during this period. As a result, the capital expenditure of the government shrank though recurrent expenditure went up. After the end of Maoist insurgency, the capital expenditure progressed on a rising trend.

Table 9
Impact of Fiscal Policy on Government Budget

Period	Fiscal Balance as a % of GDP	Primary Balance as a % of GDP
1990 - 1996 Average	-19.1	-16.3
1997 - 1998 Average	-11.8	-10.2
1999	-11.7	-4.5
2001 - 2008 Average	-8.2	-7.9
2009	-12.8	-11.7
2010 Estimates	-18.7	-14.0

4. The Relative Effectiveness of Policy Choices (Econometric Model)

4.1 Stationarity Test (Unit Root Test)

The Augmented Dickey Fuller (ADF) unit root test was utilised to find whether the variables under study are integrated in the same order or not. The time series variables are not stationary in log levels [I(0)]. The results presented in the Table 10 show that the time series variables are stationary in first differenced form [I(1)]. That is, differenced variables are found to be integrated of order 1.

Table 10
Test for Stationarity of LOG(RGDP), LOG(RM2) & LOG(RFBA) Series in First Difference

Variables	Abbreviation	ADF Test Statistic	Mackinnon Critical Value 1%	5%	10%	Level of Integration
Real Gross Domestic Product	RGDP	-6.428035	-3.646342	-2.954021	-2.615817	I(1)
Real Narrow Money Supply	RM1	-9.346213	-3.653730	-2.957110	-2.617434	I(1)
Real Fiscal Balance	RFBA	-5.363630	-3.646342	-2.954021	-2.615817	I(1)

4.2 Co-integration Test

Since the order of integration of RGDP, RM1 and RFBA is the same, the integration technique (Angel and Granger) can be applied. The co-integration regression of LOG(RGDP) on LOG(RM1) and LOG(RFBA) is run by ordinary least squares method. The result is presented in Table 11 given below.

Table 11
Result of Co-integration Regression of LOG(RGDP) on LOG(RM1) and LOG(RFBA)

Dependent Variable: LOG(RGDP)
Method: Least Squares
Date: 12/28/10 Time: 02:39
Sample: 1975 2009
Included observations: 35

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.414673	0.094316	89.21768	0.0000
LOG(RM1)	0.722915	0.024792	29.15891	0.0000
LOG(RFBA)	-0.041823	0.024286	-1.722132	0.0947

R-squared	0.983789	Mean dependent var	12.52988
Adjusted R-squared	0.982776	S.D. dependent var	0.446424
S.E. of regression	0.058588	Akaike info criterion	-2.754743
Sum squared resid	0.109843	Schwarz criterion	-2.621427
Log likelihood	51.20800	F-statistic	971.0051
Durbin-Watson stat	0.966425	Prob(F-statistic)	0.000000

To find out the degree of integration of the residuals from the co-integration regression of RGDP on RM1 and RFBA, the ADF test statistic is estimated for residuals.

Null Hypothesis: RESIDUAL has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.794008	0.0068
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

*MacKinnon (1996) one-sided p-values.

The ADF test of residual confirms that the residual of the model is stationary at 1% level of significance. Hence, it can now be concluded that the variables under consideration are co-integrated with each other. This empirical result leads to conclude that there is a long-run relationship of real gross domestic product with real narrow money supply and real fiscal balance.

4.3 Error Correction Model (ECM)

The error correction model combines both long-run co-integration relationship and short- run dynamics. Hence, the following ECM model is estimated.

Dependent Variable: DLOG(RGDP)
Method: Least Squares
Date: 12/28/10 Time: 01:58
Sample(adjusted): 1976 2009
Included observations: 34 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.038907	0.004474	8.695981	0.0000
DLOG(RM1)	0.111250	0.056402	1.972469	0.0582
DLOG(RFBA)	-0.016537	0.013065	-1.265698	0.2157
RESIDUAL(-1)	-0.144882	0.060019	-2.413922	0.0223
DUMMY	-0.050388	0.012471	-4.040554	0.0004
R-squared	0.504148	Mean dependent var		0.040445
Adjusted R-squared	0.435755	S.D. dependent var		0.023204
S.E. of regression	0.017430	Akaike info criterion		-5.126181
Sum squared resid	0.008810	Schwarz criterion		-4.901716
Log likelihood	92.14507	F-statistic		7.371311
Durbin-Watson stat	2.434530	Prob(F-statistic)		0.000318

The coefficient of real narrow money supply is statistically significant though the coefficient of real fiscal balance is not significant. The coefficient of the error correction term in the ECM equation is negatively significant evincing the fact that 14% of disequilibrium in “t-1” year is corrected in “t” year. The explanatory power of real narrow money supply and real fiscal balance to real gross domestic product is low. Dummy variable is used in the model. The coefficient of the dummy variable is also found to be statistically significant. This indicates that besides the quantitative factors, there are several qualitative factors that affect the real gross domestic product.

5. Way Forward

The number of tourist arrivals by air and Nepali migrant workers is trending upwards. While the number of tourist arrivals in 2008/09 declined by 0.9%, it rose by 12.9% in 2009/10. The number of Nepali migrant workers soared by 36.2% in 2009/10 compared to 2008/09. The increase in the number of tourists and Nepali migrant workers is attributed to the recovery of the world economy from the financial crisis. The country witnessed its remittance rising though growth rate is lower compared to 2008/09. The total amount of remittance remained US$3.11 billion in 2008/09, which was US$2.70 billion in 2009/10. The import of unproductive items saw a drastic decline. The BOP made a smart gain. That is, the BOP deficit plunged to US$0.04 billion at the mid-July 2010, which was US$0.32 billion at mid-March 2010. During the first one month of 2010/11 (mid-July 2010 – mid-August 2010), the BOP deficit remained at US$0.00418, which was US$0.10945 in the same period of 2009/10. The foreign exchange reserve is in increasing trend. It remained US$3.508 billion at mid-August 2009, US$ 3.581 billion at mid-July 2010 and US$3.595 billion at mid-August 2010.

Non-economic factors rather than economic ones are considered responsible for the economic slum of Nepal. The contribution of workers' remittance is very significant in the Nepalese economy. But, it is not a reliable source of foreign exchange earnings. So, Nepal should give emphasis to the trade promotion of products such as garments, carpets, pashmina, handicrafts and herbs in which Nepal has advantage and strength. There are prospects of extraordinary performance in sectors like hydropower, tourism, and bio-diversity.

There is no doubt that the financial system needs to be structured on a stronger base and should comply with adequate international norms and best international practices. A financial reform programme is being implemented as one of the major components of the economic reform programme of the GoN.

6. Conclusions

GDP grew by 3.5% only in 2009/10 due to the sharp fall in the production of food-grains owing to unfavourable monsoon conditions and non-economic factors. Monetary management remained challenging in 2009/10. The Asian financial crisis of 1997 did not affect the Nepalese economy because of the underdeveloped nature of its financial market, which was not connected to the international financial market. The Nepalese economy could not remain isolated from the global financial crisis that was spreading worldwide, but severe or direct impact was not observed because the Nepalese economy was not fully

dependent on the international financial market. Its lagged impacts have been seen in the Nepalese economy since the beginning of 2009/10. The global financial crisis adversely affected inflow of workers' remittance and tourism industry of Nepal, thereby weakening the current account of the balance of payment and foreign exchange reserve.

On the eve of the global economic recession, a number of measures were initiated by the GoN to promote foreign employment and encourage the inflow of remittances through the official channel. On the government's part, it constituted a high level task force to recommend timely measures for minimising the impact of global financial crisis. The government established a consultation mechanism at the secretariat level to tackle the adverse impact on foreign employment and remittances. The NRB, the central bank of Nepal, took some steps to correct the unfavourable BOP situation. As a result, some improvements were observed in the growth of foreign employment, workers' remittance growth rate, BOP deficit, foreign exchange reserve and liquidity in the banking channel.

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Chapter 5

RELATIVE EFFECTIVENESS OF POLICY CHOICES DURING FINANCIAL CRISIS IN NEPAL

By

Prakash Rai[1]

1. Introduction

1.1 Background

The sub-prime mortgage crisis in the United States triggered the recent global financial crisis that adversely affected output, trade, employment, fiscal structure, and investment climate since the second half of 2007. The capital account of Nepal is not convertible[2]. The Nepalese people have no right to invest in house, land, business entities and shares in abroad. So, there is no direct effect of global financial crisis in the Nepalese economy. The budget of the Government of Nepal (GoN) largely depends upon external grants and loans. The Nepalese economy significantly depends upon its workers' remittance. Nepalese products are exported mainly to the developed countries. The Nepalese economy as such cannot be isolated from the indirect effect of the global financial crisis.

The performance of the Nepalese economy in terms of economic growth remained normal in 2008/09. The overall growth of the GDP at basic prices grew by 3.9% in 2008/09. The annual average consumer inflation increased to 13.2% in 2008/09, which was 7.7% in 2007/08. It was mainly driven by the significant rise in the prices of food and beverages items.

The fiscal situation remained broadly stable in 2008/09. The fiscal deficit stood at only 1.9 % of GDP as against the estimate of 3.9% in the budget of 2008/09. Such a prudent fiscal situation was attributed to an impressive revenue mobilisation and foreign grants. The government's strong commitment in revenue

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1. Assistant Director, Research Department, Nepal Rastra Bank.
2. Foreigners are allowed to invest in the real sector of Nepal, but they are not, so far, allowed to invest in the security market of Nepal.

leakage control, strong implementation of voluntary disclosure of income scheme (VDIS), several reforms in tax administration, growing imports and consumption induced by the significant rise in remittances, the increasing imports of high taxable vehicles and spare parts and increase in non-tax revenue are mainly responsible for the encouraging growth of revenue mobilisation.

In 2008/09, the external sector depicted a mixed performance. Although there was an increase in exports, there was a significant growth in trade deficit as the growth rate of imports was relatively much higher. The ratio of exports to imports declined to 23.6% in 2008/09 from 26.7% in 2007/08. It demonstrates the declining import financing capacity of exports. Nevertheless, owing to the sharp rise in remittances, both the current account and the balance of payments remained a surplus in 2008/09. Consequently, there was a rise in foreign exchange reserves that facilitated the maintenance of exchange rate and external stability.

The total foreign exchange reserves of the banking system reached US$3.64 billion as at mid-July 2009, an upsurge by 31.7% compared to the figure of mid-July 2008. This level of reserves was adequate for financing merchandise imports of 12.0 months and merchandise and service imports of 9.8 months.

The monetary aggregates expanded substantially in 2008/09. Narrow money (M_1) registered a growth of 27.3% in the 2008/09, compared to a growth of 21.6% in 2007/08. Likewise, broad money (M_2) grew by 27.7%, compared to an increase of 25.2% in 2007/08. An upsurge in both the net foreign assets (NFA) and net domestic assets (NDA) contributed to such a higher expansion in the monetary aggregates in 2008/09.

The stock market experienced an impressive growth in 2008/09. The Nepal Stock Exchange (NEPSE) recorded 1,075.38 points on August 31, 2008, which was the highest level recorded during the 2008/09. This index declined to 749.10 points at the end of 2008/09. Likewise, market capitalisation to GDP ratio was 53.4% in mid-July 2009 as compared to 44.6% in mid-July 2008.

The estimated Gross Domestic Product (GDP) at basic prices was 5.5% in 2009/10, but it actually grew by 3.5% only due to the sharp fall in the production of food-grains owing to unfavourable monsoon conditions and non-economic factors, like strikes, labour dispute, fragile industrial security, inadequate power supply and lack of investment-friendly environment in the country.

The monetary management remained challenging in 2009/10. Decline in exports and massive surge in imports led to a deficit in the balance of payments

(BOP). The inflation rate stood at double digit owing mainly to the continuing high food prices. The banking sector faced a liquidity shortage due to slowdown in deposit mobilisation and contraction in foreign exchange reserve. The massive flow of bank credit to the real sector led to the shortage of financial resources for productive sector of the economy. The total government expenditure increased by 20.2% and revenue mobilisation increased by 25.4% in 2009/10. Foreign grants increased by 1.9% and foreign loans rose by 14.5%.

1.2 Monetary Policy

The bank rate, one of the indicators of signaling ex-ante monetary policy stance, was kept unchanged at 6.25% in 2007/08. Considering the difficult situation faced by Nepalese exporters, the refinance rate for export credit in Nepalese currency was lowered by one percentage point to 2.5% in 2007/08. Considering the problems faced by the small and cottage industries, a refinance facility to these industries was introduced in 2007/08 at a refinance rate of 2.5% to commercial banks and development banks. The commercial banks and development banks were not allowed to charge an interest of more than 5.5% to the concerned borrowers for such facility.

The primary objective of the monetary policy of 2008/09 was to anchor the inflationary pressure. Despite the upward revision of petroleum prices and its effects on prices of transportation and other food items, the inflation rate was expected to remain within single digit with anticipation of a good harvest of the summer crops and no further price hike in petroleum products. The monetary policy also focused on facilitating the targeted economic growth of 7.0% along with confinement of inflation rate around 7.5%. However, the industrial activities remained poor, as the investment environment could not improve owing to the continued power shortage, labour disputes, and strikes. The long winter drought also had an adverse impact on the supply of food and other agricultural products, building additional pressure in prices. On the demand side, the voluminous inflow of remittance put some pressure on prices encouraging the domestic demand. Owing to these reasons, the inflation rate went far above the expectation and stood at 13.2%.

The monetary policy of 2009/10 had remained tight to check the high inflationary pressure. It aimed at managing liquidity to facilitate the achievement of the targeted economic growth rate of 5.5% while maintaining price and external sector stability. The cash reserve ratio (CRR) was kept unchanged at 5.5%. Similarly, the bank rate was also kept unchanged at 6.5%. Narrow money (M_1), which had grown by 27.3% in 2008/09, grew by 11.2% in the 2009/10.

Broad money (M_2), which had expanded by 27.1% in the previous year, increased by 14.5% (projected 17.0%) in 2009/10. A deceleration in the net domestic assets and a decline in the net foreign assets accounted for such a lower growth of the monetary aggregates in 2009/10.

The primary objective of monetary policy of 2010/11 is to maintain a comfortable level of foreign exchange reserve by achieving a BOP surplus. Another objective of the policy is to anchor inflationary pressure to contain inflation at 7%. Open market operations are the principal instrument of monetary policy. The existing provision on the statutory liquidity ratio was revised to strengthen financial stability and liquidity management. The refinance rate has been reduced to 7.0% from 7.5%. The domestic credit is expected to increase by 15% in 2010/11.

Table 1
Policy Rates

(Percent per Annum)

Variables	2007 July	2008 July	2009 July	2010 July
Cash Reserve Ratio (CRR)	5	5	5.5	5.5
Bank Rate	6.25	6.25	6.5	7.0
Refinance Rates Against Loans to:				
Sick Industries	1.5	1.5	1.5	1.5
Rural Development Banks (RDBs)	3.5	3.5	3.5	3.5
Export Credit in Domestic Currency	3.5	2.5	2	1.5
Export Credit in Foreign Currency	3.25	3.25	LIBOR*+0.25	LIBOR*+0.25

*London Inter Bank Offer Rate

Source: Nepal Rastra Bank

1.3 Fiscal Policy

The government budget remained prudent in 2007/08. The budget deficit (after grants) soared only by 24.8% to US$0.25 billion, compared to a growth of 26.9% in the previous year. The lower rate of growth of the budget deficit was attributed to the revenue mobilisation and foreign grants. The ratio of the budget deficit to GDP increased to 2.0% in 2007/08 from 1.8% in the previous year. The total government spending including loans and investment recorded a growth of 24.5% to US$2.21 billion in 2007/08, compared to a growth of 21.8% in 2006/07.

Revenue mobilisation (excluding the principal refund) registered a growth of 21.0% to US$1.61 billion in 2007/08, compared to a growth of 22.5% in the previous year. The revenue to GDP ratio increased to 12.8% from 11.9% in 2006/07. Of the total revenue, the share of tax revenue and non-tax revenue stood at 81.1% and 18.9%, respectively, in 2007/08. These ratios were 82.1% and 17.9%, respectively, in 2006/07. The budget deficit (after grants) soared only by 9.3% to US$0.24 billion, compared to a growth of 61.9% in the previous year. The budget deficit to GDP ratio declined to 1.9% in 2008/09 from 2.0% in the previous year.

Table 2
Government Budgetary Operation

(US$ in billion)

Variables	2007/08	2008/09	2009/10
1. Actual Expenditure	2.21	2.49	3.33
2. Resources	1.93	2.19	2.74
Revenue	1.66	1.87	2.41
Foreign Grants	0.27	0.32	0.33
3. Sources of Financing	0.35	0.45	0.52
Internal Loans	0.29	0.40	0.47
Foreign Loans	0.06	0.05	0.06

Source: Nepal Rastra Bank

The total government spending including loans and investment recorded a growth of 34.6% to US$2.49 billion in 2008/09, compared to a growth of 49.6% in 2007/08. A slightly low rate of growth of recurrent expenditure as well as capital expenditure accounted for such a low growth rate of total government expenditure in the review year. The ratio of total government expenditure to GDP remained higher at 20.0%, compared to that of 17.4% in the previous year.

Total government expenditure on cash basis increased by 20.2% in 2009/10. Of the total expenditure, recurrent expenditure rose by 20.7% and capital expenditure 20.2%. The revenue mobilisation of the government up surged by 25.4% in 2009/10, compared to a growth of 33.3% in the previous year.

Table 3
Key Indicators Measuring Vulnerability of Economy for External Shocks

Indicator	1996		2007	
	(In US $ billions)	% of GDP	(In US $ billions)	% of GDP
Real GDP in billion US$	4.09	-	8.68	-
Exports of Goods and Services	0.40	9.7	0.91	10.5
Foreign Currency Reserves	0.59	14.4	3.27	37.7
Imports of Goods and Services	1.64	40.1	3.41	39.3
Average Monthly Imports	0.14	3.3	0.28	3.2
Months of Imports Covered	6.00	-	9.3	-
Balance on Current Account	-0.29	-7.1	0.36	4.2
Total Government Debt	0.15	3.8	0.45	5.2
Foreign Debt	0.16	3.9	0.14	1.6
External Liability	0.05	1.2	0.06	1.0
Debt Service Payment (Foreign)	0.13	3.2	0.15	1.7
Primary Balance	-0.14	3.4	-0.36	4.2
Fiscal Deficit	-0.45	11.1	-0.51	5.9

Source: Nepal Rastra Bank

2. Impact of Global Financial Crisis on Nepalese Economy (Focusing on Key Indicators)

The Asian financial crisis, started in Thailand in July 1997, had its contagion impact on a number of countries affect. Indonesia, South Korea and Thailand were mostly affected. The People's Republic China, India, Taiwan, Singapore, Brunei, and Vietnam were less affected. Nepal, however, was not affected because of the underdeveloped nature of its financial markets, which were not connected to the international financial market.

At the beginning of the global financial crisis which started in July 2007, the key economic indicators of Nepal like workers' remittance, balance of payment, foreign exchange reserve, etc. continued to remain at satisfactory levels as the global financial crisis has not had an immediate impact on the country. Its lagged impact, however, has been felt in the Nepalese economy since the beginning of 2009/10.

The banking sector faced a liquidity crisis. High import, low export, snail pace of remittance growth, BOP deficit and low level of foreign exchange reserve are current major challenges of the Nepalese economy. The global financial

crisis may be one of the causes of these problems. The import of Nepal is on an increasing trend whereas export continues to remain very low. The major importing items are gold, silver, vehicles and their parts, etc. These are unproductive items. The import of productive items is always welcome for the betterment of the economy. The latest export-import ratio is alarmingly low at 0.175 (17.5%). The major sources of foreign exchange of Nepal are workers' remittance and the tourism industry. The global financial crisis affected the inflow of workers' remittance and the tourism industry of Nepal adversely, thereby weakening the current account of its balance of payment and its foreign exchange reserves.

Table 4
Impacts of Global Financial Crisis

Impacts of Global Financial Crisis	In Nepal
1. Outflow of short term capital investment	No
2. Depletion of foreign exchange reserve	Yes since August 2009
3. Reduction in growth rate of workers' remittance	Yes since August 2009
4. Liquidity crisis	Yes since November 2009
5. Reduction of Export	Yes as compared to 2008
6. Reduction in Foreign loan and grant	No
7. Collapse of financial institutions	No
8. Decline in the value of shares	No*

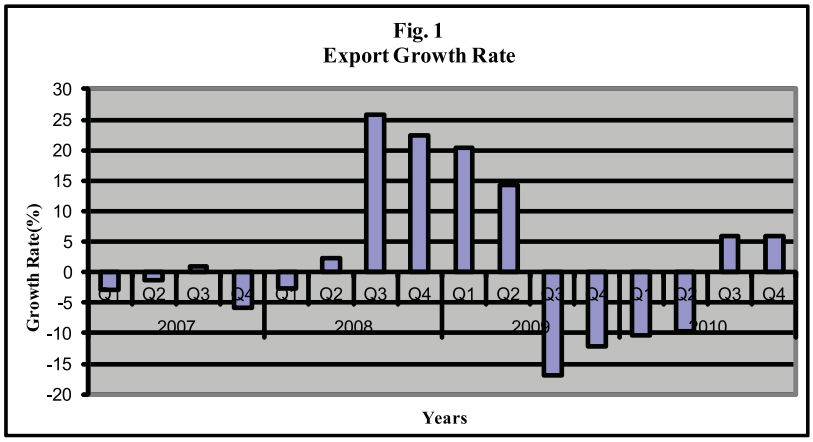
*Value of shares declined since the beginning of 2009 due to internal causes like increase in capital gain tax, strict policy of Nepal Rastra Bank on margin credit and excessive supply, but not due to the global financial crisis.

2.1 Impact on Export

The share of export in the GDP remained 10.5%, 11.4% and 12.6% in 2007, 2008 and 2009, respectively. Handicrafts (metal and wooden), Pashmina, Ready-made garment and Woolen carpet are the major items of export of Nepal. They are mainly exported to United States, UK, Germany and Russia.

The export growth rate remained negative during Q_1, Q_2 and Q_4 of 2007 and Q_1 of 2008 due to domestic factors like labour dispute, strike, power shortage, etc. During Q_2 of 2008 to Q_2 of 2009, the export growth rate remained positive because of favourable domestic and external factors. The performance of export

was poor during Q_3 of 2009 to Q_2 of 2010 due to the lagged impact of the global financial crisis. Better performance was seen in the export of Nepal during Q_3 and Q_4 of 2010 indicating the recovery of the global economy.



2.2 Impact on Foreign Employment

The GoN has opened 108 countries as labour destinations for Nepali workers. Among them, Malaysia, Qatar, Saudi Arabia and United Arab Emirates are the four major destinations, which absorb more than 90% of Nepali workers. Recently, South Korea, Israel and Japan also emerged as new labour destinations. About 30% of households in Nepal receive remittances. The share of remittances from abroad is highest from Qatar (21.3%) followed by Malaysia (19.2%), Saudi Arabia (14.9%), India (13.4%), United Kingdom (2.2%) and other countries (29%) (Nepal Labour Force Survey, 2008).

The global financial crisis resulted in job losses everywhere and migrant workers were compelled to return home country. However, it is difficult to assess the return migration in the wake of the crisis in Nepal. According to the Foreign Employment Promotion Board, only 279 Nepalese migrant workers returned as of June 2010. This number includes only regular migrants, who have claimed social benefits. Anecdotal evidence, however, strongly suggests that Nepalese migrants from the Gulf States and Malaysia did not return in large numbers. They preferred to stay on and work irregularly because they feared they might not be able to return once they leave.

The data of outgoing workers demonstrate that the global recession had a negligible and delayed impact on remittances. Due to the worsening political conflict and the shrinking of economic opportunities, the pace of foreign employment had, until late 2008, dramatically increased. However, the deceleration in the growth of foreign employment, marked from late 2008, could be attributed to the delayed effect of the global recession.

2.3 Impact On Workers' Remittance, Balance Of Payment and Foreign Exchange Reserve

The workers' remittances aggregated US$2.70 billion in 2008/09, a rise by 47.0% compared to that of 2007/08. This upsurge in remittances had led to a surplus in the current account, thereby strengthening the overall balance of payments position. Consequently, the balance of payments recorded a significant surplus and the gross foreign exchange reserves rose to US$3.587 billion, which were adequate for financing merchandise imports of 12.0 months and merchandise and service imports of 9.8 months as at mid-July 2009.

There were a number of reasons for the surge in remittances in 2008/09:

i. Weaker Nepalese Currency (NC)

Usually remittances grow with the depreciation of NC as it enables receivers to obtain more NC for each US dollar. Faced with a large outflow of short-term capital investment due to the global financial crisis, there was a rapid depletion of foreign exchange reserve in India. As a result, the Indian currency (IC) became weak and note the NC also weakened as compared to US dollar. In the beginning of 2009, the value of US$1 moved to as high as NC80, a depreciation of 25% compared with the beginning of 2008.

ii. Uncertainty

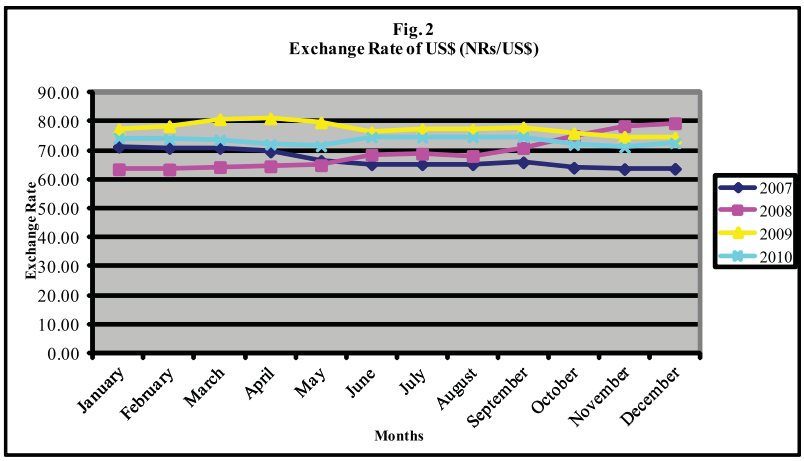
The global financial crisis made the job of the Nepali migrant workers uncertain and they sent earned money.

iii. Reliance on Formal Channels

There is a growing reliance of migrant workers to send their income home through formal channels. Accordingly, the global crisis had a favourable impact on the flow of remittances at its early stage.

Though the number of Nepali migrant workers for blue-collar jobs abroad has not decreased currently, the workers' remittance inflow has slowed down. Nepal was one of the top ten recipients in terms of share of remittance in GDP

in 2008/09. During 2008/09, the BOP remained in surplus by US$0.48 billion because of the significant growth in the workers' remittance. In 2009/10, the workers' remittances grew by 10.5% to US$3.11 billion, compared to a growth of 47% of 2008/09. The slowdown in the growth of remittances coupled with the rising trade deficit resulted in a current account deficit of US$0.43 billion and BOP deficit of US$0.035 billion in 2009/10. Consequently, the gross foreign exchange reserves declined to a level, which is sufficient financing the merchandise imports of 8.6 months and merchandise and service imports of 7.3 months as at mid-June, 2010.



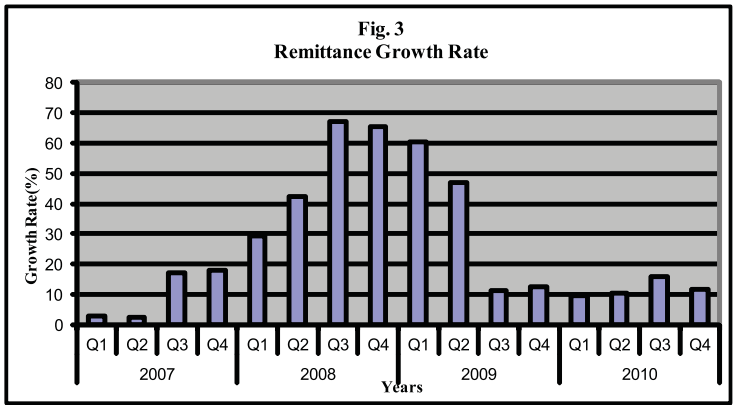
The ratio of remittances to the GDP increased from 11.1% in 2004/05 to 17.5% in 2007/08 and further to 21.6% in 2009/10 (Table 5). The share of remittances in foreign exchange earnings increased from 29.5% in 2004/05 to 57.2% in 2009/10. Remittances have emerged as a source for financing Nepal's growing trade deficit. These ratios clearly demonstrate that any significant decline in receipts from remittances could disturb the macroeconomic environment of the country.

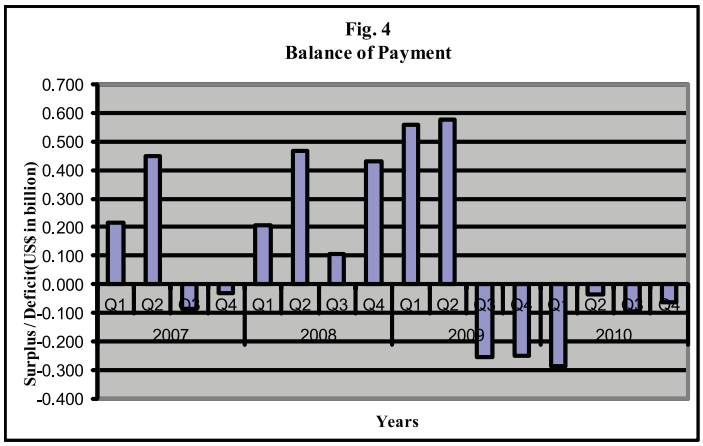
Table 5
Remittance Ratios

(In percent)

Ratios	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Share of remittances to current a/c receipts excluding grants	38.2	46.7	45.3	51.1	56.7	59.3
Share of remittances to overall receipts	29.5	36.6	36.8	41.7	48.6	57.2
Ratio of remittances to GDP	11.1	14.9	13.8	17.5	21.2	21.6

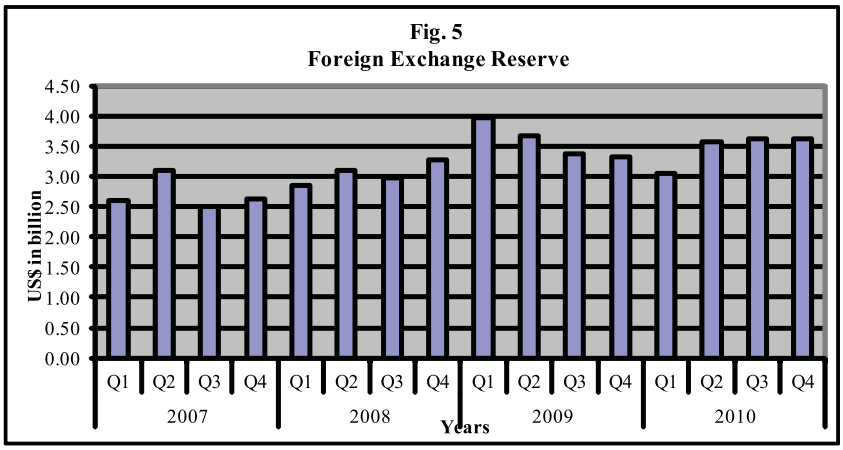
Source: Nepal Rastra Bank





The gross foreign exchange reserves were only US$3.58 billion as at mid-July 2010 and US$3.61 billion as at mid-December 2010, which was US$3.67 billion as at mid-July 2009 and US$3.10 billion as at mid-July 2008. The major reasons for the decrease in the foreign exchange reserves during mid-October of 2009 to mid-June of 2010 were the low growth rate of workers' remittance, high import, low export, and capital flight via illegal channel. It is suspicious that remittance money is being invested somewhere outside Nepal so that the incomes earned from abroad is not visible in the formal account. The rise in the trade deficit and the slow growth of remittance hurt the current account deficit.

Fig. 5
Foreign Exchange Reserve



3. Relative Effectiveness of Policy Choices

3.1 Policy Measures Undertaken

On the eve of the global financial crisis, a number of measures were initiated to encourage the inflow of remittances and promote foreign employment through the official channel.

The Nepal Rastra Bank (NRB) made a policy arrangement to offer a commission in addition to the prevailing buying rate to licensed private firms to encourage the inflow of remittances through the official channel. Moreover, a provision was also made to include the commercial banks' loan of up to US$1,538 per head for the individuals wishing to go abroad for foreign employment under the category of deprived sector credit in order to promote foreign employment.

Manpower agencies involved in sending Nepalese nationals to work overseas have been granted permission to open foreign currency accounts in the Nepalese commercial banks out of the foreign currency income that they realised under the prevailing rules. An arrangement was made with the joint initiative of the NRB and Reserve Bank of India for remitting funds from India to Nepal through the National Electronic Fund Transfer (NEFT) system.

A provision was made to issue the "Infrastructure Development Bond" of an amount equivalent to US$0.093 billion by the NRB fixing pegged exchange rates targeting the Nepalese working abroad through the Nepalese Embassies in South Korea, Malaysia, United Arab Emirates, Saudi Arabia and Qatar, as a part of the domestic borrowing for 2009/10. Such bonds can be purchased only by workers working abroad. From this arrangement, the remittance can be used for infrastructure development and the remittance itself remains free of additional charges when transmitted to Nepal.

Because of the trade deficit and snail pace growth of workers' remittance, both the current account and overall BOP remained deficit since August 2009 depleting foreign exchange reserve, due to the lagged impact of global financial crisis. In the short term, the expenditure reducing and switching policies are not suitable to correct the unfavourable policy. The GoN has envisaged export and tourism industry promotion and import substitution policies because workers' remittance is not a reliable source of foreign exchange as compared to the tourism industry and export.

Taking into account the global financial crisis issue, the GoN constituted a high level task force under the chairmanship of the vice chairman of the National Planning Commission to monitor the possible impact of global financial crisis in the Nepalese context. The major duty of this task force was to recommend to the Finance Minister timely measures (to be initiated by the government) for mitigating the impact of the global financial crisis on the Nepalese economy.

On the government's part in tackling the adverse impact on foreign employment and remittances, a consultation mechanism between the Foreign Ministry, Ministry of Labour and Transport Management was established at the Secretariat Level. The diplomatic missions abroad were given instructions to monitor and assess the situation regularly.

As a diplomatic initiative, high level visits were made to different countries (Saudi Arabia, UAE, Qatar, Bangladesh, Malaysia and Philippines) during 2009. The government has started sending industrial workers to Japan as trainees

under the Japan Industrial Technical Cooperation (JITCO) programme. Efforts are underway to sign labour pact with other countries.

The GoN also established the "Foreign Employment Promotion Board" on January 4, 2009 to promote foreign employment activities, make foreign employment safe, respectful and well organised and to preserve the welfare of workers and foreign employment service providers. To mitigate the impact of the global financial crisis on Nepalese migrants, the government adopted two measures as counter-cyclical polices: i) requesting foreign government and companies not to lay off Nepalese workers immediately; and ii) provision of financial support to the workers who had lost their jobs due to the effect of the financial crisis and returned. Under the financial support scheme, 40% and 25% of the expenses will be provided as compensation if a worker returns within 6 months and 6 months to 12 months, respectively. So far, 279 returnees have been provided the compensations under this scheme.

The NRB, the central bank of Nepal, took the following steps to correct the unfavourable BOP situation (19 December, 2009):

i. Requirement of 40% cash margin for issuing L/C for gold and silver import.
ii. Commercial banks were not allowed to provide any loan for such margin.
iii. No provision for amendment to increase the time period and quantity of earlier L/Cs for gold import.
iv. Provision of import payment through drafts/TT was reduced to US$25,000 from US$ 50,000.
v. Passport facility of foreign exchange US$2,000 is provided for twice a year.
vi. Provision to provide only US$500 as passport facility to the people going for foreign employment with the approval of the concerned office of the Nepal Government.

The NRB injected US$1.74 billion liquidity into the banking sector through repo auction in 2009/10 to solve the liquidity shortage. In 2008/09 and 2007/08, it was US$0.136 billion and US$0.143 billion, respectively.

Table 6
Remedial Measures

Remedial Measures	By Government of Nepal (GON) and Nepal Rastra Bank (NRB)
1. Swift combination of monetary and fiscal measures	No
2. Exchange rate interventions	No
3. Injection/Pumping of liquidity into the banking sector	Yes since November 2009 via repo auction and refinancing
4. Reduction in policy rate	Yes (Reduction in refinancing rate for export credit only from 3.5% to 1.5%)
5. Non-conventional monetary policy	Yes
6.Guaranteed lending to small and medium enterprises	No
7. Purchase of commercial paper	No
8. Fiscal stimulus packages	No

Table 7
Repo Auction*

(US$ in billion)

Mid-Month	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
August	-	-	-	-	-	-
September	-	-	-	-	-	-
October	-	-	-	-	-	0.013
November	0.014	-	-	-	-	0.026
December	0.021	-	-	-	-	0.174
January	-	-	-	0.03	-	0.321
February	0.037	0.0062	-	0.076	0.052	0.25
March	0.004	-	-	0.03	0.065	0.204
April	-	-	-	-	-	0.28
May	0.0081	-	0.028	-	-	0.16
June	-	-	-	-	0.026	0.16
July	0.0043	-	-	-	-	0.16
Total	**0.088**	**0.0062**	**0.028**	**0.136**	**0.143**	**1.74**

* Since 2004/05, the repo auction of treasury bills has been used as a monetary instrument to inject liquidity, which takes place at the initiative of NRB.

Source: Nepal Rastra Bank

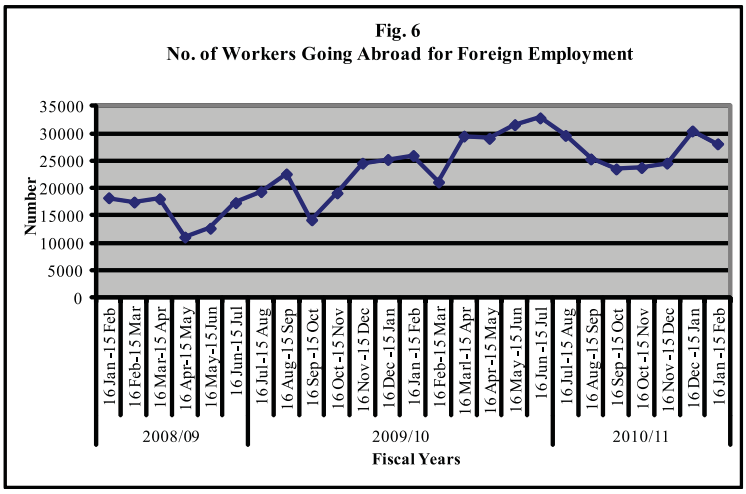
Table 8
Policy Measures

Policy	First 3 Quarters of 2008	Last Quarter of 2008 & first half of 2009	Latter half of 2009 & 2010	Objectives /Targets
Monetary Policy · Conventional · Non-Conventional	Only conventional like -Refinance rate (export credit in domestic currency) reduction to 2.5% from 3.5%.	Only conventional like - Increase in CRR from 5% to 5.5%. -Increase in bank rate from 6.25% to 6.5%. -Refinance rate (export credit in domestic currency) reduction to 2.0% from 2.5%.	Non-conventional like -Requirement of 40% cash margin for issuing L/C for gold and silver import -Provision of import payment through drafts/TT reduced to US$ 25,000 from US$50,000	Price stability, External sector stability and Financial sector stability
Fiscal Policy ·Tax Measures ·Expenditure Driven	None	None	None	Economic growth, Poverty reduction and Social justice
External Sector ·Exchange rate ·Other related	None	None	None	
Financial sector reforms	None	None	None	

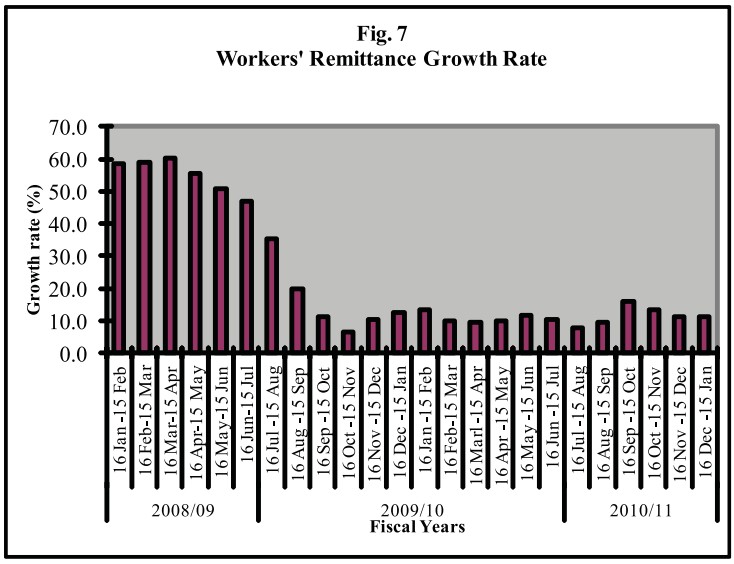
3.2 Effectiveness of Policy Choices

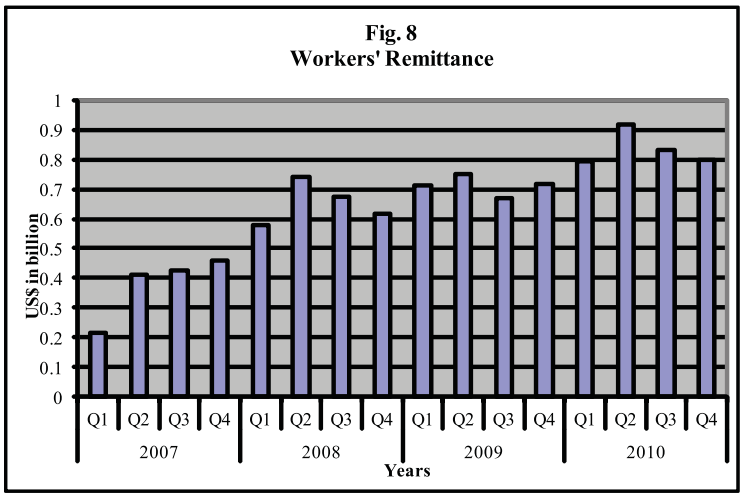
Some improvements have been seen in the growth of foreign employment, workers' remittance growth rate, BOP deficit, and foreign exchange reserve. The problem of liquidity shortage in the banking channel has been solved. The banking sector currently has sufficient liquidity.

The number of Nepali migrant workers was 18,278 during 16 January to15 February 2009, which declined to 11,105 during 16 April to15 May 2009. It rose to 32,876 during 16 June to15 July 2010 and to 28,136 during 16 January to 15 February 2011, attributed to the recovery of the world economy and the diplomatic initiation of GoN.

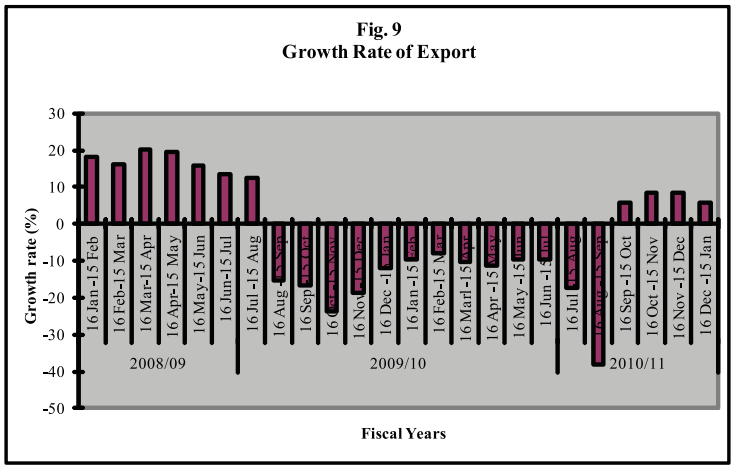


The remittance growth rate was 58.6% in 16 January to15 February 2009, which plunged to 6.6% in 16 October to15 November 2009. It rose to 10.5% in 16 June – 15 July 2010, to 16.0% in 16 September - 15 October 2010 and to 11.5% in 16 December 2010 – 15 January 2011. Both foreign employment and inflow of remittance are improving in recent months on account of the increasing demand for labour in the world labour market.

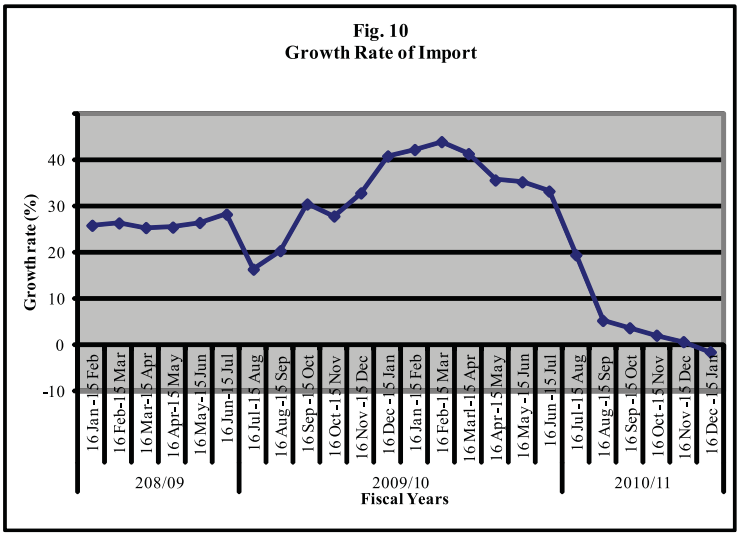




Export grew by 18.3% in 16 January - 15 February 2009, but went down to 15.2% in 16 August - 15 September 2009. It improved slightly in 16 June - 15 July 2010 with growth rate –9.7 % and it rose by 5.9% in 16 December 2010 - 15 January 2011, attributed to the recovery of the world economy.



Import grew by 25.8% in 16 January - 15 February 2009 and by 43.9% in 16 February - 15 March 2010. It rose only by 33.2% in 16 June - 15 July 2010 and it declined by 1.6% in 16 December 2010 - 15 January 2011, due to the somewhat tight policy of the NRB in stipulating specific measures to contain imports.



BOP recorded smart gains. It was surplus by US$0.33 billion in February 2009 and remained in deficit of US$0.32 billion in March 2010. A rise in the capital account surplus contributed in bringing down the BOP deficit to US$0.035 billion in 2009/10 though the current account registered a deficit of US$0.445 billion. The large deficit in goods and services trade led to such a huge current account deficit.

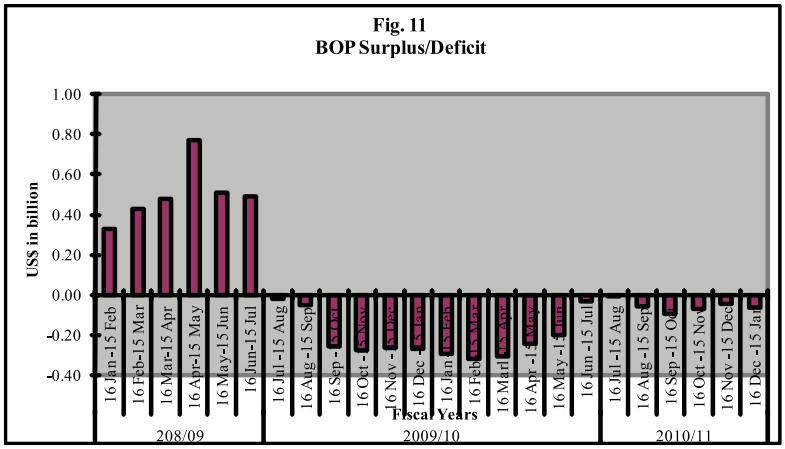
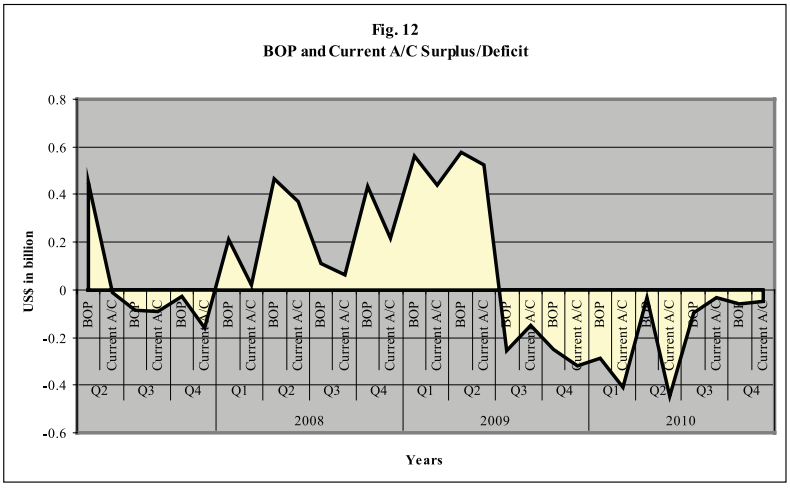


Fig. 12
BOP and Current A/C Surplus/Deficit



The average fiscal balance of 1990 – 1996 as a percent of GDP was 19.1%. The average fiscal balance of 2001 – 2008 as a percent of GDP was 8.6%. It increased to 17.7% in 2009. The primary balance as a percent of GDP also follows same trend. The average primary balance of 1990 – 1996 as a percent of GDP was 7.65%. The average primary balance of 2001 – 2008 as a percent of GDP was 3.4%. It increased to 8.5% in 2009. Nepal experienced 10 years of the Maoist people's war (1996 to 2006). Development activities more or less stopped entirely during this period. As a result, the capital expenditure of the government shrank though recurrent expenditure went up. After the end of Maoist insurgency, the capital expenditure progressed on a rising trend.

Table 9
Impact of Fiscal Policy on Government Budget

Period	Fiscal Balance as a % of GDP	Primary Balance as a % of GDP
1990 - 1996 Average	-19.1	-16.3
1997 - 1998 Average	-11.8	-10.2
1999	-11.7	-4.5
2001 - 2008 Average	-8.2	-7.9
2009	-12.8	-11.7
2010 Estimates	-18.7	-14.0

4. The Relative Effectiveness of Policy Choices (Econometric Model)

4.1 Stationarity Test (Unit Root Test)

The Augmented Dickey Fuller (ADF) unit root test was utilised to find whether the variables under study are integrated in the same order or not. The time series variables are not stationary in log levels [I(0)]. The results presented in the Table 10 show that the time series variables are stationary in first differenced form [I(1)]. That is, differenced variables are found to be integrated of order 1.

Table 10
Test for Stationarity of LOG(RGDP), LOG(RM2) & LOG(RFBA) Series in First Difference

Variables	Abbreviation	ADF Test Statistic	Mackinnon Critical Value 1%	5%	10%	Level of Integration
Real Gross Domestic Product	RGDP	-6.428035	-3.646342	-2.954021	-2.615817	I(1)
Real Narrow Money Supply	RM1	-9.346213	-3.653730	-2.957110	-2.617434	I(1)
Real Fiscal Balance	RFBA	-5.363630	-3.646342	-2.954021	-2.615817	I(1)

4.2 Co-integration Test

Since the order of integration of RGDP, RM1 and RFBA is the same, the integration technique (Angel and Granger) can be applied. The co-integration regression of LOG(RGDP) on LOG(RM1) and LOG(RFBA) is run by ordinary least squares method. The result is presented in Table 11 given below.

Table 11
Result of Co-integration Regression of LOG(RGDP) on LOG(RM1) and LOG(RFBA)

Dependent Variable: LOG(RGDP)
Method: Least Squares
Date: 12/28/10 Time: 02:39
Sample: 1975 2009
Included observations: 35

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.414673	0.094316	89.21768	0.0000
LOG(RM1)	0.722915	0.024792	29.15891	0.0000
LOG(RFBA)	-0.041823	0.024286	-1.722132	0.0947

R-squared	0.983789	Mean dependent var	12.52988
Adjusted R-squared	0.982776	S.D. dependent var	0.446424
S.E. of regression	0.058588	Akaike info criterion	-2.754743
Sum squared resid	0.109843	Schwarz criterion	-2.621427
Log likelihood	51.20800	F-statistic	971.0051
Durbin-Watson stat	0.966425	Prob(F-statistic)	0.000000

To find out the degree of integration of the residuals from the co-integration regression of RGDP on RM1 and RFBA, the ADF test statistic is estimated for residuals.

Null Hypothesis: RESIDUAL has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.794008	0.0068
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

*MacKinnon (1996) one-sided p-values.

The ADF test of residual confirms that the residual of the model is stationary at 1% level of significance. Hence, it can now be concluded that the variables under consideration are co-integrated with each other. This empirical result leads to conclude that there is a long-run relationship of real gross domestic product with real narrow money supply and real fiscal balance.

4.3 Error Correction Model (ECM)

The error correction model combines both long-run co-integration relationship and short- run dynamics. Hence, the following ECM model is estimated.

Dependent Variable: DLOG(RGDP)
Method: Least Squares
Date: 12/28/10 Time: 01:58
Sample(adjusted): 1976 2009
Included observations: 34 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.038907	0.004474	8.695981	0.0000
DLOG(RM1)	0.111250	0.056402	1.972469	0.0582
DLOG(RFBA)	-0.016537	0.013065	-1.265698	0.2157
RESIDUAL(-1)	-0.144882	0.060019	-2.413922	0.0223
DUMMY	-0.050388	0.012471	-4.040554	0.0004
R-squared	0.504148	Mean dependent var		0.040445
Adjusted R-squared	0.435755	S.D. dependent var		0.023204
S.E. of regression	0.017430	Akaike info criterion		-5.126181
Sum squared resid	0.008810	Schwarz criterion		-4.901716
Log likelihood	92.14507	F-statistic		7.371311
Durbin-Watson stat	2.434530	Prob(F-statistic)		0.000318

The coefficient of real narrow money supply is statistically significant though the coefficient of real fiscal balance is not significant. The coefficient of the error correction term in the ECM equation is negatively significant evincing the fact that 14% of disequilibrium in “t-1” year is corrected in “t” year. The explanatory power of real narrow money supply and real fiscal balance to real gross domestic product is low. Dummy variable is used in the model. The coefficient of the dummy variable is also found to be statistically significant. This indicates that besides the quantitative factors, there are several qualitative factors that affect the real gross domestic product.

5. Way Forward

The number of tourist arrivals by air and Nepali migrant workers is trending upwards. While the number of tourist arrivals in 2008/09 declined by 0.9%, it rose by 12.9% in 2009/10. The number of Nepali migrant workers soared by 36.2% in 2009/10 compared to 2008/09. The increase in the number of tourists and Nepali migrant workers is attributed to the recovery of the world economy from the financial crisis. The country witnessed its remittance rising though growth rate is lower compared to 2008/09. The total amount of remittance remained US$3.11 billion in 2008/09, which was US$2.70 billion in 2009/10. The import of unproductive items saw a drastic decline. The BOP made a smart gain. That is, the BOP deficit plunged to US$0.04 billion at the mid-July 2010, which was US$0.32 billion at mid-March 2010. During the first one month of 2010/11 (mid-July 2010 – mid-August 2010), the BOP deficit remained at US$0.00418, which was US$0.10945 in the same period of 2009/10. The foreign exchange reserve is in increasing trend. It remained US$3.508 billion at mid-August 2009, US$ 3.581 billion at mid-July 2010 and US$3.595 billion at mid-August 2010.

Non-economic factors rather than economic ones are considered responsible for the economic slum of Nepal. The contribution of workers' remittance is very significant in the Nepalese economy. But, it is not a reliable source of foreign exchange earnings. So, Nepal should give emphasis to the trade promotion of products such as garments, carpets, pashmina, handicrafts and herbs in which Nepal has advantage and strength. There are prospects of extraordinary performance in sectors like hydropower, tourism, and bio-diversity.

There is no doubt that the financial system needs to be structured on a stronger base and should comply with adequate international norms and best international practices. A financial reform programme is being implemented as one of the major components of the economic reform programme of the GoN.

6. Conclusions

GDP grew by 3.5% only in 2009/10 due to the sharp fall in the production of food-grains owing to unfavourable monsoon conditions and non-economic factors. Monetary management remained challenging in 2009/10. The Asian financial crisis of 1997 did not affect the Nepalese economy because of the underdeveloped nature of its financial market, which was not connected to the international financial market. The Nepalese economy could not remain isolated from the global financial crisis that was spreading worldwide, but severe or direct impact was not observed because the Nepalese economy was not fully

dependent on the international financial market. Its lagged impacts have been seen in the Nepalese economy since the beginning of 2009/10. The global financial crisis adversely affected inflow of workers' remittance and tourism industry of Nepal, thereby weakening the current account of the balance of payment and foreign exchange reserve.

On the eve of the global economic recession, a number of measures were initiated by the GoN to promote foreign employment and encourage the inflow of remittances through the official channel. On the government's part, it constituted a high level task force to recommend timely measures for minimising the impact of global financial crisis. The government established a consultation mechanism at the secretariat level to tackle the adverse impact on foreign employment and remittances. The NRB, the central bank of Nepal, took some steps to correct the unfavourable BOP situation. As a result, some improvements were observed in the growth of foreign employment, workers' remittance growth rate, BOP deficit, foreign exchange reserve and liquidity in the banking channel.

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Chapter 6

RELATIVE EFFECTIVENESS OF POLICY CHOICES DURING FINANCIAL CRISIS

By
Rowan Rupa[1]

1. Introduction

On the eve of the global financial crisis, Papua New Guinea (PNG) enjoyed an exceptionally high economic growth driven by commodity and metal[2] price booms. The commodity and metal price booms were driven by strong growth demand in the rapidly growing Asian region, particularly in China and India. As a result, PNG's overall balance of payments (BOP) position improved, leading to a gradual build-up of the country's international reserves. By the end of 2007, its international reserves peaked above US$2.0 billion (K5.9 billion) mark for the first time with a comfortable import cover of 12.8 months (Table1). The economic growth was well facilitated and supported by favourable domestic economic conditions due to a stable government, financial sector reforms, a sound monetary policy and restoration of peace on the Island of Bougainville. The Bank of Papua New Guinea (BoPNG) maintained a neutral monetary policy stance from September 2005 to June 2008 by maintaining its market signaling rate, the kina facility rates (KFR) at 6.0% throughout that period. Consistent with the neutral monetary policy stance, BoPNG maintained a stable exchange rate strategy and kept inflationary pressures under control. The stability in interest rates and exchange rates led to an increase in net credit to the private sector by the banking system amidst the commodity and metal price booms period. The increase in private sector lending spurred real sector activity and resulted in increased employment and economic growth during the height of the global financial crisis (GFC).

The sub-prime mortgage crisis in the United States in mid-2007, quickly uncovered large exposures of renowned financial institutions across borders in especially the developed countries. Growing uncertainty over these exposures triggered a tight liquidity situation across the markets and a pronounced worldwide

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1. Senior Analyst , Financial Markets Department, Bank of Papua New Guinea.
2. Minerals (gold & copper, excluding oil) represent around 54% of total exports.

credit crunch emerged. Owing to the credit crunch, corporate and financial institutions had to restructure their finances and wind down their activities. Economic growth plummeted across all major economies that were exposed to the sub-prime mortgage crisis directly. Sovereign states scrambled to put in place policies to stabilise the markets and lessen the impact of the economic downturn. Fortunately, PNG did not have any financial institutions with direct exposures to these toxic assets. However, the decline in global growth did affect PNG's economy.

The sub-prime mortgage crisis impacted on the PNG's economy indirectly through a decline in commodity prices and decline in demand for PNG's exports. The primary effect or the first-round effect of the sub-prime mortgage crisis on the PNG economy was through the foreign exchange markets which in turn impacted on the balance of payments and eventually resulted in lower government revenues.

PNG has a managed floating exchange rates regime, and hence the kina exchange rate (PGK) is determined by the demand and supply of the PGK against other major currencies in the market and the BoPNG intervenes from time to time as and when necessary to remove excessive PGK volatility. During the GFC, as demand for PNG's exports declined, the supply of dollars to PNG's domestic foreign exchange market decreased while demand for dollars increased. This situation exerted downward pressure on the PGK. As the depreciation of the PGK posed domestic inflationary pressure, the BoPNG intervened in the market by selling dollars from reserves accumulated during the commodity boom period and maintained stable PGK depreciation.

The other direct effect of the GFC on the PNG economy was a short fall of government revenues. Prior to 2009, there were episodes of high mineral revenue and budget surpluses from 2003 to 2007. The surpluses during these years were used to service public liabilities, restructure debt and reduce state superannuation liabilities. The rest of the funds were saved in trust accounts for earmarked projects. In 2009, due to lower mineral prices, the overall budget revenue fell by 17%. The effect of the reduced revenues on the economy was dampened by draw downs from some of the monies held in trust accounts, thereby lessening the impact of the reduced government spending. Parts of the trust funds were banked with commercial banks. As a result, the level of liquidity or commercial bank's liabilities increased significantly and with limited investment avenue domestically, funds were either invested in treasury bills or the Central Bank bill (CBB) or was loaned out. The high level of liquidity entailed lower interest rates and subsequently led to increased private sector credit. As a result,

private sector lending recorded moderate growth despite the downward trend in global growth.

The overall BOP recorded a surplus in 2009, following a deficit in 2008. The deficit in 2008 emanated from the capital account which mainly reflected the decline in foreign direct investment and other investments as panic of the ramification of the GFC set in. The situation was reversed in 2009 as current account deficits reduced due to the higher service fees for work undertaken by the mineral and related sectors. Direct investments and other investments also rebounded as confidence in the resilience of the PNG economy grew. By the end of 2009, PNG recorded an overall BOP surplus of US$627mn and international reserves increased to an equivalent of 10.7 month of imports. The resilience in the BOP was related to a number of major projects undertaken in the mineral sector.

PNG's insulation from the GFC can also be explained by the source of funds. In PNG, the banking system raises a significant part or almost all its funds domestically through deposit mobilisation and invests these funds in PNG and the South Pacific region. The banking system has a high capital adequacy and no exposure to sophisticated financial products. The high level of liquidity in the banking system has also allowed banks to fund their lending domestically instead of offshore funding. Foreign currency deposit forms only a small portion of the banking system balance sheet and investment of Superannuation funds offshore is relatively small compared to their total assets.

Comparatively, the impact of the GFC crisis and the Asian financial crisis (AFC) was similar in nature though the impact of the GFC was not immediately felt due to the boom in the mineral sector while the impact of the AFC was immediately compounded by the prolonged drought of 1997 and subsequent deterioration of PNG's external position. PNG's external and fiscal position was strong enough to absorb the impact of the GFC, while PNG could not withstand the effect of the AFC in 1997 in the face of a deteriorating external position and high domestic borrowing.

Table 1.1
Key Indicators

Key Indicators Measuring Vulnerability of Economy for External Shocks - 1996 & 2007

Indicator	1996		2007	
	In US$ billions	% of GDP	In US$ billions	% of GDP
GDP (Current) in billions US$	5.0		6.6	
Export of Goods and Services	2.46	36.2%	1.2	18.6%
Foreign Currency Reserves	0.79	11.6%	2.1	31.5%
Import of Goods and Services	2.00	39.6%	2.7	41.5%
Average Monthly Imports	0.17	3.3%	0.2	3.5%
Months of Import Cover	4.8		12.8	
Balance on Current Account	2.5	49.1%	0.2	2.9%
Total Government Debt	2.81	55.6%	2.2	33.6%
Foreign Debt	1.81	35.9%	1.1	16.7%
Composition of external Liability				
Short term	0.17	3.4%	nil	nil
Long Term	1.20	23.7%	1.1	16.7%
Debt Service Payment	0.34	6.7%	0.1	1.9%
Primary Balance				
Fiscal Defict/Surplus	0.0	1%	0.2	2.5%

Source: BoPNG and DoT

The literature on the GFC's impact on Papua New Guinea is very limited. The comments and sentiments expressed by various academics, civil servants and concerned citizens pointed out broad trends that are deduced and reaffirmed by BoPNG's surveys. In all, there is a lack of empirical literature particularly on the effect of external shocks on the PNG economy. There are several reasons for the dearth of empirical literature. The lack of skilled public service, high civil servant turnovers, reliance on expatriates to conduct empirical research, lack of data and institutional constraints are among the major reasons. Though, the PNG economy was affected by the GFC indirectly, the structure of the PNG economy during the period of the GFC was sufficiently strong to cushion these indirect effects. Nonetheless, this paper's objective is to assess the impact of the GFC and the relative effectiveness of policies taken to mitigate the impact of GFC. The paper consists of three parts. The first part examines the economic and financial conditions and policies before the GFC and further assesses the impact of the GFC on the key indicators. Part 1 is embodied in Sections 1 to 3. The second part looks at the policy choices taken by the Department of Treasury (DoT) and the BoPNG to mitigate the impact of the GFC and in turn assesses their relative effectiveness using econometric techniques. Part 2 is embodied in Sections 4 to 6. The final part of this paper examines the way forward with concluding remarks and is embodied in Sections 7 and 8.

2. Impact of Global Financial Crisis on Papua New Guinea

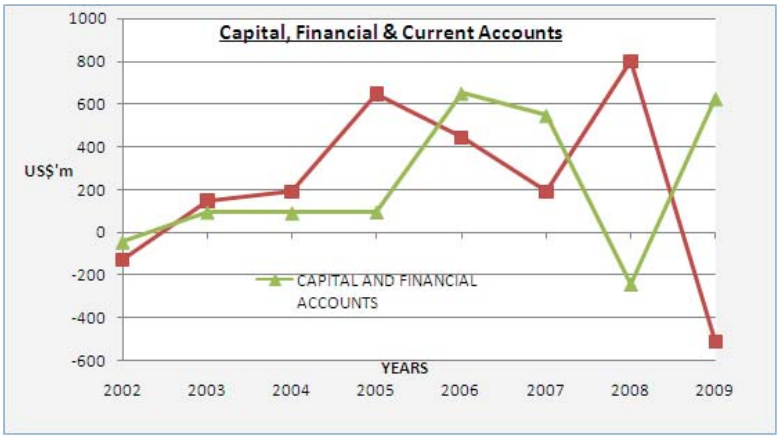
2.1 First-round Effects

2.1.1 Capital and Financial Account Flow

The initial impact of the GFC on PNG was not immediate and was overshadowed by developments in the mining sector. In 2009, inflows to the Capital and Financial Accounts increased reflecting the net inflows from investments in short term money market instruments offshore to onshore for on-going capital-related expenditure and net inflows of foreign direct investments. This increase followed a decline in 2007 and 2008 mainly on the back of a net outflow from foreign direct investments, financial derivative instruments and other investments. The decline in the foreign direct investment may to an extent reflect the global financial climate in 2007 and 2008, but the impact was small and overshadowed by the inflows associated with the development of the Ramu Nickel and Hidden Valley Gold mines.

The current account in 2007 registered a surplus due to an increase in the value of merchandised exports which more than offset the value of merchandised imports. The increase was attributed to higher commodities prices especially for, gold, coffee, cocoa, copra, copra oil, palm oil, logs and refined petroleum product exports. The favourable commodity prices kept the current account in surplus in 2008. In 2009, the current account was in deficit as global growth weakened and commodity price eased. Lower current account expenditure was recorded by Ok Tedi Mining and exploration activities decreased as the major mining companies posed and reassess their investments.

Figure 2.1
Capital, Financial & Current Accounts



Source: BoPNG

Overall, the BOP recorded a surplus in 2009, compared to a deficit in 2008. The Capital and Financial accounts were much stronger as mining inflows and net inflows from capital transfers, foreign direct investments, portfolio investments, financial derivative instruments and other investments increased. The impact of the GFC on the BOP remained at a minmum as it was mainly influenced by mining-related flows. Being the safe haven currency, gold sustained its price and remains strong during the period. The non-mining sector, especially agricultural goods, log and other manufactured goods output and export declined reflecting the impact of the slowdown in global growth, an outcome of the GFC.

2.1.2 Exchange Rate Movements and BoPNG Interventions

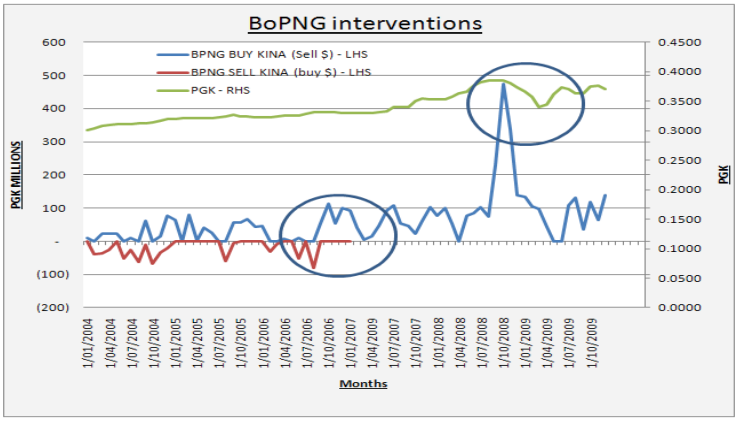
The BoPNG exchange rate policy is not explicitly stated but the Bank's actions in the market clearly highlighted its intention in the market. The kina is a commodity currency and therefore the Bank of PNG policy was mainly aimed at stabilising the kina exchange rate trend [3]so as to maintain sustainability in export flows and keep imported inflation in check.

The favourable commodity prices in 2006 and early 2007 led to a surplus in the current account causing an increase in the demand for kina, exerting pressure on it to appreciate. Hence, BoPNG was in the market to stabilise the

3. The kina is not a fully floated currency. The BoPNG may intervene in the market to smoothen out the volatility but not dictate exchange rate trend. The exchange rate trend is determined by the market forces.

kina exchange rate. BoPNG bought dollars from the market and together with the receipts of mining taxes accumulated reserves to record high levels. The bank was also mindful of the impact of kina appreciation and the loss of export competitiveness. In 2008 and 2009, downward pressure on the kina started to emerge as the government drew down on its trust accounts held with the BoPNG. During the same period, the demand for imports by mining companies involved in the construction phase of the mining projects increased and that exerted downward pressure on the kina. The slowdown in global growth due to the global financial crisis meant that the non-mining sector supply of dollars to the market mainly through agricultural-related inflows slowed down and market liquidity could not cater for the impending demand for foreign currency. In late 2007, 2008 and 2009, BoPNG intervened in the domestic foreign exchange market to provide dollar liquidity. The kina depreciated sharply by 29.0% but only momentarily between August and December of 2008 and the BoPNG injected US$149.1 million (K400.0 million) to stabilise the kina at its current levels. The kina's depreciation was mainly the result of a decline in global demand for non-mining sectors exports. PNG was able to support the exchange rate and curb imported inflation as it had accumulated foreign reserves during the commodity boom period.

Figure 2.2
BoPNG Interventions



Source: BoPNG

Figure 2.3
BoPNG Interventions and Reserves Levels

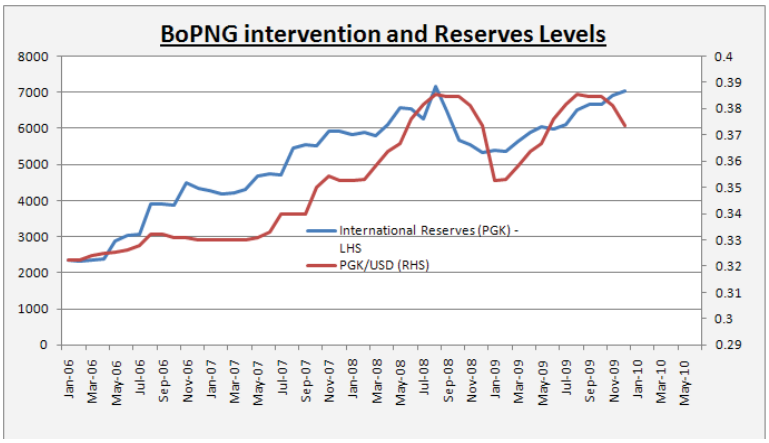
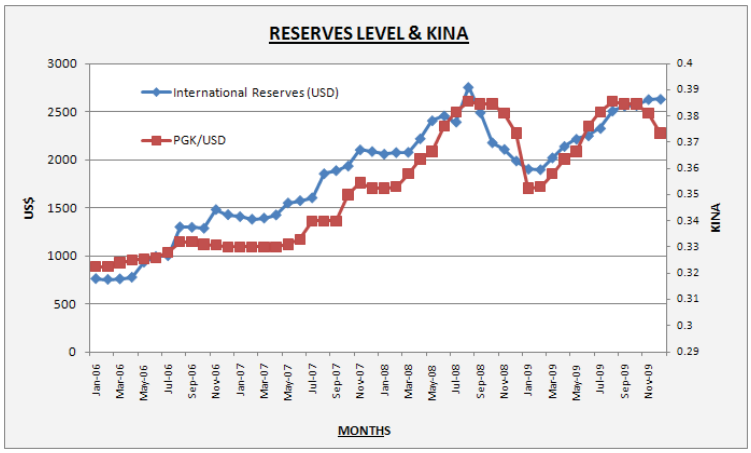


Figure 2.4
Reserve Levels and Kina



Source*:* BoPNG

2.1.3 Stock Market Trends

The Port Moresby Stock Exchange lists local companies as well as foreign companies. The foreign companies are mainly mining companies and are dual listed in the Port Moresby stock exchange and the Australian Stock Exchange. Despite a broad weakness in the global capital market, the Australian economy

performed relatively better during the crisis and the resilient gold prices kept the Kina Security Index (Ksi) relatively stable. Further, the Port Moresby Stock Exchange is a thin Exchange with a bulk of the listed companies associated with the extractive industry, compared to Australia Stock Exchange where the listed companies are from spectrum of sectors. The buoyant gold price kept the Port Moresby stock exchange well capitalised. Combined with a relatively low daily turnover, the GFC did not have any significant effect on the local stock market. Foreign investment in the local stock market is minimal and also contributes to the lesser effect of the GFC on the economy.

Figure 2.5
Port Moresby Stock Exchange

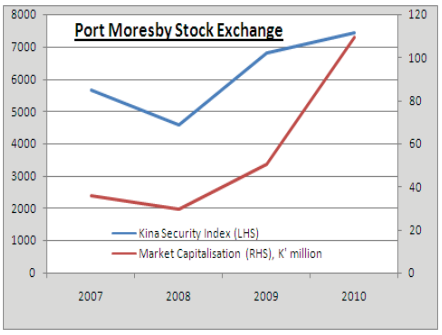
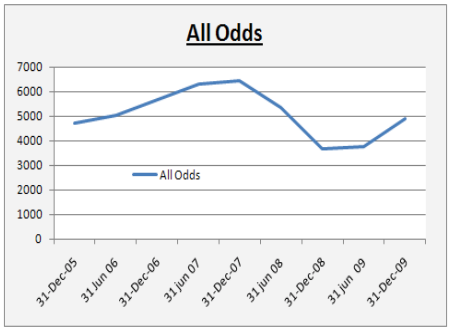


Figure 2.6
All Ordinary Index

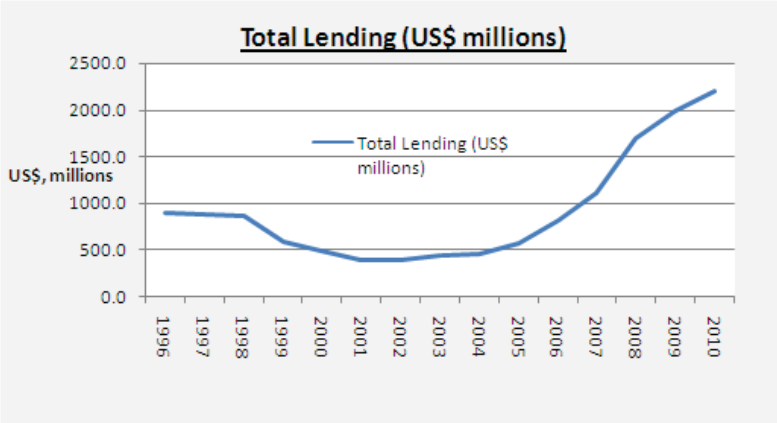


2.1.4 Implication on Market Liquidity

The GFC affected liquidity in two ways. Firstly, the GFC impacted the economy through the reduction of export receipts. The reduction in export receipts led to a shortage of foreign currency inflow to the domestic foreign exchange market and exerted downward pressure on the kina and ultimately fueled inflationary pressure on the economy. PNG was able to cushion some of the impact through gold mining inflows and a higher level of reserves accumulated during the commodity price boom. During the height of the GFC, interventions by Bank of PNG (in buying kina & sell dollars) in domestic foreign exchange market diffused kina liquidity out of the banking system and provided stability in the kina exchange rate. The accumulation of kina liquidity during the high commodity prices may potentially sip into the foreign exchange market and exert downward pressure on the kina. In order to absorb the accumulation of kina liquidity, BoPNG increased the issuance of Central Bank bills. Interest rates however remained stable as the DoT was retiring government debt.

The second liquidity effect emanated from the retirement of domestic debt (Treasury bills & Inscribed Stocks) as a result of the boom in commodity prices earlier. The retirement of government debt injected liquidity into the banking system combined with the increase in Trust accounts held in commercial Banks, kept interest rates low. This increase in liquidity was sterilised through the issuance of Central Bank bills. This resulted in a stable interest rates environment. As a result of the stable interest rates environment, total loans (Figure 7) and advances by banks to other sectors associated with the mining sector increased. Housing loans were more secured and banks showed increases in the loan portfolio.

Figure 2.7
Total Lending



2.1.5 Financial Institutions (Exposure to External Assets)

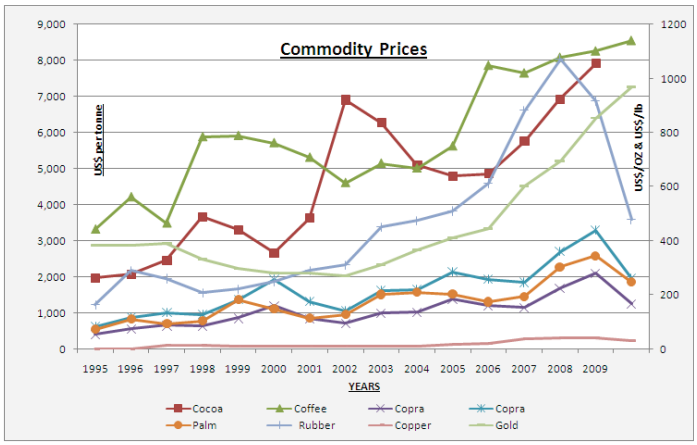
The Papua New Guinea's financial institutions were insulated from the impact of the GFC mainly because of their limited exposure to external financial instruments and products. During the height of the GFC, only two super funds had funds invested in offshore equity market. The funds invested offshore represented an insignificant portion of their total investments and the institutions were able to absorb these losses. In light of the geographical location of these investments and the type of investment products, the GFC had little impact on the value of their balance sheet. The slowdown in global growth and subsequent fiscal expansion and monetary policy easing meant lower yields in 2008 & 2009. Most of these institutions suffered lower than expected income as yield plummeted.

2.2 Second-round Effects

2.2.1 Exports

The most notable sectors affected by the GFC were the non-mining agricultural and manufacturing sectors. After 2007, all non-mining sectors' exports declined while in the mining sector only copper and crude oil declined. Gold exports were high mainly supported by higher price as a result of the weak US dollar. Demand for gold prior to the crisis was higher in the Asian region, especially in India, where wealth spread to the middle class and Indians' spent their wealth buying gold. The steady export in gold was also due to the fact that gold is a reserve currency and if the financial crises persisted, gold would still hold its value.

Figure 2.8
Commodity Prices



Source: Bank of PNG

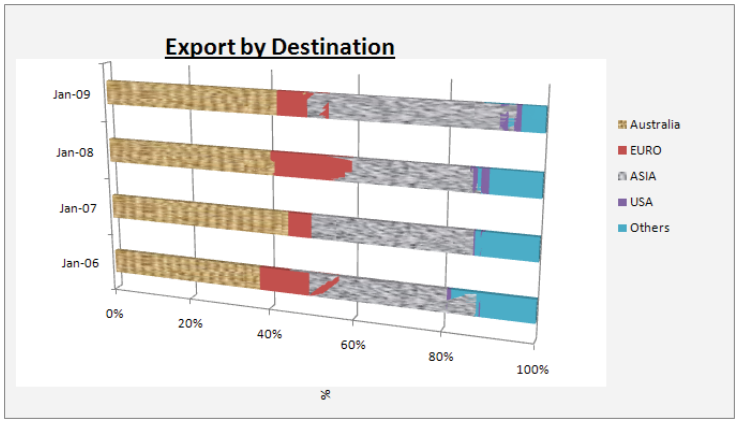
2.2.2 Export Dependence, Impact on Employment, Closures

The decline in commodity prices in 2009 prompted the BoPNG to revise down their GDP outlook. The Bank estimated, with the exclusion of the mining sector, a decline in business sales of 9.2% but continuation in increased employment. The boom in construction, including the Ramu Nickel, LNG project, major infrastructural projects and building projects, was strong enough to offset the pessimistic outlook on growth. As a result, employment continued to increase across all the sectors and across all the regions during the period of the GFC.

2.2.3 Export Destination

During the height of the GFC in mid-2008, the percentage of all PNG's exports destined for the United States decreased compared to other region. The decrease reflected weak US demand. In the Asian region, the decline in PNG's exports was much pronounced in 2008 as the impact of the GFC spread to other regions. As the impact of GFC spread, investors moved to safe haven investments in the US dollar and US Treasuries. The exports destined to Australia remained firm above 40.0% of total exports. Australia was least affected by the impact of the GFC and exports was predominantly from the mining sector. Exports destined to the Eurozone were volatile over the period 2006 to 2009.

Figure 2.9
Export Destination



Source: BoPNG

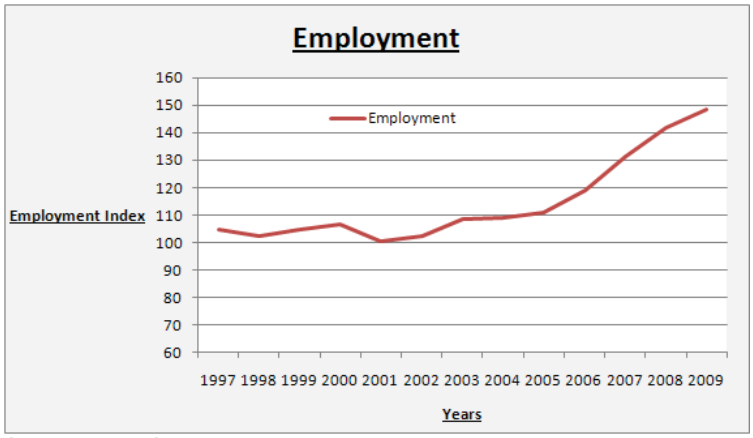
2.2.4 Impact on Financial Institutions (Public & Private Failures, Cost Estimates)

There were hardly any reports of failures of any PNG's financial institutions. In the agricultural sector only the volumes were reduced when commodity prices began to fell. The banking system had adequate liquidity and there were sufficient credit lines for businesses to operate. The high level of liquidity over the years has provided banks with sufficient funds to carry out their business activity without having to rely on borrowings from offshore banks. The bulk of the institutions streamlined their operations to reduce cost consistent with their earning capacity and the slowdown of the economy.

2.2.5 Unemployment

Unemployment declined during the GFC mainly as a result of activity associated with the construction phase of major mines, infrastructural development and general pick-up in economic activity. The BoPNG employment index indicated that employment in the private sector continued to increase on a quarterly basis since 2007. The Bank's Business Sentiment Survey published in the Bank's Monetary Policy Statement of 2008 indicated that business confidence was high and therefore it was expected that profits and employment would remain high.

Figure 2.10
Employment



Source: BoPNG

2.2.6 Low Income Poverty Issues

The decline in commodity prices has affected especially Papua New Guineans in the non-mining sector. About 80% of Papua New Guineans live in remote villages and towns and rely heavily on commercial farming and subsistence farming. The decline in commodity prices has cut back their source of income which leads to poverty issues and other related social problems. Various studies have discussed the welfare effects of the GFC and its impact. A United Nation workshop that addressed the theme "The Human Face of Global financial Crisis" pointed out that government spending may be used on other infrastructural development, neglecting the social aspects and poverty alleviation in the face of the GFC and increased fiscal spending.

Figure 2.11
GDP (in US$) Billion

Source: BoPNG

The landowners who are associated with the development of oil, gold and LNG have royalties and are able to sustain their income. Unfortunately, the bulk of the population that depended on the agricultural commodities are likely to suffer without any action on the part of the government to redistribute wealth.

2.2.7 Current Developments and Policy Stance during Crisis

Currently, the construction work has commenced on the PNG's multi-million dollar project, Liquefy Natural Gas (LNG). PNG would benefit from the increased tax revenues over a period of 50 years. The expected wind-fall tax is a shock in itself. If the government does not maintain fiscal discipline, it will compromise macroeconomic stability and allow inflation and poverty issues to emerge. The government is also faced with landowner issues, such as compensation, equity participation and royalties. At present, PNG has made on request for Australia's assistance in setting up a Sovereign wealth fund. The government has set a vision 2050 for PNG to complement its medium term Development Strategy. The country's short political history has been tarnished with episodes of vote of no-confidence, and changes in governments have always mirrored unsustainable budget deficits, increased government debts and macroeconomic instability.

3. The Relative Effectiveness of Policy Choices

During the financial crisis period (2007/2008), PNG's monetary policy stance was accommodative while the fiscal policy was restrictive. The budget surpluses were used mainly to cater for public debt service and retirement payments while spending was targeted at specific projects consistent with the medium term development strategy. The fiscal policy and the monetary policy during the crisis period transcended to a stable inflation environment and stable growth.

Stability in the key macroeconomic indicators did not warrant policy makers to specifically design policies to suit a particular event such as the GFC. As a result, the policy choices available were broad in nature and were within the context of the existing macroeconomic policy framework. Monetary and fiscal policies were the immediate policy tools available while other policies such as the financial sector reforms and exchange rates policies supplemented the two key policies to mitigate the effects of the GFC on the PNG economy.

3.1 Policy Choices Available during Crisis

The policy measures implemented during the crisis were mainly monetary and the fiscal policies. The fiscal policy was conducted by the DoT while the monetary policy was formulated and implemented by the BoPNG. Table 4.1 outlines the policies that both the DoT and the BoPNG implemented during the GFC.

Table 3.1
Policy Measure, Objectives and Targets

Policy measures, Objectives and Targets

POLICY	First 3 Quarters of 2008	Last Quarter of 2008 & First Half of 2009	Latter Half of 2009 & 2010	Objectives / Targets
Monetary Policy				
• Conventional	Tight	loose	accomodative	Sustain Growth & economic stability
• Non Conventional	Moral Suasion	-	-	
Fiscal Policy				
• Tax Measures	No new tax measure	No new tax measure	No new tax measure	Sustain Growth & economic stability
• Expenditure Driven	Expenditure cut	Expenditure cut, supplemtary Budget	Supplementary Budget Cuts	
External Sector				
• Exchange rate	Appreciated	Depreciated	Depreciated	Sustain Growth & economic stability
• Other related				
Financial Sector Reforms	On going Fine Tuning	On going Fine Tuning	On going Fine Tuning	On going Fine Tuning

3.2 Monetary Policy

During the financial crisis period (2007/2008), PNG's monetary policy stance was accommodative in 2007 and was later tightened in 2008 when the effects of the crisis became more evident. Fiscal policy, on the other hand, was restrictive. The budget surpluses were used mainly to cater for public debt service and retirement payments while spending was targeted at specific projects consistent with the Medium Term Development strategy. The prudent fiscal management and responsive monetary policy during the crisis period translated to a stable inflation environment and stable growth.

The accommodative monetary policy is reflected in the stability in the KFR which was maintained at 6.00% since September 2005. During the crisis period beginning in mid-2007 to its intensity in September 2008, the KFR was kept steady at 6.00% (Figure 4.1.) with the objective of facilitating and sustaining economic growth. In June 2008, the BoPNG tighten its monetary policy in response to inflationary pressure.

On the onset, the GFC did not attract an immediate policy response by the relevant authorities. The main reason for the slow policy response was attributed to the limited exposure of the financial institutions in PNG to the offshore financial markets. PNG financial institutions are not financially integrated globally with other financial institutions. Further, although the financial sector is assumed to be pro-cyclical in nature, the financial sector is not fully liberated and as such the degree of macro financial linkages is weak. Secondly, given the fact that macroeconomics indicators have been favorable for a long while, the GFC did not warrant an immediate policy response.

Figure 3.1
Inflation and Kina Facility Rates

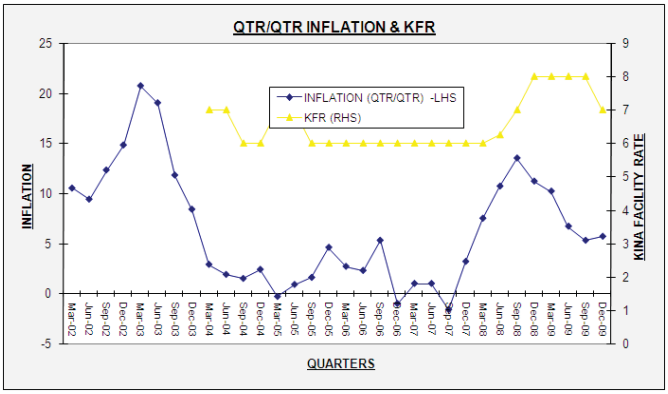
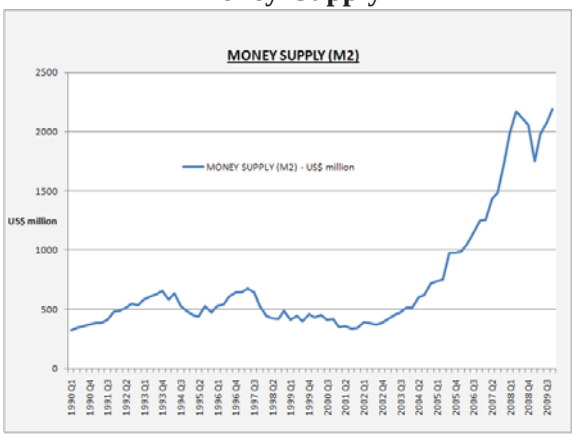


Figure 3.2
Money Supply



In June 2008, the BoPNG increased the KFR in response to the growing imported inflation amidst a shortage of dollars in the foreign exchange market. Inflation showed an increasing trend for two quarters before stabilising at the end of 2008. During that period, the BoPNG intervened in the market to sell dollars and absorbed the excess kina liquidity in the market. The BoPNG was mindful of the higher kina liquidity in the domestic market that emerged due to government spending out of the Trust Fund. The central bank used moral suasion by talking to the banks to bid reasonably at the weekly Treasury and Central Bank bills (CBB) auction to ensure interest rate stability in line with the monetary policy stance. While supporting the stability in the domestic foreign exchange market, the BoPNG continued to reassure the market through media releases, that PNG was insulated from the GFC highlighting that almost all the financial institutions in PNG sourced their funds domestically, and therefore the direct effects of the GFC were minimal. At the same time, the BoPNG also assured the market that it would use Repos to smoothen fluctuations in liquidity when necessary. As a result of these measures deployed by the BoPNG, inflation stabilised in the fourth quarter of 2008.

3.3 Fiscal Policies

In the years beginning from 2003 to 2007, PNG revenues were boosted by the commodity price boom and PNG recorded consecutive fiscal surpluses. During these years, the government was able to clear some of its outstanding obligations, such as the superannuation liabilities and expensive foreign debts. At the same

time, the government restructured its debts to lengthen the maturity term of its loans and ease pressure on its cash flows. Two supplementary budgets were introduced to redirect funds to the key priority areas during this period. The allocations of funds to the key priority areas were kept in trust accounts with the commercial banks and the BoPNG. In essence, the trust funds accounts represented surplus from the mineral tax windfalls. The trust funds peaked in mid-2008 and totaled US$1.1 billion.

Figure 3.3
Debt Restructure

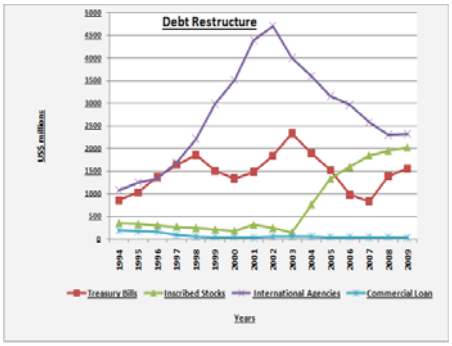
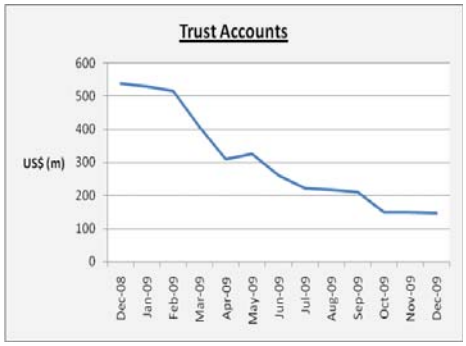


Figure 3.4
Trust Accounts



The weak global demand and decline in commodity prices of some of PNG's major commodities impacted on the government's fiscal operation through lower tax receipts. The most affected component of tax receipt was company taxes. In 2009, the company tax contracted to around 20.0% of total tax receipts compared to the three previous years, where company taxes accounted to more than 30% of the total tax collected. The lower company tax in 2009 was attributed to the completion of the implementation phase of some major mining projects. The lower company tax in 2009 was compensated by a transfer of some of the trust funds held by the commercial banks and the BoPNG to budgetary appropriation. Overall, the total revenue declined by 17%.

Figure 3.5
Revenue Components (2009)

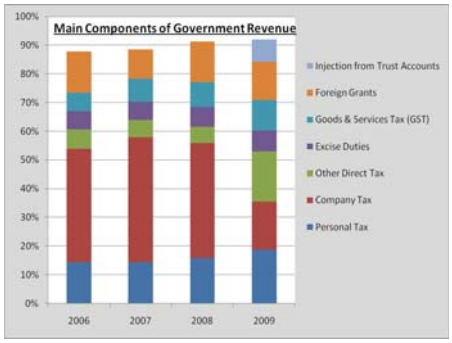
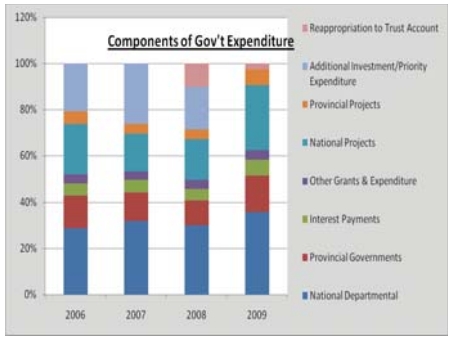


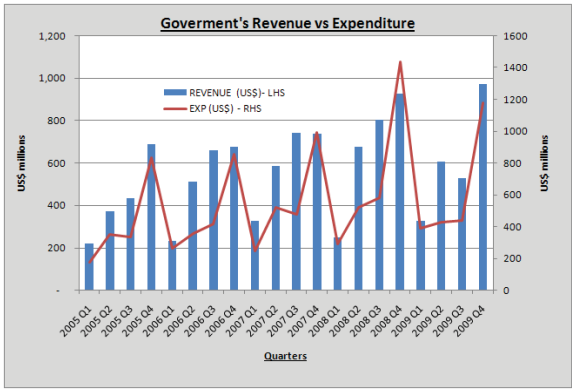
Figure 3.6
Expenditure Component (2009)



On the expenditure side, special investment and priority expenditure (trust funds) eased from around 20% mark of the total expenditure, while national project appropriations increased and made up to about 20% of the total expenditure in 2009. The government recorded a small budget surplus of K36.0m. However, the drawdown of some of the trust funds held by the banks provided the fiscal stimulus to the public and alleviated the impact of the crisis .At the same time, the BoPNG was also mindful of the inflationary effect of drawing down of the trust fund balances.

In all, the drawdown of trust funds was not intended to cushion the effect of GFC on the PNG economy, but the increased government spending was sufficient to provide stimulus to the economy and dampen the impact of the GFC.

Figure 3.7
Revenue and Expenditures



3.4 Financial Sector Reforms

There were no major financial sector reforms to specifically address the impact of the GFC but there was ongoing fine tuning of the reform already introduced. In 2000, the Central Banking Act was reviewed and more discretion was given to the Central Bank to manage monetary policy and inflation. Prior to 2000, the government was able to finance its budget deficits by instructing the BoPNG to issue treasury bills, thus leading to higher unsustainable debt levels.

The government also enacted the Banks and Financial Institution Act 2000 and the Superannuation and Life Insurance Act (2000) following the experience with a major commercial bank's lending and speculative investment activities of superannuation funds. Disclosures, corporate governance, fit and proper test, adherence to capital requirements and institutional strengthening were the words resonated as fine tuning and implementation of these reforms and Acts took effect. The implementation of these Acts and reforms was crucial in its timing as it was in the latter half of 2000, that the GFC emerged. Accordingly, the financial institutions and banks were well capitalised and able to withstand the effect of the shock. The increase in trust funds with commercial banks increased liquidity and reduced the cost of capital as banks were able to access funds cheaply onshore, thus protecting PNG's financial institutions form the direct effects of the GFC.

Apart from these reforms, the liberalisation of exchange controls granted banks flexibility to process remittance above PGK500,000-00, provided for transfer of shares between onshore and offshore exchanges; and allowed

banks to operate foreign currency accounts and foster confidence in the economy by facilitating the deepening of the domestic foreign exchange market.

3.5 Policy Response

As a result of the responsive monetary and fiscal policies supplemented by on-going reforms in the financial sector, the PNG economy showed signs of recovery in late 2009. We traced some of the key economic variables using the Harding and Pagan (2002) definition of duration, amplitude slope and cumulative losses on each of the variable. Table 3.2 shows the summary of the economic recovery and the impact of the policy response.

Table 3.2
Summary of Policy Response

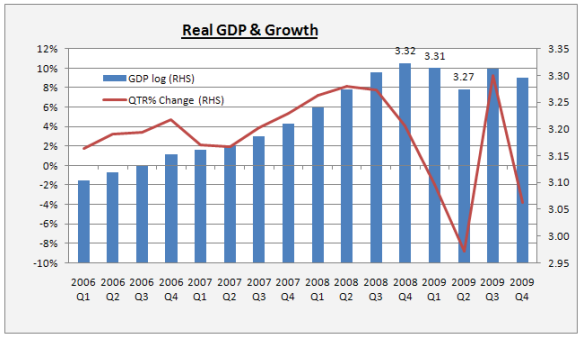
Test/variable	GDP	Gov" revenue	Gov" Exp	Export	Reserves	Inflation
Duration	2 quarters	2 quarters	1 quarter	4 quarters	1 quarter	1 quarter
Period affected	Q4 2008 to Q2 2009	Q4 2008	Q4 08 to Q1 2009	Q2 2008 to Q2 2009	Q4 2008 & Q	Q2 2009 to Q3 2009
Amplitude	0.5	0.5	0.57	0.2	0.1	0.1
slope	0.25	0.5	0.57	0.5	0.1	0.1
Cummulative Losses	0.05	0.5	0.57	0.57	0.1	0.1

Source: Author's calculations

The variables examined are GDP, government revenue and expenditure, exports and inflation. All these variables were affected for two quarters at most while only the exports showed slow recovery up to 4 quarters. A shorter duration meant a steady slope and thus the minimisation of cumulative losses.

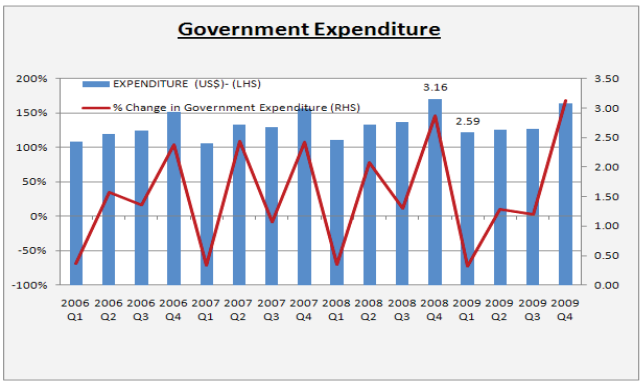
The shorter duration also highlights quick recovery from the GFC but does not necessarily hint that policy choices are well coordinated to achieve the policy outcome.

Figure 3.8
Response Graphs



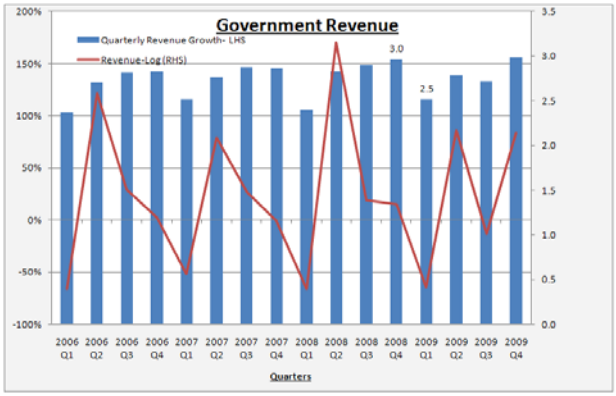
Real GDP & Growth

Duration	2 Quarters
Period	Q4:2008 - Q2:2009
Amplitude	3.32 - 3.27 =0.5
Slope	0.5/2 = 0.25
Cummulative Losses	=0.01+0.04=0.05



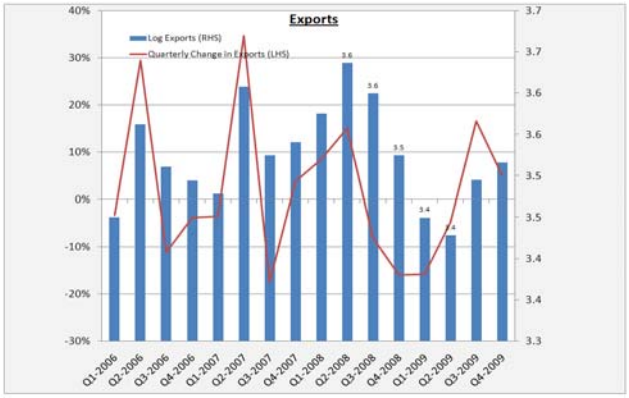
Governemnt Expenditure

Duration	1 Quarter
Period	Q4:2008 - Q1:2009
Amplitude	3.16 - 2.59 = 0.57
Slope	0.57/1 = 0.57
Cummulative Losses	=0.57



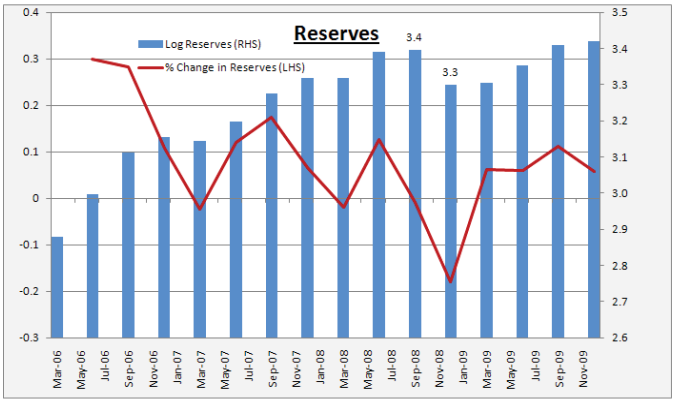
Governemnt Revenue

Duration	1 Quarter
Period	Q4:2008 - Q1:2009
Amplitude	3.0 - 2.5 = 0.5
Slope	0.5/1 = 0.5
Cummulative Losses	=0.5



Real GDP & Growth

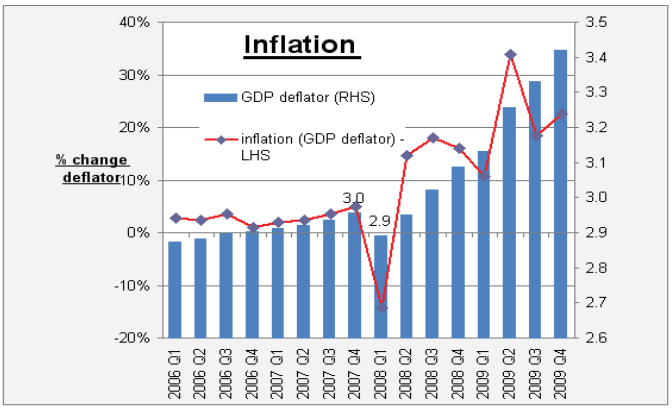
Duration	4 Quarters
Period	Q2:2008 - Q2:2009
Amplitude	3.6 - 3.4 =0.2
Slope	0.2/4 = 0.05
Cummulative Losses	=0.00+0.1+0.1+0+0.1



Reserves

Duration 1 Quarter
Period Q3:2008 - Q4:2008
Amplitude 3.4 - 3.3 = 0.1
Slope 0.1/1 = 0.1
Cummulati =0.1

Duration 2 Quarter
Period Q3:2008 - Q1:2009
Amplitude 3.05 - 2.78 = 0.27
Slope 0.27/2 = 0.13
Cummulati =0.16+0.11=0.27



Inflation (GDP deflator)

Duration 1 Quarter
Period Q2:2009 -
Amplitude 3.0 - 2.9 =
Slope 0.1/1 = 0.
Cummulative Losses =0.1

4. Relative Effectiveness of Policy Choices - Econometric Model

4.1 Data Sources, Limitation and Model Specification

Policy effectiveness during the Asian financial crisis in 1997 and the GFC crisis were assessed using cointegration techniques. In this quantitative assignment, money supply was used as a proxy monetary policy while government revenue and expenditure were used as a proxy for fiscal policy. Quarterly data series were available for all variables, except for GDP. Using quadratic match sum technique, quarterly GDP series were generated from annual GDP series. The GDP series were provisional estimates from 2006 onwards as the final GDP series are not yet available.

As the first stage, all the variables were tested for stationarity. All variables were I(1). Table 4.1 presents the results of the Augmented Dickey-Fuller (ADF) test.

Table 4.1
ADF Results

Variables	ADF (Levels) (t-statistics)	ADF (1st Difference) (t-statistics)
Gross Domestic Product	-0.761	-4.271
Money Supply	0.204	-10.451
Government Revenue	-1.730	-10.583
Government Expenditure	-2.203	-15.256
Critical Value (5%)	*-2.899*	*-2.899*

Source: Author's own calculations

The variables were all found to be stationary at first difference I(1), and hence qualify for cointegration test. We then test the I(1) variables to establish any long-run relationships between the variables using Engel and Granger's two-step approach (1987). For the first step, the long- run model is specified as:

$$LGDP_t = c + LMS1_t + LGovrev_t + LGovexp_t + dummy1 + dummy2 + u_t \quad (1)$$

Where $LGDP_t$ represents log of real GDP at time 't', $LMS1_t$ represents log of money supply at time 't', $LGovrev_t$ represents the log of Government revenue at time 't', $LGovexp_t$ represents the log of Government expenditures at time 't', dummy1 represents the dummy for the periods of the Asian financial crisis and the dummy2 represents the dummy for the periods of the US sub-prime mortgage crisis and u_t represents the error term for the equation.

The estimated equation is presented as Equation 2 below:

$$LGDP_t = 3.66 + 0.53LMS1_t - 0.23LGovrev_t + 0.25LGovexp_t + 0.22dummy1 - 0.38dummy2 \quad (2)$$

(10.68) (5.47)** (-1.40) (1.87)* (2.09)** (-2.91)**

$R^2 = 0.69$ DW = 0.229

** represents 5 % significance

* represents 10% significance

As the second step to test for cointegration, the residual series (u_t) was generated from Equation 2 and tested. For cointegration, all the variables in Equation 1 should be I(1), while u_t should be an I(0) variable. From the ADF tests results we established that all the variables in Equation 1 were I(1). We proceed to test u_t and established that u_t is I(0). The calculated ADF t-statistics was -2.381, while critical values for 1%, 5% and 10% show -2.595, -1.945 and -1.614, respectively. Accordingly, we reject the null hypothesis of non-stationarity at 5% significance level. Since both the premises of cointegration were verified in this particular data series, we conclude that all variables in Equation 1 are cointegrated.

According to the Granger Representation Theorem, the existence of at least one co integrating vector validates error-correction representation of the data. In this case we have established that the variables are cointegrated, as a result the data validates the error-correction specification. We have selected the model using the general to specific model specification. All variables were lagged on their first differenced up to the 4th lag. The lagged variables were selected based on their signs and their significance. Some lags were significant but, their signs were wrong, hence those lagged variables were omitted from Equation 3.

The error correction model is presented below in Equation 3.

$$\Delta LGDP_t = 0.012 + 0.619\Delta LGDP_{(t-1)} + 0.035\Delta LGovRev_t - 0.055resid_{t-1} \quad (3)$$

(1.553) (6.626)** (2.042)** (-1.886)*

$R^2 = 0.392$ DW = 2.13

** represents 5 % significance

* represents 10% significance

When testing all the variables under study for any short-run impact on GDP, the money supply and government expenditure and both the Asian financial crisis and the US sub-prime mortgage crisis did not have any short-run impact on the GDP. In the short run, the lagged GDP and government revenue do seem to have an impact in the current period GDP.

According to Equation 3, the equilibrium real GDP is 79.96% of the current estimated real Gross domestic product (GDP) and if the real GDP diverges from the equilibrium in any period, the negative coefficient in the speed of adjustment means that it would adjust towards equilibrium at a rate of 5.5% on a quarterly basis from the previous quarter.

From the model outcome, we conclude that fiscal policy is effective in curbing short-term volatilities while in the medium to long term, monetary policy is effective in affecting economic growth in the PNG. Fiscal policy during the crisis periods is effective in absorbing any shocks in the economy in the short run while monetary policy should focus on achieving long term economic growth in the country.

5. Way Forward

5.1 Policy Mix

In the case of PNG, there is no clear exit strategy for the policies since the policies deployed are part of the existing policy framework. In addition, the degree of impact of the GFC was not too deep. In any case, the conduct of both the monetary and fiscal policy requires close scrutiny. The institutions implementing fiscal policies should be clearly distinguished between the legislative arm of the government and the executive arm. The delays in the drawdown of the trust accounts imply that the capacity to implement these projects at the executive arm is prone to political direction especially in the use of funds. Although, this delay was a “blessing in disguise” the rapid drawdown of these funds can destabilise the macroeconomic balance. The conduct of fiscal policy should be performed with close consultation and in synchrony with the monetary policy to address future external shocks within the existing policy framework.

5.2 Sovereign Wealth Fund

To instill fiscal discipline so that there is macroeconomic stability as well as to manage the windfall of any future revenue streams for welfare needs of future generation, Sovereign Wealth Funds (SWF) is a better option compared

to trust funds (key priority areas). SWF enables a more professional approach in investment of the funds and takes away funds from politicians who are prone to deliver excessive fiscal deficit and unsustainable debt levels. Investment of funds in other sectors of the economy can also minimise the effects of the "Dutch Disease"[4].

5.3 Current Economic Condition

In 2010, the economy continued to grow as the construction of the LNG commenced and commodity price recovered. Inflation has picked up partly due to the expenditure associated with these projects, however, delays in the commencement of the Ramu Nickel Mine in 2009 stalled growth prospects. Monetary policy continued to remain unchanged as the BoPNG kept KFR steady. Fiscal policy has undergone some reforms and any future trust accounts will be maintained at the Central bank so that macroeconomic stability is preserved. In addition, the government has the intention to establish the SWF and this would help limit exchange rate pressure and control the government's drawdowns on the revenues from the LNG project. Further, the BoPNG will manage the additional mineral taxes as offshore investment until the SWF are established.

6. Conclusion

In summary, the impact of the GFC has led to an economic slowdown in PNG together with a reduced export revenue and related tax, failure by individuals and businesses to repay loans, lower income levels and shrinkage in the non-mining sector. However, the construction phase of some of the mining projects, the accumulation of reserves during the commodity price boom and fiscal slippages mitigated the impact of the GFC despite the decline in commodity prices. PNG was also resilient to the GFC because of the limited exposure of its financial institutions to the global economy.

However, PNG was affected by the GFC indirectly through the decline in the global growth which led to a fall in PNG's exports. The decline in export receipts without an offsetting reduction in imports resulted in PGK depreciation and, ultimately, in inflation. The slowdown in global growth in addition led to a decline in government tax receipts and hence the government's fiscal operations.

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4. The Dutch disease is the negative consequence arising from a large increase in the country's income. It is particularly associated with the discovery of a natural resource that can result in the appreciation of the local currency. This, in turn, attracts imports but decreases export competitiveness

Fortunately, the impact of the GFC was indirect and took a while before being realised. The BoPNG responded initially with its intervention in the foreign exchange market and eventually raise the KFR to curb inflationary pressures. On the fiscal front, the allocation of large spending to key projects areas kept in trust accounts was sufficient to cushion the shortfall in revenues as a result of the GFC. Debt restructuring continued and government revenues recovered shortly after the GFC, as gold prices continued to remain resilient and reserves continue to build up allowing the BoPNG to correct the imbalance in the foreign exchange market and stabilise inflation.

The analysis of the policy response showed that the duration of the GFC impact on key variables, GDP growth, inflation, reserves and fiscal operation was less than two quarters while exports took four quarters to recover. This was probably a reflection of the structure of the economy where the mining sector accounts for a bigger portion of the GDP.

Our empirical results confirmed that fiscal policy during crisis periods is effective in absorbing any shocks in the economy in the short run while monetary policy should focus on achieving long term economic growth in the country. Other structural policies will supplement the effectiveness of the overall policy response.

Current developments of the LNG projects and new mining projects pose risks to macroeconomic stability if not managed properly. The rebound in commodity price as the major economies recovers will result in increased government revenue ahead. The ability to respond to any future shocks depends on PNG's capacity to manage the windfalls prudently. Sovereign Wealth Funds is the way forward and PNG needs to invest these windfalls to avoid the experiences of unsustainable fiscal deficits. The Medium Term Development strategy consistent with the government's vision for 2050 should form the basis for manageable welfare framework going forward.

Abbreviations and Acronyms

PNG	Papua New Guinea
BoPNG	Bank of Papua New Guinea
DoT	Department of Treasury
GDP	Gross Domestic Product
KFR	Kina Facility Rate
GFC	Global Financial Crisis
PGK	Papua New Guinea Kina
CBB	Central Bank Bills
BOP	Balance of Payments
Ksi	Kina Security Index
LNG	Liquefied Natural Gas
Kina	PGK

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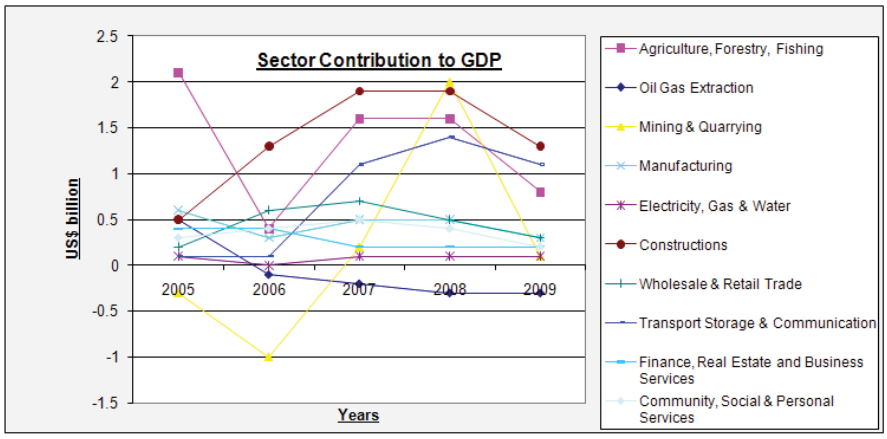
Data and Explanatory Notes, Charts, Tables & References

Appendix 1
Sector Contribution to GDP



Appendix 2
Macroeconomic Indicators

Summary of Macroeconomic Indicators

Indicator	2006	2007	2008	2009
Consumer Price Index (annual % change)				
Headline	-0.9	3.2	11.2	5.7
Trimmed-mean	1.5	5.5	11.7	3.8
Exclusion - based	6	5.7	11	5
Balance of Payments (kina millions)				
Current Accounts	1354	550	2145	-1374
Financial Account	485	888	-2861	2989
Overall Balance	1958	1592	-598	1724
Gross Reserves	4326	5919	5322	7046
Import Cover (Months)				
Total	8.5	9.1	7.9	10.1
Non Import	11.5	13	11.4	15.3
Export Price				
Crude Oil Price (US$/barrel)	67.3	73	106.7	58.7
Gold (US$/ounce)	554.7	671	850.9	959.2
Copper (US$/pound)	296.6	320	327.8	217.6
Fiscal Operation of Government				
Deficit / Surplus	535.8	476.2	-478.5	-36.3
% of GDP	3.1	2.5	2.2	0.2
Gross Domestic Product (Annual % growth)				
Total GDP	2.3	7.2	6.7	4.5
Non Mining GDP	3.9	8.1	7.6	5.2

Appendix 3
Key Indicators Measuring Vulnerability of Economy for External Shocks - 2007

Indicator	2007 In US$ billions	% of GDP
GDP (Current) in billions US$	6.63	
Export of Goods and Services	1.23	18.6%
Foreign Currency Reserves	2.09	31.5%
Import of Goods and Services	2.75	41.5%
Average Monthly Imports	0.23	3.5%
Months of Import Cover	12.8	
Balance on Current Account	0.19	2.9%
Total Government Debt	2.23	33.6%
Foreign Debt	1.11	16.7%
Composition of External Liability		
Short term	nil	Nil
Long Term	1.11	16.7%
Debt Service Payment	0.13	1.9%
Fiscal Defict/Surplus	0.17	2.5%

Source: BPNG Quarterly Economic Bulletin & Budget Documents

Chapter 7

POLICY RESPONSES TO THE GLOBAL FINANCIAL CRISIS: THE PHILIPPINE CASE

By
Jade Eric Tan Redoblado[1]

1. Introduction

The Philippines is a small, open Southeast Asian economy. Prior to the global financial crisis in 2008-2009, the country experienced five years of uninterrupted growth, its longest since the 1970s. The year 2007 was an outstanding year with economic growth reaching 7.3%, the highest in thirty years. While consumption remained the major contributor to growth, the increase in capital formation was surprisingly strong at 9.5%. Although investment in durable equipment rose by only 4.5%, construction expanded by a solid 21% from the previous year on the back of robust public spending.

The Philippines benefited from a series of reforms implemented in the intervening years since the 1997 Asian currency crisis. An inflation targeting framework was adopted in 2002 and implemented in a disciplined and forward-looking manner. This has helped to moderate inflation from an average of 9.3% during the years 1990-1999 to 5.3% in the first seven years of the decade. Inflation in 2007 was the lowest in twenty years at 2.8%. Financial sector reforms were also pursued through the reduction in banks' bad assets; the promotion of good corporate governance; the upgrading of risk management standards; the institution of transparency and other accountability mechanisms and the phase-in of the Basel II risk-based regulatory framework. Under the latter, banks were allowed to assume risks in their conduct of business so long as they demonstrate the ability to manage and price for those risks. Consequently, banks were required to post capital appropriate to their risk-taking activities. Furthermore, they were required to show ability to properly assess the risks that they take with bank examiners determining the adequacy of these risk assessments. Lastly, transparency was required through pertinent information disclosures such that market discipline could complement the BSP's supervisory function.

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1. The author is Bank Officer V at the Bangko Sentral ng Pilipinas. The views expressed herein should not be taken to represent that of the Bangko Sentral ng Pilipinas.

Further financial reforms include the easing of foreign exchange regulations as well as the liberalisation of the scope and operations of foreign banks. The amended foreign exchange regulations effectively removed limits on outward investments by Philippine residents and expanded opportunities to avail of non-resident services using foreign exchange drawn from authorised-agent banks. In the same spirit, the liberalisation of the operations of qualified foreign banks have expanded their operations, widened the choice of financial services available to the public and provided competition to domestic banks.

Other improvements in macroeconomic fundamentals can be gleaned from Figure 1. Foreign exchange reserves had increased from US$11.8 billion in 1996 to US$33.8 billion in 2007. The increase in FX reserves prior to the 2008-2009 crisis, growing to 23.4% of GDP, signified a marked improvement from the buffer of 14.2% of GDP prior to the Asian currency crisis. The import cover it provided had almost doubled from 3.5 months of imports in 1996 to 6.7 months by 2007. The profile of external debt highlighted the shift to longer-term maturities. Consequently, this had helped reduce exposure to roll-over risks and sudden outflows of foreign currency. External debt service had also become more manageable dampening from 6.1% of GDP to 5.3% of GDP. The country's foreign debt had swollen to about US$55 billion in 2007 from US$40 billion in 1996. Notwithstanding this, (the scale of external debt relative to GDP and the rest of the economy) had fallen from 48% in 1996 to 38% by 2007. In 2007, the Bangko Sentral ng Pilipinas paid off its last remaining obligations to the International Monetary Fund thereby leaving the Philippines debt-free from the IMF after 45 years.

The biggest improvements had been in the country's external payments position. In 1996, the current account position yielded a deficit of almost US$4.0 billion, equivalent to 4.8% of GDP. In 2007, in contrast, the current account stood at a US$7.1 billion surplus or 4.9% of GDP. The major contributing factor was the growth in remittances from overseas Filipinos which amounted to US$17 billion in 2007, an increase of 50% from just three years earlier.

The sizable remittance inflows, corresponding to 10% of GDP, would provide a critical buffer to external shocks and sustain the economy when other sources of foreign exchange such as trade and tourism were affected later by the global financial turmoil. Prior to the increase in the scale of remittances in the economy, a sharp downturn in the terms of trade would have resulted in a balance of payments crisis. Along with adept external sector management, remittance flows ensured that such an outcome would not happen.

Significant improvement had also been made in the fiscal sector. By 2005, it was widely acknowledged in government, academic and business circles that the fiscal situation of the National Government was untenable. Fiscal prudence was observed and new taxes were enacted. Subsequently, the fiscal deficit improved to almost balanced levels by 2007. This had helped reduce the weight of total borrowings of the public sector (i.e., National Government and government-owned and controlled corporations[2]) from 103% of GDP in 1996 to a more comfortable 72% of GDP in 2007.

Figure 1
Key Indicators Measuring Vulnerability of Economy for External Shocks[3]

Indicator	1996		2007	
	(In US $ Billions)	% of GDP	(In US $ Billions)	% of GDP
GDP (Current) in billion US$	82.9	-	144.0	-
Exports of Goods and Services	33.6	40.5%	61.3	42.5%
Foreign Currency Reserves	11.8	14.2%	33.8	23.4%
Imports of Goods and Services	40.8	49.3%	60.9	42.3%
Average Monthly Imports	3.4	4.1%	5.1	3.5%
Months of Imports Covered	3.5	-	6.7	-
Balance on Current Account[2]	-4.0	-4.8%	7.1	4.9%
Total Government Debt	85.3	103.0%	80.5	55.5%
Foreign Debt	39.9	48.1%	54.9	38.1%
Composition of External Liability				
Short term	5.4	6.6%	7.1	4.9%
Medium and Long term	34.5	41.6%	47.9	33.2%
Debt Service Payment (foreign)	5.0	6.1%	7.6	5.3%
Primary Balance	3.2	3.8%	5.5	3.8%
Fiscal Balance	0.2	0.3%	-0.3	-0.2%

2. The inclusion of government-owned and -controlled corporations is significant in that many of these corporations hold sovereign guarantees and therefore, represent contingent liabilities of the National Government. Oftentimes, such contingent liabilities have been realised and the government would have to step in with subsidies to cover losses suffered by these firms. Also, total borrowings of these firms especially those in the energy sector, have accounted for more than one trillion pesos, on average. Their inclusion would provide a more complete picture of the fiscal scenario. However, in subsequent modeling efforts, the fiscal policy response will pertain to the National Government alone.
3. The average exchange rate for 1996 was PhP26.22 / US$ while in 2007, the exchange rate was PhP46.15 /US$1.
4. The 2007 figure is based on the Fifth Balance of Payments Manual.

In 2008, a confluence of events and factors caused food and fuel prices to surge to levels beyond the reach of a significant number of consumers. The Food and Agriculture Organisation (FAO) of the United Nations estimated that during the first three months of 2008, international nominal prices of major food commodities had risen to their highest levels in fifty years while prices in real terms had surged to their highest in nearly thirty years (FAO, 2008). This surge in food prices had been attributed to a host of factors that included: (1) the strengthening of the linkages between different agricultural commodities markets (i.e., grains, oilseeds, livestock products, etc.) as a result of rapid economic and population growth in emerging economies; (2) the strengthening of the linkages between agricultural commodities markets and that of others (e.g., fossil fuels); (3) the rise of biofuels; (4) the increasing use of financial instruments that influence not just the production of agricultural commodities but also the demand for them; and (5) the depreciation of the US dollar against many currencies. On the other hand, the surge in oil prices was traced to strong demand from emerging economies, limited spare capacity, geopolitical developments and the large flow of funds to commodities from institutional investors seeking a hedge against inflation and falling equities and housing markets.

These increases in prices of food and fuel commodities caused headline inflation to increase to 12.5% in August 2008.[5] As commodity prices doubled from the previous year, maintaining macroeconomic stability became a challenge, (International Monetary Fund, 2008). A prolonged period with heightened prices, along with outflows arising from greater risk aversion by portfolio investors started to impact on the balance of payments. It also contributed to the depreciation of the peso, thereby constraining its ability to be a shock absorber of price spikes in key commodities. As inflation rose, the fiscal balance came under strain as the government sought to reduce the pass-through to domestic prices.

The surge in food and fuel prices led to an acceleration of headline inflation since end-2007 and raised the risks to the inflation outlook as second-round effects from food and fuel price increases threatened to generalise inflation. Inflation expectations had risen. Wage pressures had also increased. Petitions for provisional increases in transport fares were granted with scope for further

5. Food accounts for more than half of the CPI basket in the Philippines.

adjustment. Cost of other services[6] had also gone up and the prospect of petitions for an increase in the utility charges became more real.

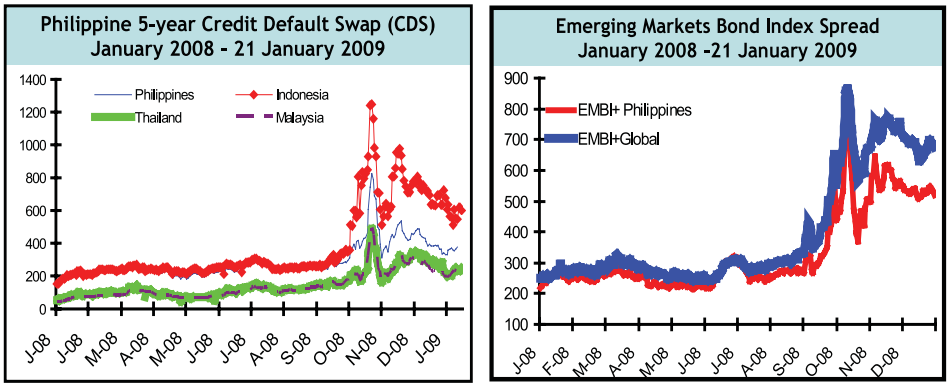
As the threat of future inflation exceeding the inflation targets loomed, the BSP raised policy interest rates by a cumulative 100 basis points in June, July and August 2008. Absorbing the signals from the central bank, inflation expectations remained anchored and starting to decline in September 2008, falling to 8% by December of the year. It would revert to within the inflation target for 2009 as the surge in commodity prices abated.

2. Impact of Global Financial Crisis on the Philippine Economy

2.1 First Round Effects

Offshore financial markets felt the shocks reverberating from the sub-prime mortgage crisis fallout.[7] Risk aversion among investors heightened amid speculation that credit market losses and the impact of the global economic slowdown would worsen and even affect economies in the region.[8]

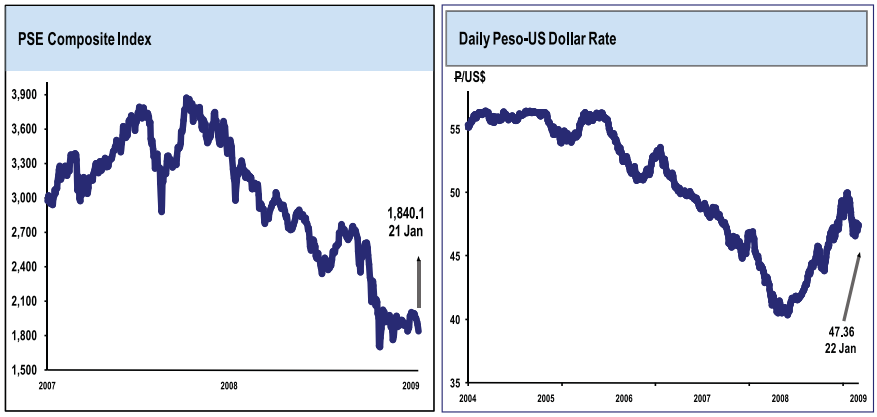
Figure 2a
Impact on Philippine Financial Markets



6. Contractors had complained of tremendous increases in construction materials. While the price of cement had gone up only by modest amounts, that of steel had risen by 60 % with the prospect of doubling or tripling by end-2008. Private educational institutions had factored in expected inflation into their annual tuition fee increases. State universities and colleges, on the other hand, were slapped a tuition freeze by the National Government.
7. Domestic credit markets managed to remain liquid with interbank call loan rates remaining stable despite the turmoil in October 2008.
8. Even during the second half of 2008, belief persisted that the region's economy could decouple from the United States economy and would easily weather the impact.

The five-year Philippine credit default swap[9] widened to 825 basis points by 24 October 2008, the year's highest level, from average of 136 basis points registered in 2007. Effectively, the market was treating Philippine bonds as high-risk, even if the country was not in any real danger of defaulting on its sovereign obligations. Similarly, global and Philippine bonds showed a widening spread.[10] The EMBI+Philippine spreads widened to its highest for the year with 796 basis points on 24 October 2008 from the 2007 average of 177 basis points. Again, this related to investors' view that emerging markets have become riskier given developments in the global economy.

Figure 2b
Impact on Philippine Financial Markets



Similar developments were observed in currency and equity markets. The Philippine peso depreciated by about 20% from the end-2007 level as of 14 November 2008. As foreign fund managers faced the need to cover for their losses back home, they had to raise money from their investments elsewhere.[11] Hence, the rush out of emerging market securities, both stock and bond securities. The increased need to convert them to foreign currency raised the demand for dollars thereby causing the exchange rate to deteriorate. In the stock market,

9. The price of a credit default swap, expressed in terms of percentages of a standard loan amount (i.e., basis points), represents the cost of protecting creditors from losses due to default.

10. The spread on the bonds represents the additional yield investors demanded to buy developing country's debt instead of US treasuries. It is equivalent to the risk premium on the bonds.

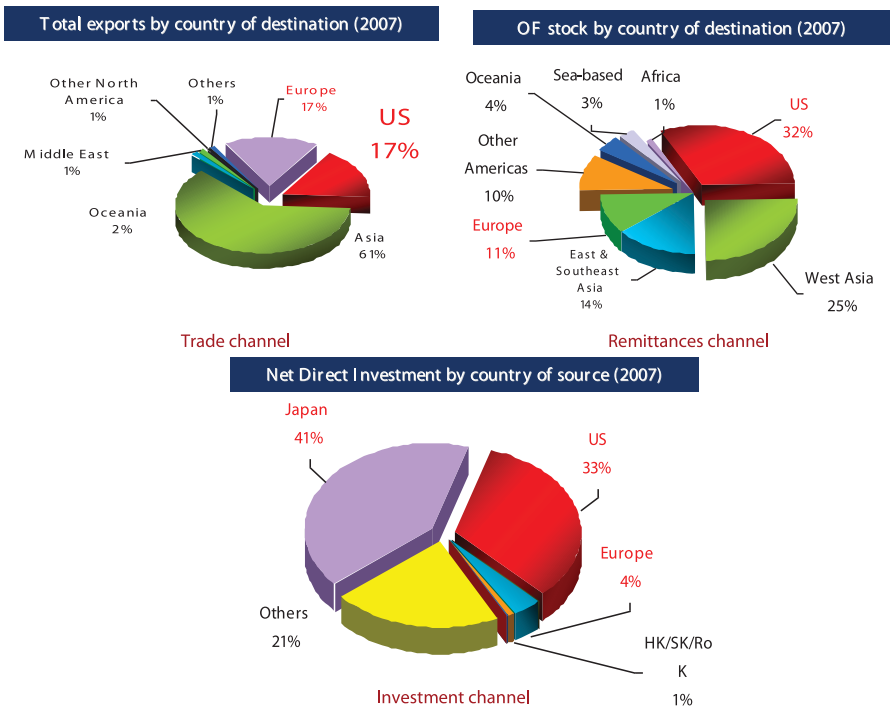
11. Foreign portfolio investments would register a net outflow of US$1.4 billion in 2008. This is a reversal from the US$3.5 billion net inflow in 2007.

the benchmark index, the PSEi, fell by 48.3% from its end-2007 level. It would continue to exhibit weakness with tepid trading activity and thin trading volumes.

2.2 Second Round Effects

As the Philippines held extensive relations with the United States economy, the impact of the global economic and financial crisis was expected to be felt in terms of trade, direct investments and remittances. The demand for Philippine exports was expected to slow down in the light of the deep recession affecting the United States and Europe. The US and Europe had accounted for about 17% each of total Philippine exports in 2007. The impact on the country's balance of payments due to lower exports to crisis-affected economies became a concern. Slower global economic activity was also expected to reduce inward foreign direct investment. In 2007, about 75% of net foreign direct investments came from Japan, the United States and the European Union. Specifically, Japan accounted for 41%, while the European Union an additional 4%. In the same year, more than 30% of net foreign direct investment (FDI) in the Philippines came from the United States. Poor business confidence worldwide was expected to deal a further loss to the balance of payments. Reduced inflow of capital could also limit employment opportunities and curtail growth in economic output. Remittance flows were another important channel through which the global economic slowdown was seen to manifest itself in the Philippines. Nearly a third of overseas Filipinos (OFs) were based in the US as of 2007 and an additional 11% are domiciled in the European Union. Potentially lower remittance flows could further reduce the country's balance of payments. On the domestic front, anecdotal evidence already indicated a higher degree of reservations/sales cancellations among OF property buyers compared to domestic buyers. Similarly, as remittances were affected, household consumption could fall as demand for other goods and services will also be reduced.

Figure 3
Channels of External Shock Transmission



The concerns about the impact of the global economic slowdown on Philippine exports were realised. The lagged effects on exports were experienced in 2009 when total exports fell by 22.9% from US$49.9 billion in 2008 to US$38.4 billion in the succeeding year. In contrast, it decreased by only 1.2% in 2008 from the 2007 level of US$50.5 billion. Direct exports to the United States shrank by 17.3% in 2009 from the 2008 level of US$8.2 billion to US$6.8 billion. However, due to significant Philippine participation in the trade of intermediate goods and the diffusion of the US recession to Asian economies, exports to other Asian countries fell by a larger 27.9% from US$30.0 billion in 2008 to US$21.6 billion in 2009.

The impact on foreign direct investments was more acutely felt in 2008. From US$1.9 billion in 2007, it was reduced to US$1.2 billion in 2008 before recovering to US$1.8 billion in the succeeding year. Hard hit were direct investments in the manufacturing and utilities sectors. Direct investments from the United States would fall from US$655 million in 2007 to US$219 million in the next year before improving to US$719 million in 2009.

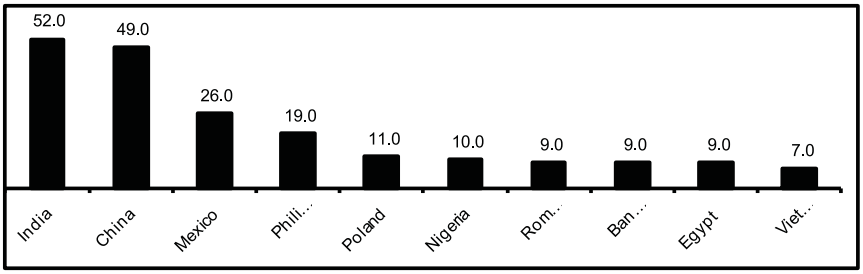
2.3 Cumulative Effects

In 2008, the surge in food and fuel commodity prices sapped private consumption while the turbulence in financial markets impacted on business confidence. Consequently, growth in real GDP would slow down to 3.7% from 7.1% in the previous year. The fall in external demand, weak private investment and other lagged effects of the global financial and economic crisis would lead to an even more anemic growth of 1.1% in 2009. As external demand weakened, domestic demand took up the slack. Private consumption continued to grow at 4.7% and 4.1% for 2008 and 2009, respectively. Government consumption rose by 10.9% in 2009 on the back of fiscal stimulus efforts by the National Government.

Consumption growth was supported by three factors. For one thing, headline inflation eased from 9.3% in 2008 to within the inflation target at 3.2% in 2009 thereby supporting preservation of purchasing power of consumers. Also, the unemployment rate, which was feared to increase, had gone up to only 7.5% by 2009 from 7.3% in 2007. Lastly, inflows of remittances from overseas Filipinos continued to grow throughout the global financial crisis despite projections from multilateral institutions of sharp declines in flows.

The continued inflow of remittances served as one of the key bulwarks of the Philippine economy from the global financial turmoil. The Philippines is one of the largest recipients of remittances flows in the world. The World Bank (2009) ranks it as the fourth largest remittance-receiving country in the world, behind only India, China and Mexico. Remittances from overseas Filipinos account for roughly 10% of GDP. Over the past three years, the volume of remittance flows was equivalent to least 30% of total exports of goods and services. Over the same period, the size of the flows were, on average, ten times inflows of foreign direct investment and more than twice the annual debt service burden. Given its scale and continued growth throughout the global financial crisis, the flows sustained the growth of foreign exchange reserves as well as ensured uninterrupted consumption growth and secured the country's external payments position.

Figure 4
Top Remittance-receiving Countries (in US$ billions), 2008



Source: World Bank Global Development Prospects, 2009

Figure 5
Value of Remittances

	Level (in US$ Billion)	Growth Rate (%)	Remittances as % of:				
			GDP	XGS	FDI	GIR	DSB
2002	6.89	14.2	9.0	18.2	446.6	42.1	88.7
2003	7.58	10.1	9.5	19.6	1,543.4	44.4	95.3
2004	8.55	12.8	9.9	20.0	1,242.7	52.7	118.5
2005	10.69	25.0	10.8	23.9	576.5	57.8	140.2
2006	12.76	19.4	10.9	24.7	436.9	55.6	157.7
2007	14.45	13.2	10.0	25.0	495.5	42.8	188.2
2008	16.43	13.7	9.9	28.3	1,063.9	43.7	223.0
2009	17.35	5.6	10.8	36.4	890.6	39.2	249.6
2010	18.76	8.2	9.9	29.4	1,095.3	30.1	256.1

The stability of remittance flows was traced to several factors. For one thing, demographic trends (mainly aging populations in advanced economies) preserved demand for overseas Filipinos working as nurses or caregivers. Also, workers continued to be deployed to Asia, particularly the Middle East, as the top destinations for land-based workers. Another factor was the change in the skills profile of deployed workers from mainly unskilled workers to higher-paid professionals. Furthermore, aggressive marketing efforts of money transfer agents encouraged greater flows. These efforts include deposit-taking functions (e.g., internet/online, phone banking); servicing of household bills (e.g., utilities and communication); direct payment of housing loan amortisations; and expanded services to cover life insurance, educational insurance and tuition fees.

It also helped that the banking system remained stable. The assets of the banking system continued to grow from PhP5.2 trillion in 2007 to PhP6.0 trillion in 2008 and on to PhP6.5 billion in 2009. Loan quality ratios monotonically decreased from 4.4% in 2007 to 3.0% in 2009. The profitability of the banking system was maintained. Though return on assets and return on equity ratios dipped in 2008, they never entered negative territory and recovered to 1.2% and 11.4%, respectively, in 2009. It mattered that capital adequacy ratios remained above 14% throughout the length of the global financial turmoil. These figures are higher than the Bank for International Settlements benchmark of 8% and the stricter BSP requirement of 10%. Also, the Philippine banking institutions have been conservatively managed and domestically-focused. They have generally not ventured into foreign securitised products in search of yield as there were profitable opportunities within the country (e.g., consumer lending).

It was therefore not surprising that the domestic banking system had less exposure to shocks from the collapse of foreign financial institutions as compared to banking institutions in other jurisdictions. Simpson (2010) estimated the correlation coefficient of the Philippine banking system with a world banking index at a low 0.05. The estimate for the correlation coefficient between the Philippine banking system and the American banking system was computed at a lower 0.021. Those banking institutions that had minimal exposure to Lehmann Brothers were able to provide for their losses from a portion of their capital.

3. The Relative Effectiveness of Policy Choices

Recognising the threat posed by the transmitted shocks of the global financial crisis, policymakers in the Philippines swung into action. A multi-pronged policy response was unveiled by the central bank and the National Government. Policy measures were made in the areas of monetary policy, fiscal policy, external sector policy, financial sector policy, communications and transparency as well as cooperation among regional monetary and fiscal authorities. The common objective was to mitigate the impact of the global financial turmoil and establish an economic environment that would allow the country to weather the shocks and benefit from an ensuing recovery.

3.1 Policy Choices during the Crisis

3.1.1 Monetary Policy

Figure 6a
Monetary Policy Measures, Objectives and Targets

	Policy Measures	Objectives/Targets
First three quarters of 2008	Hike in policy rates by a cumulative 100 basis points	Anchour inflation expectations and manage second round effects of surge in food and fuel commodity prices
Last quarter of 2008 and first half of 2009 Conventional	Reduction of policy rates by a cumulative 175 basis points Reduction in reserve requirement by two percentage points from 21% to 19% Opening of US dollar repo facility Liberalisation of existing peso repo facility through the relaxation of valuation and the acceptance of a wider range of collateral Increasing the rediscounting budget from PhP20 billion to PhP60 billion Permitted reclassification of financial assets between categories (e.g., from Held for Trading to Held to Maturity) Aligning the rediscount rate with the policy rate Easing the NPL ratio requirement Increasing the loan value of all eligible rediscounting papers	Ensure the liquidity and stability of the financial system Negate the possible creation of a negative feedback loop Provide stimulus for output to take up the slack from falling external demand
Latter half of 2009 and 2010 Conventional	Reduction of policy rates by 25 basis points in July 2009 before maintaining rates until the present Equalising the rediscount rate with the policy rate Reduced rediscounting budget to pre-crisis levels Restoration of NPL ratio requirement and loan valuation to pre-crisis levels	Calibrated implementation of an exit strategy

Monetary policy is quicker to react to crisis situations compared to fiscal policy since the BSP can adjust policy settings faster than the National Government. On average, a fiscal stimulus response requires planning, identification of projects and legislation which can take time. Consequently, the implementation of fiscal stimulus programmes by the National Government may involve a considerable lag.

While monetary policymakers were focused on combating the inflationary effects of the surge in food and fuel commodity prices during the first three quarters of 2008, the focus shifted quickly when it became apparent that, although headline inflation remained high, the balance of risks to the inflation outlook had shifted to the downside.

To counter the effects of the financial panic originating in the developed economies, the BSP opened a US dollar repo facility on 17 October 2008. The US dollar repo facility was created to increase the dollar liquidity in the market and address any temporary tightness arising from the prevailing market conditions. It was created to ensure that funding for imports and other related transactions would be available and that the foreign exchange market can function in an orderly manner. On 7 November 2008, the BSP reduced the reserve requirement by two percentage points from 21% to 19%. It also doubled the budget for rediscounting from PhP20 billion to PhP40 billion. These two policy measures were preemptive attempts to ensure that the interbank market would continue to function properly and to guard against the possibility of liquidity or credit tightness coming from the spikes in global risk aversion.

Subsequently, receding inflationary pressures would allow a series of policy rate reductions to mitigate the impact of the global financial turmoil. Citing the uncertainty about the duration and depth of the global slowdown, policy rates were reduced by 50 basis points on 18 December 2008. The course of policy action was designed to stoke domestic demand by reducing domestic borrowing costs and stimulating consumer spending and aid sectors of the economy with a domestic focus such as manufacturing and construction as well as small and medium enterprises. Noting that continued weakness in developed economies had weighed down on the economy through its impact on trade, investment and consumption, a further 50 basis point reduction was made on 29 January 2009 to support financial markets and the real economy. The policy action was done to complement the expected fiscal stimulus programmes of the National Government.

To provide additional support to domestic financial markets, the BSP further liberalised its rediscounting guidelines on 16 February 2009. For one, the rediscounting budget was increased from PhP40 billion to PhP60 billion. Also, the loan value of all eligible rediscounting papers was raised from 80% to 90% of a borrowing bank's credit instrument. However, to limit the moral hazard, the loan value was not to be higher than 70% of the appraised value of the underlying collateral. More importantly, the rediscount rate was aligned with the benchmark policy rate. Thus, the rediscount rate would be equivalent to the overnight repurchase rate less 50 basis points. The previous benchmark for the rediscount rate was the 91-day Treasury bill rate. The shift to using the BSP policy rate enhanced the potency of monetary policy. Another feature of the liberalised guidelines was the increase in the ceiling of the NPL ratio requirement to ten percentage points above the prevailing industry average. It used to be set at two percentage points above the industry average. Going further, the BSP removed its requirements that the majority shareholder of a bank with rediscounting lines at the BSP must execute a surety agreement. The idea was to facilitate the faster processing of rediscounting loans. Lastly, to broaden access to rediscounting facilities to as many banks as possible, a cap on the amount of outstanding credit instruments that a bank may rediscount was set at the bank's single borrower's limit (i.e., 25% of net worth) or PhP3 billion, whichever was lower.

Further monetary policy action continued. During its policy rate setting meeting on 5 March 2009, the Monetary Board expressed concern at the persistence of global financial stress and recognised the risks it posed to economic activity. Consequently, an accommodative policy stance was deemed warranted to ensure greater availability of credit and reinforce market confidence. However, liquidity in the system remained to be ample and a decline in market interest rates became noticeable. In this light, policy rates were trimmed by a smaller 25 basis points. The smaller size of the policy rate cut is relevant given expectations that fiscal stimulus initiatives were to be brought on stream.

By April 2009, initial signs of improvement were observed. However, it was believed that the restoration of the global financial system would take some more time. In the course of expectations of continued fragility in global and domestic demand and policy space afforded by significantly lower commodity prices, the policy rates were decreased by 25 basis points on 16 April 2009 to ease credit conditions further and widened access to domestic financing.

While perceptions of a bottoming out of the global economic slowdown have emerged, large financial imbalances in financial markets remained. Also,

the growth in real GDP of 0.9% for the first quarter of 2009 was below expectations. Accordingly, the Monetary Board lowered policy rates further by 25 basis points on 28 May 2009 to provide additional support to domestic demand and bolster market confidence.

With a cut of 25 basis points during its 9 July 2009 policy setting meeting, the Monetary Board signaled its intention to pause from its policy easing track. By then, significant policy easing had been undertaken since December 2008. Policy rates had been reduced by a total of 200 basis points; liquidity provision was done through lower reserve requirements, a bigger rediscounting budget and enhanced access to the central bank's rediscounting facility. As a sizable fiscal stimulus was also underway, it was deemed that, subject to constant monitoring of developments in the global and domestic economies, policy settings were appropriate.

In the succeeding policy meetings, the Monetary Board signaled its intention to use the pause in policy easing to have a better assessment of risks to inflation and growth and to evaluate the forecasted trend of economic output given the impact of stimulus measures by both the central bank and the National Government. Policy rates have been maintained at their 9 July 2009 level since. It has helped that inflation pressures have eased thereby lending flexibility to the BSP to sustain an accommodative policy stance.

Even as the benchmark policy rate (i.e., the reverse repurchase rate (RRP)) has been maintained at 4%, the BSP has executed an exit strategy from its liquidity provision measures. On 28 January 2010, the peso rediscount rate was set to equal the RRP. By then, the risk of contagion from global financial strains had subsided and palpable stability was observed in global financial markets. As a result, the necessity for a more liberalised pricing of rediscounting loans was considered to be less. Six weeks after, the BSP withdrew the rest of its crisis relief measures. Effective 15 March 2010, the rediscounting budget was to be lowered from PhP60 billion to PhP40 billion. The loan value of all eligible rediscounting papers was also restored from 90% to 80% of the borrowing bank's credit instrument. The NPL ratio requirement was also brought back to two percentage points above the industry average from ten percentage points above the average. In subsequent policy action, the BSP cut the rediscounting budget further from PhP40 billion to its pre-crisis level of PhP20 billion. It noted the favourable credit and liquidity conditions prevailing in the economy and expressed the need to reduce potential inflationary risks.

3.1.2 Fiscal Policy

Figure 6b
Fiscal Policy Measures, Objectives and Targets

	Policy Measures	Objectives/Targets
Last quarter of 2008 and first half of 2009		
Expenditure-driven	PhP290 billion fiscal stimulus programme Assistance to affected overseas Filipino workers	Mitigate the impact of the global financial crisis Stoke domestic demand to take up the slack from the fall in exports
Tax cuts	PhP40 billion in tax cuts for corporations and individuals	
Latter half of 2009 and 2010		
Expenditure-driven	Assistance to affected overseas Filipino workers	Mitigate the lagged effects of the global financial crisis

In February 2009, the National Government unveiled its Economic Resiliency Plan (ERP). The fiscal stimulus amounted to PhP330 billion (4.3% of 2009 GDP). Of the amount, PhP290 billion (88%) consisted of the following expenditure measures: PhP160 billion for increased National Government spending, PhP100 billion for infrastructure projects which were aside from those included in the budget for the year, and PhP30 billion for additional (i.e., new) benefits for Social Security System members. The latter benefits were to be temporary in nature. The remaining twelve percent of the stimulus programme went to general tax cuts for corporations and individuals. A major feature of the spending programme was the frontloading of the discretionary items in the expenditure programme for the fiscal year. As such, the bulk of government spending was concentrated during the first half of 2009.

To combat potential spikes in unemployment, the National Government issued Executive Order 782. The policy measure suspended the rationalisation plan of several government agencies and mandated government agencies to allocate 1.5% of their maintenance and other operating expenses (MOOE) budgets for

the hiring of 180,000 temporary workers. Recognising the key role of remittances in propping up the economy, displaced overseas Filipino workers were given skills training to avail of in-demand jobs in other parts of the world. The Department of Labour and Employment was ordered to match the skills of returning overseas Filipino workers with available jobs domestically or abroad.

3.1.3 External Sector Policy

Figure 6c
External Sector Policy Measures, Objectives and Targets

	Policy Measures	Objectives/Targets
First three quarters of 2008		
Exchange rate	Managed volatility in foreign exchange markets	Smoothen volatility in FX markets
Last quarter of 2008 and first half of 2009		
Exchange rate	Managed volatility in foreign exchange markets	Smoothen volatility in FX markets
Other measures	Expansion of the Chiang Mai Initiative	FX liquidity provision among monetary authorities
Latter half of 2009 and 2010		
Exchange rate	Managed volatility in foreign exchange markets	Smoothen volatility in FX markets

Throughout the course of the global financial turmoil, the BSP stood by its market-oriented exchange rate policy. Under this regime, central bank intervention is only done to smoothen excess volatility in the FX market. The approach allowed the exchange rate to serve as a shock absorber for the economy. With the expansion of the Chiang Mai Initiative, the BSP and other regional monetary authorities worked together to strengthen the regional crisis management framework.

3.1.4 Financial Sector Policy

Figure 6d
Financial Sector Policy Measures, Objectives and Targets

	Policy Measures	Objectives/Targets
Last quarter of 2008 and first half of 2009	Targeted and temporary regulatory forbearance Supported legislation for higher deposit guarantee	Ensure the orderly functioning of financial markets Bolster market confidence
Latter half of 2009 and 2010	Pursuit of amendments to the BSP Charter	Strengthened regulatory and supervisory capability

Data as of June 2008 showed that Philippine banks held PhP1.2 trillion in debt securities, of which PhP313 billion were booked at acquisition cost, mainly as held-to-maturity securities. The remaining PhP906 billion were primarily sovereign debt papers and marked-to-market. At this level, these tradable government securities represented 17% of the banking system's total assets and were roughly 1.6 times the banking system's total capital (IMF Special Issues Paper, 2009).

In October 2008, large spikes in global risk aversion led to a retreat to safe haven assets, mainly US Treasuries. The volatility created impacted heavily on the marked-to-market valuations of the government securities held by the banking system. The BSP acted by allowing the reclassification of financial assets from categories measured at fair value to those measured at amortised cost. The reclassification was consistent with amendments to the International Accounting Standards and International Financial Reporting Standards issued by the International Accounting Standards Board given the extraordinary market conditions prevailing at the time. Also, the BSP temporarily eased (up to March 2009[12]) the rules on asset cover of foreign currency deposit units (FCDUs).

12. This was later extended by another six months to September 2009 as levels of market volatility and risk aversion in emerging markets remained high.

Prior to the exercise of regulatory forbearance, the BSP required banks to cover 100% of their FCDU liabilities with dollar assets. The said requirement added to dollar volatility as bank's hit by marked-to-market valuations bought dollar assets to cover the liabilities.

3.2 Analysis of Policy Responses

3.2.1 Communication and Transparency[13]

Communication and transparency in the conduct of policymaking essayed a critical role in the containment of the risk of contagion through timely information disclosure and effective signaling of policy objectives and decisions. While not expected to be sufficient in containing market volatility, the constant and clear communication with financial markets and the general public by senior central bank officials impressed upon them that the BSP was capable of steering the economy and banking system through the crisis.

Early on, the BSP signaled that it recognised developments in the financial markets and the rest of the economy and that it understood their implications on the domestic economy. In painstaking manner, senior central bank officials presented to financial markets and the public the wide range of information the BSP had on economic and financial developments (locally and abroad) as the crisis unfolded. They took pains to identify the risks to inflation, employment, remittances and economic output. Careful thought was made to inform the public of possible developments in the domestic and global economy and communicate that the BSP was dealing with the current situation and had policy measures in place to head off future challenges.

The BSP's communication response to the bankruptcy filing of Lehman Brothers is a case in point. To forestall uncertainty among depositors on the stability of banking institutions, banks were made to disclose their exposure to Lehman Brothers and Merrill Lynch. In a public hearing of the Senate Committee on Banks, Governor Amando M. Tetangco, Jr. highlighted the fact that Philippine-based banks' exposure to Lehman Brothers was 0.3% to 0.4 % of the banking system's total assets. These were mainly in the form of transactions arising from Special Purpose Vehicles for disposing of non-performing assets and some direct investment in Lehman-issued financial instruments with Philippine sovereign debt as underlying assets. It was emphasised that it involved only a limited

13. For simplicity but without loss of generality, the discussion will focus on the BSP's communication response and not that of the National Government.

number of banks and the instruments did not have sub-prime mortgages as underlying assets. The disclosure helped to ease the anxiety of depositors and contributed to calming financial markets. Consequently, no bank experienced a bank run and residents did not move their FX-denominated assets offshore unlike during the Asian crisis of the late-1990s.

Constant and consistent communication with financial markets and the public marked the policy response to the crisis. Media releases on its website as well as print and broadcast media have been standard fare in the process of central bank communication. Presentations to business groups, professional associations, fund managers, members of Congress as well as the National Government have also been a frequent opportunity to ventilate policy issues, concerns and directions. Consultative meetings with industry associations (e.g., Rural Bankers Association of the Philippines, Trust Officers Association of the Philippines, Fund Managers Association of the Philippines, etc.) have also been used as a venue for policy dialogue. Financial education programmes targeting students, microfinance clients, remittance-receiving households were also utilised.

Throughout it all, the credibility of the BSP was the linchpin of the response to the collapse of large, venerable foreign financial institutions. The BSP's credibility was derived from its track record of defining a policy direction and implementing policies consistent to it in an appropriate time horizon. It enabled the central bank to anchour and guide expectations. Its ability to lead expectations enhanced its policy response's effectiveness and efficient implementation.

3.2.2 Monetary Policy

In a process designed to limit volatility in financial markets and to effectively lead expectations of economic agents, the BSP instituted a series of cuts in its policy rates starting in the fourth quarter of 2008 up until early in the third quarter of 2009. In an environment of benign inflation and ample liquidity in the financial system, the banking system has fully passed on the cumulative 200-basis-point reduction of policy interest rates to their borrowers. Similarly, the secondary market rates of the benchmark 91-day Treasury bill have declined and approximated the policy rate of the BSP. While bank credit standards have initially tightened in early-2009, they have eased since. The stock of domestic liquidity and outstanding loans of commercial banks have continued to grow throughout the crisis albeit at slower rates.

Subsequent to policy action by the central bank and the National Government, domestic financial markets have stabilised and recovered their losses. As flows

to emerging markets recovered, demand for Philippine debt securities has risen thereby encouraging further issuances by sovereign and private borrowers. Local equity markets has recovered strongly and breached pre-crisis levels of the PSEi composite index. Also, the exchange rate has stabilised after losing more than 20% of its value during the crisis and has appreciated towards its 2007 level.

Utilising the methodology of Harding and Pagan (2002) as adapted by Hong, Lee and Tang (2009), estimates for the duration, amplitude and cumulative losses arising from the crisis were made. Duration refers to the length of the recession[14] while amplitude pertains to the peak-to-trough fall in output growth. The cumulative loss is computed as the sum of all the losses from the peak output value for the duration of the recession.

Several results from the computations for real GDP deserve further attention. The recession during the Asian financial crisis lasted six quarters from the third quarter of 1997[15] to the fourth quarter of 1998 when output hit bottom with a contraction of 2.4%. On the other hand, growth in economic output fell from a peak value of 8.3% during the second quarter of 2007 to a low of 0.2% in the third quarter of 2009 (i. e., a longer recession of nine quarters). The amplitude for real GDP growth during the Asian financial crisis was larger at 8.5% of peak GDP growth rate as compared to 8.1 % during the global financial crisis. Notwithstanding this, the cumulative losses[16] were much larger during the recent global financial crisis (10.2%) than during the Asian financial crisis of the 1990s (6.3%).

It should be recalled that the Asian financial crisis was more of a regional phenomenon and hence, of relatively smaller scale and duration compared to the globalised systemic shock recently experienced by the country. Affected economies during the 1990s crisis could export their way out of the problem. On the other hand, the Asian economies had to face weakened trading partners during the recent crisis episode thereby triggering widespread calls for

14. Harding and Pagan (2002) define a recession as the period beginning after the peak of a cycle to its trough. For quarterly data xt, a peak exists if $xt > xt+k$, for k=-1, -2, 1, 2, while a trough is present when $xt < xt+k$, for k=-1, -2, 1, 2.

15. Real Gross Domestic Product posted a peak growth rate of 6.0 % during the second quarter of 1997.

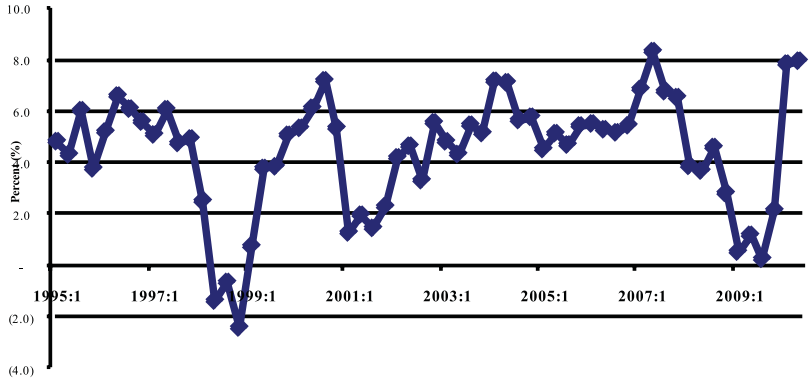
16. Cumulative losses were computed by obtaining the present value of the equivalent output losses with the pre-crisis peak period as the reference point. The cumulative losses were then expressed in annualised rates.

rebalancing. Consequently, while Philippine output growth remained positive during the recent global financial turmoil, the lingering effects associated with the longer duration ensured that the cumulative losses would be higher.

Figure 7
Crisis Impact on Real GDP

Real GDP	Asian Financial Crisis	Global Financial Crisis
Duration	6 quarters	9 quarters
Amplitude	8.5% - 1997Q2	8.1% - 2007Q2
Cumulative Loss	6.3% - 1997Q2	10.2% - 2007Q2

Figure 8
Growth Rate of Real GDP, 1995:Q1 to 2010:Q2



Similar computations for growth rate of domestic liquidity (M3) provide clues to the inroads of efforts by monetary authorities to ensure ample liquidity in the financial system through conventional policy and crisis relief measures. The amplitude during the recent crisis episode (25.5%) was larger than during the Asian financial crisis (16.4%). Also, the recent cumulative losses[17] were slightly higher at 15.7% versus 14.3% more than ten years ago. These were mainly due

17. The methodology for computing cumulative losses in output growth was similarly applied to domestic liquidity.

to higher growth rates in domestic liquidity. More importantly, the duration of the decline in domestic liquidity growth was shorter at four quarters compared to one-and-a-half years during the 1997/1998 crisis.

Figure 9
Crisis Impact on Domestic Liquidity

Domestic Liquidity	Asian Financial Crisis	Global Financial Crisis
Duration	6 quarters	4 quarters
Amplitude	16.4% - 1997Q3	25.5% - 2007Q1
Cumulative Loss	14.3% - 1997Q3	15.7% - 2007Q1

In the domestic equities market, the impact of the recent global financial turmoil was lower than during the 1997/1998 crisis. This suggests that, all other things held constant, listed Philippine corporations had good balance sheets during the course of the recent crisis episode. Expectedly, all indicators (i.e., duration, amplitude and cumulative losses) indicate greater resilience for the Philippine Stock Exchange compared to its experience in 1997/1998.

Figure 10
Crisis Impact on Stock Market Index

Stock Market Index	Asian Financial Crisis	Global Financial Crisis
Duration	6 quarters	5 quarters
Amplitude	59.2% - 1997Q1	48.1% - 2007Q4
Cumulative Loss	229.7% - 1997Q1	164.8% - 2007Q4

Lastly, the implementation of policy rate action by the BSP and its attendant effect on domestic interest rates merely reflects the differing locus of action and objectives for the mitigation and resolution of the crisis episodes. Recall that during the 1997/1998 crisis, speculative attacks forced monetary authorities in the region to initiate an interest rate defense of their currencies. Subject to the price stability objective of the BSP, policy interest rates were increased during the Asian financial crisis. In contrast, the policy interest rates were reduced in 2008-2009 to ensure ample liquidity in the financial system and encourage lending by banks. Full pass-through of policy rate action was subsequently achieved thereby lending support to the economy.

Figure 11
BSP Policy Rate Response and Impact on Average Lending Rate

Reverse Repo Rate	Asian Financial Crisis	Global Financial Crisis
Duration	2 quarters	3 quarters
Amplitude	7.4% - 1997Q3	2.0% - 2008Q4
Slope	3.7% - 1997Q3	(-0.7%) - 2008Q4
Cumulative Loss	11.7% - 1997Q3	4.3% - 2008Q4
Ave. Lending Rate	Asian Financial Crisis	Global Financial Crisis
Duration	2 quarters	6 quarters
Amplitude	7.5% - 1997Q4	1.8% - 2009Q1
Slope	3.8% - 1997Q4	(-0.3%) - 2009Q1
Cumulative Loss	10.7% - 1997Q4	8.3% - 2009Q1

Figure 12a
Pass-through of Policy Rate Cut to Bank Average Lending Rates

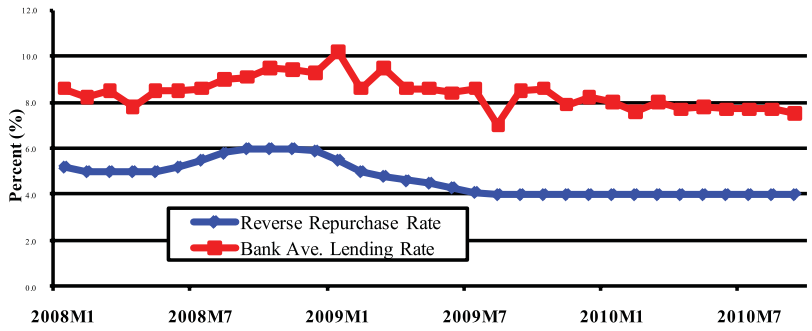
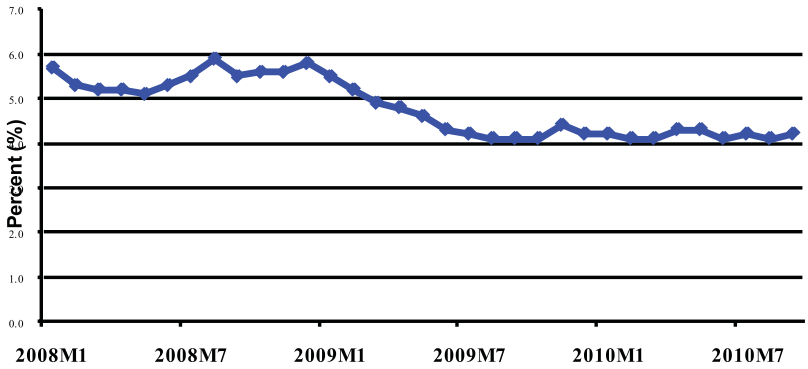


Figure 12b
Pass-through of Policy Rate Cut to Interbank Call Loan Rates

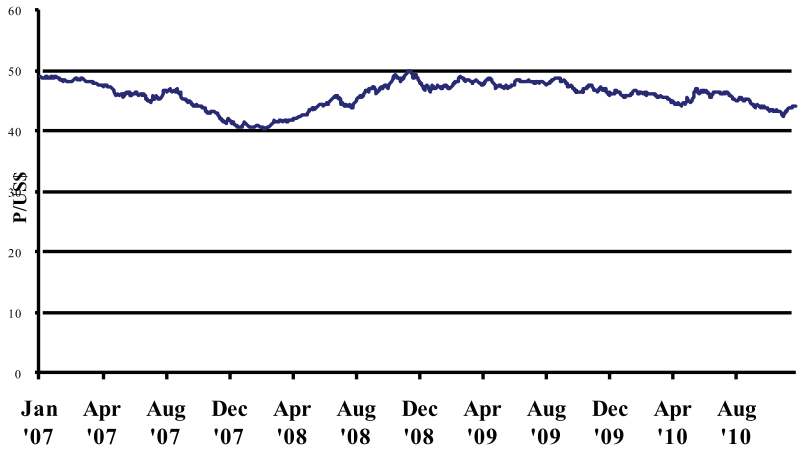


The two-percentage point cut in the reserve requirement as well as other policy measures instituted by the BSP helped to ensure the smooth functioning of interbank credit markets. Subsequent to the introduction of these measures, both peso and foreign exchange volatility were reduced and the interbank call loan rates started to settle at lower rates.

3.2.3 External Sector Policy

Hewing to its market-driven exchange rate policy, the BSP moved to contain the interim volatility in foreign exchange markets so as to reduce its distortionary effects on the behavior of agents in the economy. In so doing, the exchange rate served as a shock absorber for the economy. The Philippine peso depreciated vis-à-vis the US dollar but has stabilised and regained lost ground since. Even at the height of the crisis in 2008, the country experienced growth in its foreign exchange reserves and registered a positive balance of payments due to continued inflows of remittances.

Figure 13
Daily Peso-US Dollar Exchange Rate



3.2.4 Financial Sector Policy

Policy measures aimed at maintaining financial stability helped to sustain the public's confidence in the banking system. For the duration of the crisis, households and firms continued adding to their peso and foreign exchange deposits. Other measures to ensure the continued smooth functioning of credit markets helped sustain economic activity thereby providing support to the financial system. Consequently, loan and asset quality of bank balance sheets held with

non-performing loan and non-performing assets ratios of universal banks and commercial banks continuing to decrease during the crisis episode. Capital adequacy ratios remained far above the BIS standard of 8% and the stricter BSP regulatory requirement of 10%. Bank profitability was preserved with return-on-asset and return-on-equity ratios continuing to be positive for the duration of the crisis.

3.2.5 Fiscal Policy

To a large extent, the fiscal policy measures undertaken in the years prior to the global financial crisis defined the policy space for crisis mitigation measures by the National Government. Significant initiatives to consolidate the budget deficit ensured that the National Government would have usable funds for its fiscal policy response. This helped to ease somewhat the uncertainty on their ability to effectively tackle the transmitted shocks.

Following Elmendorf and Furman (2008), the fiscal stimulus is evaluated in terms of whether it was timely, targeted and temporary. While it took time for the fiscal stimulus measures to be planned and implemented, the decision to frontload government spending to the first half of 2009 and subsequently in 2010 helped to mitigate the impact of the crisis episode which was mostly felt in 2009. The increase in salaries of government employees arising from the implementation of the Salary Standardisation Law III was also timely. As to targeting, the increase in subsidies for rice and other commodities and the freezing of tuition fee increases in state colleges and universities helped to ease the direct impact of the crisis on household budgets. However, some of the measures instituted are not temporary. Some tax measures such as the restoration of the value-added tax exemption of senior citizens are not likely to be removed given political and sociological considerations.

Figure 14
Impact of Fiscal Policy on Government Budget

Period	Fiscal Balance as a Percentage of GDP	Primary Balance as a Percentage of GDP
1990-1996 Average	-0.9	4.2
1997-1998 Average	-0.9	2.6
1999	-3.8	-0.2
2001-2008 Average	-2.9	2.0
2009	-4.1	-0.3

Arising from the fiscal stimulus efforts, the fiscal deficit of the National Government increased further to -4.1% of GDP with the primary balance turning negative to -0.3% of GDP. Skillful execution of exit strategies from the fiscal measures should be undertaken to further consolidate the fiscal situation of the National Government.

4. Relative Effectiveness of Policy Choices – Econometric Model

In this section, the relative effectiveness of monetary and fiscal policy responses to the crisis episode will be examined through the use of a vector error correction model (VECM).

4.1 Data Sources, Limitations and Model Specifications

In principle, the empirical model is of the form:

$$Y_t = f(MP_t, FP_t, Z_t)$$

where, Y_t is a measure of economic activity and Z_t refer to other relevant variables, while MP_t and FP_t correspond to monetary and fiscal policy responses, respectively. For simplicity but without loss of generality, the logarithmic form[18] of real GDP (LGDP) is used as Y_t; the log of M3 or domestic liquidity (LM3) will represent MP_t, the log of government purchases of goods and services (LGOVCONS) will serve as FP_t and an indicator of financial markets volatility, SQR_RPHISIX[19] as Z_t. With the exception of SQR_RPHISIX, all the data have been seasonally adjusted. In the error correction specification used, two dummy variables were created to represent the Asian financial crisis (AFC) and the global financial crisis (GFC). Following Harding and Pagan (2002), previous results on the duration of the crisis episodes were utilised to identify the dummy variables. That is, for the AFC dummy variable, its value is equal to one from the third quarter of 1998 to the fourth quarter of 1999 and zero, otherwise. For the GFC dummy variable, its value is equal to one from the third quarter of 2007 to the third quarter of 2009 and zero, otherwise.

18. The use of logarithmic form was necessary to account for the nonlinearity arising from the crisis episodes in the sample. Also, vector autoregressive (VAR) models and vector error correction models (VECM) are linear approaches that do not necessarily mitigate nonlinearities in the data.

19. The indicator SQR_RPHISIX was computed as the squared residual from a autoregressive model of the Philippine Composite stock market index, PHISIX. The inclusion of SQR_RPHISIX was made to incorporate uncertainty in financial markets and provide information on general financial turbulence. Its inclusion was deemed a necessity in rendering long-run economic relationships stable.

The model is using data from the first quarter of 1995 to the second quarter of 2010. It is recognised that, despite being a relatively robust and flexible model specification, the VECM does not differentiate completely between the pre-crisis and post-crisis periods.

4.2 Empirical Results

The method used in the study involves the Johansen cointegration procedure. The procedure provides for the analysis of non-stationary time series, explicit testing for cointegrating processes and, if present, the estimation of long-run and short-run relationships through an error correcting mechanism. It provides for a more robust framework compared to the Engle-Granger two-step procedure.[20]

Augmented Dickey-Fuller unit root tests were employed and LGDP, LREAL_M3, LGOVCONS and SQR_RPHISIX were found to be I(1) variables. Figure 15 summarises the results.

Figure 15
ADF Unit Root Test Results

Variables	ADF statistic
LGDP	8.42 (1.0000)
LREAL_M3	-2.42 (0.3647)
LGOVCONS	2.37 (0.9953)
SQR_PHISIX	-2.64 (0.0912)
D(LGDP)	-6.73 (0.0000)
D(LREAL_M3)	-6.93 (0.0000)
D(LGOVCONS)	-11.48 (0.0000)
D(SQR_RPHISIX)	-11.48 (0.0000)

Note: Figures in parentheses are p-values.

The variables presented above represent the final set of variables that were found to have a stable cointegrating relationship. Innumerable permutations of variables[21] were tested. However, cointegrating relationships were found to break

20. The Engle-Granger two-step procedure could detect only one cointegrating relationship among a set of variables. This is a structural limitation in case multiple cointegrating relationships exist among the variables.

21. These permutations varied in terms of nominal versus real terms, seasonally-adjusted versus those with seasonal data, ratios to GDP, differing indicators for monetary policy and fiscal policy.

down during the recent global financial crisis.[22] The use of stock market volatility follows from Carstensen (2006) wherein the incorporation of stock market behavior provided a stable specification for the cointegrating equation. With this specification, cointegrating relationships were shown to exist, Figure 16.

Figure 16
Cointegration Test Results

Trend assumption: Quadratic deterministic trend
Series: LGDP LGOVCONS LREAL_M3 SQR_RPHISIX
Exogenous series: AFC GFC
Warning: Critical values assume no exogenous series
Lags interval (in first differences): 1 to 3

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.508929	80.19061	55.24578	0.0001
At most 1 *	0.374325	41.07640	35.01090	0.0100
At most 2	0.232747	15.28558	18.39771	0.1293
At most 3	0.012897	0.713947	3.841466	0.3981

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.508929	39.11420	30.81507	0.0039
At most 1 *	0.374325	25.79082	24.25202	0.0311
At most 2	0.232747	14.57163	17.14769	0.1141
At most 3	0.012897	0.713947	3.841466	0.3981

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

LGDP	LGOVCONS	LREAL_M3	SQR_RPHISIX
-47.92492	25.76716	-47.12215	1.38E-08
-27.40637	39.32127	-54.23751	-4.32E-09
70.43405	-9.795482	-5.938624	2.61E-09
32.15566	18.85277	4.868629	-1.32E-09

Unrestricted Adjustment Coefficients (alpha):

D(LGDP)	-0.000614	-0.002103	0.001169	0.000610
D(LGOVCONS)	-0.000673	-0.012140	0.014256	-0.001175
D(LREAL_M3)	0.006820	0.008359	0.006919	0.000279
D(SQR_RPHISIX)	-95209359	48845749	29479907	5946277.

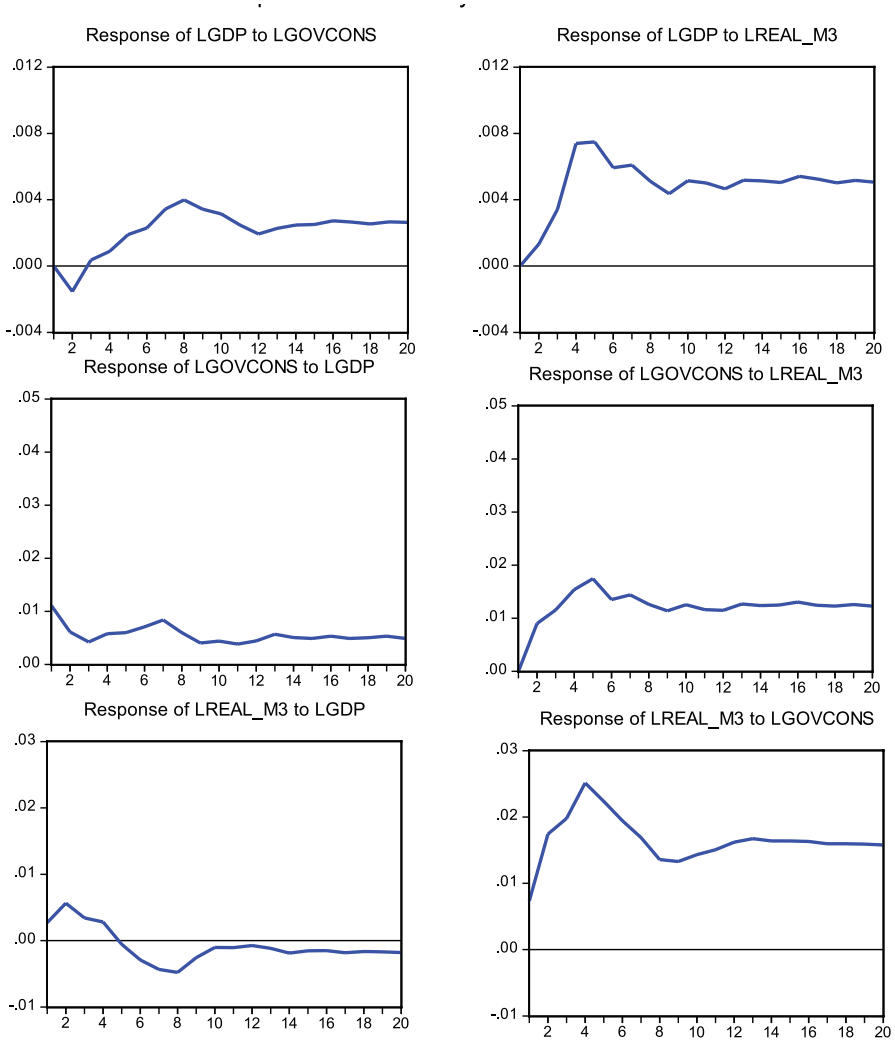
22. Tests for instability at the end-points were done using Andrews-Kim cointegration breakdown tests. See Andrews, Donald and Jae-Young Kim (2003). "Tests for Cointegration Breakdown over a Short Time Period," *Journal of Business and Economic Statistics*, Volume 24, Number 4, pp. 379-394. The test results can be provided upon request.

2 Cointegrating Equation(s):		Log likelihood	-651.2440
Normalized cointegrating coefficients (standard error in parentheses)			
LGDP	LGOVCONS	LREAL_M3	SQR_RPHISIX
1.000000	0.000000	0.386457	-5.54E-10
		(0.25934)	(1.0E-10)
0.000000	1.000000	-1.109988	-4.96E-10
		(0.34348)	(1.3E-10)
D(LGDP)	0.087085	-0.098538	
	(0.05913)	(0.05035)	
D(LGOVCONS)	0.364975	-0.494702	
	(0.31792)	(0.27072)	
D(LREAL_M3)	-0.555925	0.504406	
	(0.17538)	(0.14935)	
D(SQR_RPHISIX)			
	3.22E+09	-5.33E+08	
	(1.3E+09)	(1.1E+09)	

Both the trace test and the maximum eigenvalue test detect the presence of two cointegrating relationships. Based on the indication of cointegration among the variables, a vector error correction model[23] is constructed (Appendix I). The VECM passed all diagnostics for VECM stability and Lagrange Multiplier (LM) test for residual serial correlation and normality testing.

Impulse response analysis was undertaken. Several results bear further research. First, it appears that the GDP reacts more to monetary policy than fiscal policy. It also seems that the impact of policy moves by monetary authorities builds up faster as compared to fiscal policy action. These results are supported by variance decompositions (Appendix II) which indicate that monetary policy shocks accounts for the bulk of the response of GDP. Secondly, there is some evidence to show that while GDP is more responsive to innovations in monetary policy than to fiscal policy shocks, monetary policy becomes countercyclical after roughly five quarters. This may be interpreted as heading off the inflationary effects of output growth as the slack in the economy is reduced or even eliminated. Lastly, the impulse responses show that the BSP and the National Government coordinate their policy actions such that policy sterilisation does not occur.

23. The interpretation of more than one significant cointegrating vector is not straightforward. For the purposes of the study, the long-run relationships will be analysed in the context of the resulting VEC model.



The VEC model itself bear out some results. For economic output, relatively slow readjustment to the steady state is observed in contrast to quicker adjustment processes for government consumption and real money balances. On average, the Asian financial crisis has a more profound negative impact on the economy compared to the global financial crisis though there appears to be greater financial market volatility during the recent crisis episode.

5. The Way Forward

The Philippines has experienced a strong recovery from the global financial crisis and exit strategies on policy measures are in place.

5.1 Solid Economic Recovery

The economy recovered strongly from the depths of the global financial crisis. Credit goes to the recovery in global trade and robust private consumption. The growth rate of real GDP for 2010 was 7.6% as compared to 1.1% in 2009. Trade recovered on the back of an upswing in the inventory cycle[24] of developed economies and continued growth in emerging market economies. Robust private consumption benefited from continuing remittance inflows. It also helped that while employment shedding took place during the crisis, most of the labour force were able to hold on to their jobs.[25] While some overseas Filipinos lost their jobs during the crisis, the preference of employers in countries with robust job markets for Filipinos allowed redeployment to other areas of the globe. The economy also experienced a boost from election spending and the significant fiscal stimulus.

5.2 Exit Strategies

As previously mentioned, the BSP has initiated and completed an exit strategy from its crisis relief policy measures. Contingent on its evaluation of the balance of risks for inflation and output, a similar exit from record-low policy rates may be initiated. Fiscal consolidation is also moving albeit at a slower pace. Some of the stimulus measures promulgated may be politically difficult to take back. These include removing the exemption of senior citizens from the expanded value-added tax. Despite the buoyant economy, tax collection still faces an uphill battle. Reforms in tax administration are being instituted to ensure higher revenue generation.

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24. As the crisis unfolded, retailers and wholesalers in the United States and other advanced economies drew down on their inventories rather than placing new orders. While demand remained weak as business and consumer confidence languished, residual demand required replenishment of inventory stocks thereby sparking purchase orders.

25. While blue collar jobs suffered, demand for white collar workers was stable vis-à-vis the United States. Some job wanted ads in newspapers continued to trumpet significantly large (approximately US$1,000) signing bonuses even during the height of the crisis. Business process outsourcing jobs continued to be in high demand.

5.3 Opportunities and Challenges

The BSP seeks to institute reforms in the monetary sector. Amendments to the central bank charter are among its top priorities. These amendments include:

a) an explicit objective of financial stability;
b) oversight of the payment and settlements system;
c) full subscription by the National Government of the prescribed capital of the BSP;
d) strengthened supervisory powers;
e) right to access information from the non-bank private sector;
f) restoration of authority to issue own securities;
g) enhanced ability to conduct credit operations; and
h) tax and customs duties exemption for the conduct of central banking.

Independent of the amendments to its charter, the Philippines needs to redesign the financial system to promote stronger financial intermediation while containing systemic risk.[26] The BSP will consider financial factors in the conduct of its monetary policy. Also, a stronger effort at regional and especially multilateral cooperation is needed to prevent a return of the crisis.

On the part of the National Government, the introduction of fiscal responsibility measures provides comfort in future government spending. The plan to require a source of funding before enacting laws that require government appropriations is laudable. Further effort at fiscal consolidation is also needed.

6. Conclusion

The transmitted shocks from the global financial crisis have a profound impact on the Philippine economy. That the Philippine economy had sound macroeconomic fundamentals and other sources of strength allowed it to weather the crisis episode and position it to benefit from the rebound in global growth. Policy responses by the BSP and the National Government helped to mitigate the crisis impact. A vector error correction model was estimated. It provided clues to the impact of fiscal policy stimulus and monetary policy response.

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26. The vaunted conservatism of Filipino financial institutions and the relative abundance of profitable opportunities onshore may have prevented exposure to systemic risk arising from distressed foreign financial institutions / markets. Going forward, a more balanced integration to foreign financial markets is necessary to promote capital formation and reduce distortions in the economy. Regulators must have the wherewithal to contain systemic risk.

Future research should include a quantitative model for examining communication strategies during crisis episodes. Further research using higher frequency data should also be considered to examine the signaling effect of monetary policy response.[27] A model structure that can more adequately account for parameter instability should be considered.

27. It may be worthwhile to consider an event history or survival analysis study on the impact of developments in foreign financial markets as they are transmitted to the domestic economy.

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Appendix I

Vector Error Correction Estimates
Date: 06/15/11 Time: 10:15
Sample (adjusted): 1996Q4 2010Q2
Included observations: 55 after adjustments
Standard errors in ( ) & t-statistics in [ ]

Cointegrating Eq:	CointEq1	CointEq2
LGDP(-1)	1.000000	0.000000
LGOVCONS(-1)	0.000000	1.000000
LREAL_M3(-1)	0.386457 (0.25934) [1.49016]	-1.109988 (0.34348) [-3.23156]
SQR_RPHISIX(-1)	-5.54E-10 (1.0E-10) [-5.52208]	-4.96E-10 (1.3E-10) [-3.73241]
@TREND(90Q1)	-0.015833	0.005749
C	-16.65084	4.408537

Error Correction:	D(LGDP)	D(LGOVCONS)	D(LREAL_M3)	D(SQR_RPHISIX)
CointEq1	0.087085 (0.05913) [1.47273]	0.364975 (0.31792) [1.14802]	-0.555925 (0.17538) [-3.16976]	3.22E+09 (1.3E+09) [2.56305]
CointEq2	-0.098538 (0.05035) [-1.95693]	-0.494702 (0.27072) [-1.82736]	0.504406 (0.14935) [3.37742]	-5.33E+08 (1.1E+09) [-0.49720]
D(LGDP(-1))	0.037838 (0.15562) [0.24313]	-0.268833 (0.83670) [-0.32130]	0.435802 (0.46158) [0.94416]	3.56E+08 (3.3E+09) [0.10752]
D(LGDP(-2))	-0.344176 (0.13254) [-2.59686]	-1.018081 (0.71256) [-1.42876]	0.071111 (0.39310) [0.18090]	-1.00E+10 (2.8E+09) [-3.54774]
D(LGDP(-3))	0.039813 (0.16118) [0.24701]	-0.189571 (0.86657) [-0.21876]	0.561706 (0.47806) [1.17497]	-4.51E+09 (3.4E+09) [-1.31389]
D(LGOVCONS(-1))	0.049051 (0.05050) [0.97129]	-0.148186 (0.27151) [-0.54578]	-0.206996 (0.14978) [-1.38196]	1.40E+09 (1.1E+09) [1.30054]
D(LGOVCONS(-2))	0.096724 (0.04584) [2.11014]	0.102618 (0.24644) [0.41639]	-0.151138 (0.13595) [-1.11168]	1.31E+09 (9.8E+08) [1.34375]
D(LGOVCONS(-3))	0.018033 (0.03833) [0.47045]	0.095579 (0.20609) [0.46378]	-0.028136 (0.11369) [-0.24748]	84968512 (8.2E+08) [0.10420]
D(LREAL_M3(-1))	-0.075488 (0.06598) [-1.14408]	-0.301943 (0.35474) [-0.85116]	0.487628 (0.19570) [2.49173]	6.51E+08 (1.4E+09) [0.46376]

D(LREAL_M3(-2))	-0.071065	-0.355529	0.270939	-3.79E+08
	(0.05614)	(0.30182)	(0.16650)	(1.2E+09)
	[-1.26590]	[-1.17795]	[1.62723]	[-0.31733]
D(LREAL_M3(-3))	0.072526	-0.117321	0.272190	-8.88E+08
	(0.05271)	(0.28340)	(0.15634)	(1.1E+09)
	[1.37588]	[-0.41397]	[1.74097]	[-0.79166]
D(SQR_RPHISIX(-1))	-3.42E-12	-3.73E-11	-3.45E-11	0.242161
	(1.2E-11)	(6.2E-11)	(3.4E-11)	(0.24631)
	[-0.29581]	[-0.59956]	[-1.00350]	[0.98317]
D(SQR_RPHISIX(-2))	1.51E-11	1.14E-13	-2.10E-11	0.025325
	(8.3E-12)	(4.5E-11)	(2.5E-11)	(0.17711)
	[1.81122]	[0.00254]	[-0.85248]	[0.14299]
D(SQR_RPHISIX(-3))	7.04E-12	-1.09E-11	-2.56E-11	0.005735
	(6.9E-12)	(3.7E-11)	(2.0E-11)	(0.14626)
	[1.02359]	[-0.29404]	[-1.25596]	[0.03921]
C	0.014743	0.025231	-0.021300	2.21E+08
	(0.00688)	(0.03701)	(0.02042)	(1.5E+08)
	[2.14190]	[0.68178]	[-1.04331]	[1.50740]
@TREND(90Q1)	8.18E-05	0.000444	6.85E-05	-2220507.
	(0.00011)	(0.00057)	(0.00031)	(2243303)
	[0.77573]	[0.78249]	[0.21906]	[-0.98984]
AFC	-0.026954	-0.067337	0.035843	59821543
	(0.00653)	(0.03511)	(0.01937)	(1.4E+08)
	[-4.12728]	[-1.91780]	[1.85042]	[0.43058]
GFC	-0.019701	-0.052221	0.031151	1.77E+08
	(0.00569)	(0.03059)	(0.01688)	(1.2E+08)
	[-3.46265]	[-1.70715]	[1.84596]	[1.46360]
R-squared	0.614592	0.373378	0.368158	0.734903
Adj. R-squared	0.437512	0.085470	0.077852	0.613101
Sum sq. resids	0.002335	0.067482	0.020537	1.06E+18
S.E. equation	0.007943	0.042707	0.023560	1.69E+08
F-statistic	3.470711	1.296867	1.268173	6.033611
Log likelihood	198.8082	106.2970	139.0118	-1109.133
Akaike AIC	-6.574844	-3.210800	-4.400429	40.98664
Schwarz SC	-5.917899	-2.553854	-3.743484	41.64359
Mean dependent	0.010644	0.008096	0.013094	5918770.
S.D. dependent	0.010591	0.044658	0.024534	2.72E+08

Determinant resid covariance (dof adj.)	1105439.
Determinant resid covariance	226407.6
Log likelihood	-651.2440
Akaike information criterion	26.59069
Schwarz criterion	29.51045

Appendix II

Variance Decomposition of LGDP:

Period	S.E.	LGDP	LGOVCONS	LREAL_M3	SQR_RPHISIX
1	0.007943	100.0000	0.000000	0.000000	0.000000
2	0.011748	96.91745	1.704676	1.259335	0.118537
3	0.014862	89.88723	1.123514	6.045232	2.944019
4	0.018914	77.93967	0.911404	19.00529	2.143634
5	0.022059	71.50433	1.410910	25.50788	1.576886
6	0.024408	69.50774	2.037186	26.74471	1.710362
7	0.027246	68.71811	3.230453	26.45494	1.596502
8	0.029561	68.44216	4.561348	25.44990	1.546596
9	0.031210	68.03102	5.294696	24.77902	1.895266
10	0.032786	67.51009	5.716304	24.91839	1.855213
11	0.034113	67.25767	5.804344	25.17067	1.767314
12	0.035343	67.29738	5.706672	25.18361	1.812338
13	0.036803	67.39389	5.645237	25.20013	1.760739
14	0.038218	67.44327	5.654790	25.17350	1.728440
15	0.039532	67.37366	5.687777	25.15484	1.783729
16	0.040875	67.20003	5.765924	25.28085	1.753197
17	0.042108	67.07581	5.829958	25.36907	1.725161
18	0.043274	67.02970	5.863192	25.36534	1.741759
19	0.044475	67.00373	5.909317	25.36407	1.722884
20	0.045613	66.98727	5.951520	25.34679	1.714418

Variance Decomposition of LGOVCONS:

Period	S.E.	LGDP	LGOVCONS	LREAL_M3	SQR_RPHISIX
1	0.042707	6.714566	93.28543	0.000000	0.000000
2	0.047451	7.098690	89.26751	3.602007	0.031789
3	0.054574	5.965980	85.28547	7.196914	1.551637
4	0.061963	5.494261	81.50931	11.75255	1.243881
5	0.068686	5.231275	77.52229	16.00685	1.239589
6	0.075354	5.228442	76.51850	16.49841	1.754647
7	0.082284	5.414849	75.90479	16.89777	1.782592
8	0.088327	5.157125	76.25301	16.69609	1.893775
9	0.093363	4.800813	76.62377	16.43049	2.144934
10	0.098001	4.556053	76.79530	16.54859	2.100049
11	0.101996	4.345705	76.97247	16.57562	2.106206
12	0.105753	4.216110	76.97739	16.59529	2.211203
13	0.109704	4.184890	76.85703	16.75478	2.203298
14	0.113483	4.109653	76.81134	16.84642	2.232588
15	0.117176	4.028402	76.74324	16.93428	2.294083
16	0.120893	3.977212	76.66857	17.07350	2.280716
17	0.124393	3.911218	76.66982	17.12464	2.294323
18	0.127794	3.859147	76.66513	17.14513	2.330596
19	0.131181	3.826929	76.65246	17.19059	2.330024
20	0.134405	3.778186	76.66848	17.20683	2.346504

Variance Decomposition of LREAL_M3:

Period	S.E.	LGDP	LGOVCONS	LREAL_M3	SQR_RPHISIX
1	0.023560	1.326361	9.753493	88.92015	0.000000
2	0.034690	3.260485	29.73366	66.05618	0.949678
3	0.041949	2.892665	42.56643	53.11452	1.426383
4	0.049713	2.378943	55.89272	40.49629	1.232047
5	0.054853	1.963834	62.51452	33.68740	1.834245
6	0.058440	1.980266	66.12748	29.84596	2.046295
7	0.061082	2.319133	68.17301	27.58742	1.920432
8	0.062888	2.769342	68.98067	26.30653	1.943454
9	0.064533	2.789112	69.75074	25.51615	1.943997
10	0.066378	2.661030	70.58815	24.85736	1.893461
11	0.068372	2.531789	71.39045	24.10317	1.974596
12	0.070604	2.385124	72.21883	23.39152	2.004530
13	0.072865	2.265159	73.07280	22.69520	1.966839
14	0.074956	2.202696	73.83951	21.96628	1.991511
15	0.076974	2.128859	74.55672	21.32142	1.993006
16	0.078903	2.063297	75.22555	20.73410	1.977051
17	0.080721	2.023275	75.78755	20.18552	2.003655
18	0.082511	1.976679	76.27975	19.73538	2.008191
19	0.084257	1.936453	76.72258	19.34389	1.997073
20	0.085943	1.905617	77.11441	18.97211	2.007863

Variance Decomposition of SQR_RPHISIX:

Period	S.E.	LGDP	LGOVCONS	LREAL_M3	SQR_RPHISIX
1	1.69E+08	12.07670	0.047736	14.81272	73.06284
2	1.88E+08	11.99871	8.587296	15.81848	63.59552
3	1.99E+08	18.99264	9.540198	14.30035	57.16681
4	2.03E+08	18.86575	9.322709	13.82958	57.98197
5	2.12E+08	21.92569	9.417187	13.29562	55.36151
6	2.13E+08	21.75359	9.541219	14.02908	54.67610
7	2.17E+08	21.25455	9.324361	13.57253	55.84856
8	2.24E+08	21.22062	9.825366	15.64904	53.30497
9	2.24E+08	21.23515	9.862127	15.78046	53.12227
10	2.25E+08	21.17137	9.818715	15.85763	53.15229
11	2.31E+08	22.26294	10.36639	16.42991	50.94076
12	2.32E+08	22.33581	10.79857	16.28101	50.58460
13	2.34E+08	22.30026	11.20404	16.18192	50.31378
14	2.37E+08	22.32657	11.87868	16.68948	49.10527
15	2.38E+08	22.25202	12.09758	16.71683	48.93357
16	2.39E+08	22.30038	12.25087	16.77030	48.67844
17	2.41E+08	22.59729	12.59078	17.00617	47.80576
18	2.42E+08	22.64277	12.82560	16.99209	47.53954
19	2.43E+08	22.71960	13.08402	17.06715	47.12923
20	2.45E+08	22.81481	13.44835	17.32465	46.41219

Cholesky Ordering: LGDP LGOVCONS LREAL_M3 SQR_RPHISIX

Chapter 8

RELATIVE EFFECTIVENESS OF POLICY CHOICES DURING FINANCIAL CRISIS IN SEACEN ECONOMIES – THE CASE OF SRI LANKA

By
W. A. Dilrukshini[1]

1. Introduction

As a result of the global financial crisis which emanated in the United States, by the middle of 2007, around the world, stocks markets had fallen, large financial institutions collapsed, and central banks all over the world came out with bailout packages to safeguard the financial system. The crisis which spiraled on to other countries caused substantial risks to emerging markets, small open economies, and developing countries through multiple transmission channels such as trade, financial flows, remittances, commodity prices and foreign direct investment (FDI) flows. Sri Lanka was not an exemption. The economy was badly hit by the global financial crisis mainly through the trade channel and investors pulling out their investments from government securities. The purpose of this chapter is to analyse the impact of the global financial crisis on the Sri Lankan economy and to discuss the relative effectiveness of policy measures adopted to overcome the crisis by policy makers.

This chapter is organised as follows. Section 1 discusses the macroeconomic soundness of the Sri Lankan economy on the eve of the global financial crisis. Section 2 is devoted to examine the impact of the global financial crisis on the Sri Lankan economy. Section 3 describes the policy choices available and the rationale for adopting such a policy mix to respond to the crisis. Section 4 examines the relative effectiveness of economic policies adopted by the authorities using an Error Correction Mechanism to capture the short-run dynamics of policy measures using time series data. Section 5 discusses the economic outlook and the exit strategy in place, and Section 6 concludes the chapter.

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1. Senior Economist, Economic Research Department, Central Bank of Sri Lanka. Author wishes to acknowledge the comments received from Mrs. S. Gunaratne, Additional Director, Economic Research Department, Central Bank of Sri Lanka, Mrs. R Dheerasinghe, the Project Leader and Dr. Reza Siregar, The SEACEN Centre.

1.1 Sri Lankan Economy: On the Eve of Global Economic Crisis

The Sri Lankan economy recorded a healthy growth of above 6%, even in a challenging environment of intensified terrorist activities for three consecutive years, starting from 2005. The economic growth witnessed during these three years was mainly driven by the higher performance in the services sector supported by the growth momentum of agricultural and industrial sectors. The expansion in economic activities generated more and more employment opportunities contributing to a drop of the unemployment rate from 7.2% in 2005 to 6% in 2007.

External demand provided a major impulse (impetus) to the higher economic growth and better performance in exports, supplemented by higher remittances and capital inflows which contributed to the stability of the external sector. The current account recorded a deficit throughout the period concerned reflecting high savings-investment gap of the country. The increased worker remittances offset the widening current account deficit to some extent.

Sri Lanka historically has had relatively high budget deficits due to several reasons, namely, lower performance in government revenue collection and lack of fiscal consolidation. Weak financial performance of the state-owned enterprises, blanket coverage of certain subsidies, significantly high size of the public sector were major contributing factors for the overrun in the government expenditure. The higher reliance on domestic borrowings in financing the budget deficit resulted in a significant increase in domestic debt stock.

On the eve of the financial crisis, Sri Lanka experienced a high inflation mainly due to the relatively high monetary expansion and increased commodity prices including petroleum in the international market. The monetary policy measures were directed towards containing high money and credit expansion to reduce the demand-driven inflationary pressures while absorbing liquidity by conducting open market operations aggressively and limits were imposed on access to funds from the Central Bank. However, amid the tight demand management policy measures, inflation was in an upward movement due to high international commodity prices. As measured by year-on-year increase in the Colombo Consumers Price Index, inflation increased to 18.8% by end 2007.

The banking sector remained resilient, supported by improved earnings, increased capital funds as well as the strengthened regulatory and supervisory framework. The Non-performing Loans (NPL) ratio has declined gradually over the past few years (Table 7). Liquidity risks too have been low with a very

low exposure to complex derivative instruments in the international markets due to capital controls in place. The Colombo Stock Exchange (CSE) recorded a significant growth in 2006 mainly due to the improved performance of listed companies. Negative real interest rates prevailed during the year including fixed income securities due to high inflation, contributed positively to the performance of the stock market. However, with the heightened security concerns the performance of the stock market began to be gloomy in 2007 and trading was highly volatile in the CSE.

In this macroeconomic background, it is significant to note that the economic activities were seriously disturbed by the continuation of civil war and maintenance of sound macroeconomic policies was challenging. The civil disturbance and higher budgetary allocation for the war, affected badly fiscal management as well as monetary management and the business climate of the country.

Table 1 presents the key indicators used to measure the vulnerability of the economy to external shocks.

Table 1
Key Indicators Measuring Vulnerability of Economy to External Shocks: 2008/2009 Financial Crisis

Indicator	1996		2007	
	(In US $ millions)	% of GDP	(In US $ millions)	% of GDP
GDP (current) in US $ million	13,898	-	32,354	-
Exports of Goods and Services	4,095	29.5	7,640	23.61
Foreign Currency Reserves	2,717	19.5	4,956	15.32
Imports of Goods and Services	5,439	39.1	11,296	34.91
Average Monthly Imports	453	3.3	941	2.91
Months of Imports Covered	6	-	5.3	-
Balance on Current Account	-676.9	4.9	-1,402	4.3
Total Government Debt	12,962	93.3	27,497	85.00
Foreign Debt	8,486	61.1	13,989	43.20
Banking sector External Liability	1,047	7.5	2,493	7.7
Debt Service Payments (Foreign)	15.3	0.1	13.1	0.040
Primary Balance (Fiscal Deficit)	-284.4	-2.0	-572.8	-1.8

Source: Central Bank of Sri Lanka.

2. Impact of Global Financial Crisis

As a small open economy, Sri Lanka was affected mainly by the lower world demand for its exports and sudden capital outflows. The global financial crisis had both first-round and second-round impacts on the Sri Lankan economy. The first-round effects have largely manifested in the finance markets, both foreign currency and domestic currency, and external reserves and balance of payments (BOP). The second-round impacts were felt in external trade and real sector performance as indicated by a slowdown in economic growth, and increase in unemployment. Meanwhile, the performance in the fiscal sector was affected by a slowdown in revenue collection as a consequence of the slowdown in economic activities. At the same time, the financial sector activities slowed down with increase in non-performing loans (NPL) as a result of the sluggish economic activities.

The transmission mechanism of the recent crisis in general can be summarised as follows.

Table 2
Transmission Mechanism of Recent Crisis

Mechanism	Remarks
	1st Round Impact
Portfolio Capital flows debt and equity securities	Changes in risk appetite caused investors in developed countries to reduce their exposure to risky asset classes such as emerging market equities and bonds. Liquidity constraint in international market compelled them to withdraw their investment in emerging markets
Commodity prices	International oil prices affect the cost of energy and transportation and changes in oil prices have economy wide effects, and prices of other commodities caused inflationary pressure.
Market liquidity	Central Bank intervention to maintain exchange rate stability due to capital outflows caused liquidity issues in the domestic money market.
	2nd Round Impact
Impact on international trade	Less demand from crises affected countries affect external demand. Imports also come down due to repressed domestic economic activities.
Remittances	Receipient economies' decisions to limit or cut back foreign employees to safeguard domestic labour amidst a slowdown in global economic activities affects foreign remittances income.
Tourism	In a recession people spend less on holidays , as main holiday market and high end tourists are in crisis affected western countries.
Foreign Direct Investment	Given uncetainity over risk as well as demand and difficulties in raising capital , foreign investments into emerging Asia was badly affected.
Fiscal dynamics	Revenue shortfall and increased spending for fiscal stimulus affect badly on fiscal position.
Real Estate Market Dynamics	Slower growth, reduced market confidenc, tighter credit lead to fall in real estate prices. Falls in real estate prices would lead to further wealth destruction and lower consumer spending. This may lead to increase of NPL ratio.
Corporate sector responses	Corporate sector lays off workers and squeeze their supplier's pricing and delays capital investments.
Deflationary processes	Conditions for deflation may be evident such as contraction in GDP and liquidity, falling asset prices, wages under pressure and companies squeeze input prices.

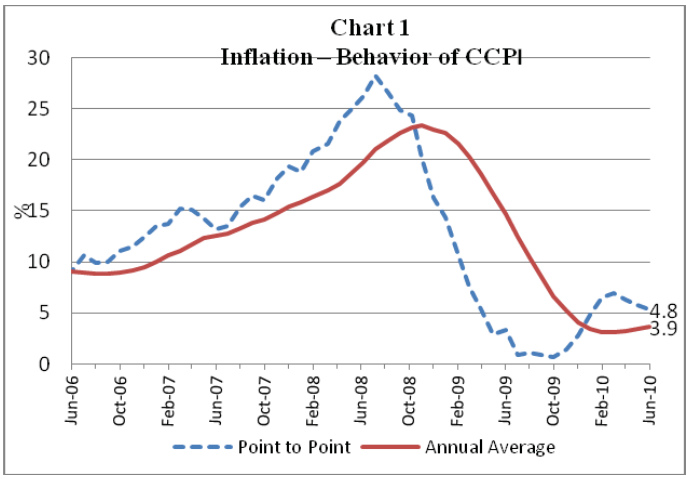
Source: ADB

2.1 First-round Effects of Global Financial Crisis

2.1.1 Impact on Inflation

International high commodity prices had an adverse impact on inflation in all the countries around the world and Sri Lanka was not an exception. The inflation, on year-on-year basis, recorded its climax of 28.2% in June 2008. The high inflation was attributed mainly to the upward adjustment in the administered prices of kerosene, petrol and diesel with the increase in international oil prices. The pass-through of high oil prices to domestic consumers led to an increase in transport charges. The continued increase in other commodity prices, such as food items in the international market, also had an adverse impact on inflation during the first half of 2008. However, the reversal of international commodity prices by the second half of 2008 had a significant impact on inflation. Tight monetary policy measures implemented by the Central Bank for the last few years and sharp decline in commodity prices from around mid-2008 contributed to inflation coming down from July 2008 and to attain 14.4% cent by end December 2008. The annual average inflation accounted for 22.6% by the end of 2008. The decelerating trend in inflation was continued in 2009 and reached the five year low of 0.7% by September 2009 and annual average inflation accounted for 3.4% by end 2009.

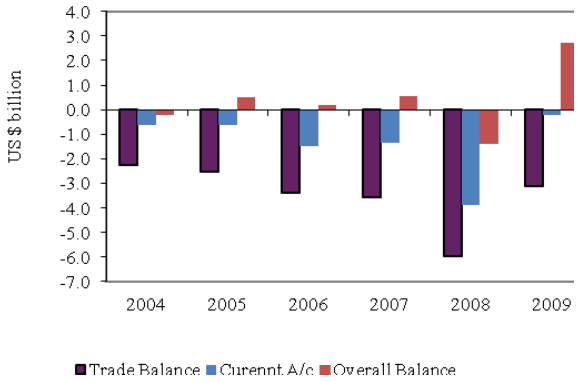
Chart 1
Inflation – Behavior of CCPI



2.1.2 Impact on BOP and Exchange Rate Movements

The performance of the external financial sector began to be gloomy with the deepening of the global financial crisis. During the first half of the year 2008, food and energy crises in the global economy were threatening the macroeconomic stability by way of sharply widening trade and current account deficits.

Chart 2
Position of the Balance of Payments



The higher growth of expenditure on imports in 2008 relative to the lower growth in exports, contributed to the substantial expansion in the trade deficit in 2008. The current account deficit more than doubled to US$3,775 million in 2008 from US$1,401 in 2007 due to the increased trade deficit. However, the trade deficit narrowed to US$3,122 million in 2009, reflecting substantially low expenditure on imports incurred in 2009 due to the slowdown in domestic economic activities, despite a decline in earnings from exports. Current transfers from worker remittances remained positive and grew by 16.7% to US$ 2,918 million in 2008 benefiting from the increase in the number of migrant workers and increase in the average wages due to increase in income levels in the Middle Eastern countries resulting from high oil prices, and also from more employment of Sri Lankan migrant workers in the high-wage countries, such as Singapore, Korea and Malaysia. Inward remittances became the leading foreign exchange earner in 2009 which grew by 14.1% amid the global economic slowdown mainly due to less employability of Sri Lankan migrant workers in the crisis-affected countries. The number of tourist arrivals which was badly hit by the restrained spending on leisure activities by tourists in crisis-affected countries and intensified

terrorist activities which attracted adverse news coverage all over the world in 2008, recovered in 2009 with the end of internal conflict in May 2009. Tourist arrivals increased by 2.1% in 2009 despite the sharp decline witnessed during the first few months.

Chart 3
Tourist Arrivals Bounced Back

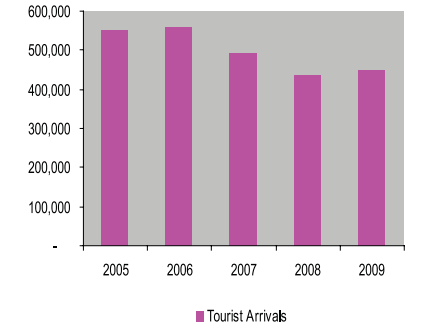
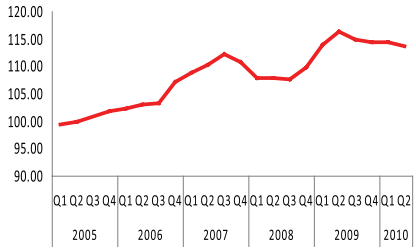


Chart 4
Exchange Rate Movement



The global financial turmoil caused a reversal of capital from the emerging market economies. The performance of the external sector began to be gloomy with the reversing capital flows and Sri Lanka lost almost 50% of its external official reserves, which had accumulated to US$3.56 billion by end July 2008. Consequently, the accumulated balance of payments surplus of US$515 million by end July 2008 turned into a deficit of US$1.2 billion by the end of 2008. The exchange rate was under pressure to depreciate mainly due to the high import bills and repatriation of short-term investments. In 2008, the exchange rate depreciated by 3.9% compared to 0.93% in 2007. However, the reversal of capital flows to Sri Lanka from May 2009 with the ending of nearly three decades of civil war and restoration of investor confidence with the approval of the IMF Stand-by Arrangement facility, put pressure on the exchange rate to appreciate. The Central Bank intervened in the market by absorbing the foreign exchange to prevent undue appreciation against the US dollar and built up its reserves.

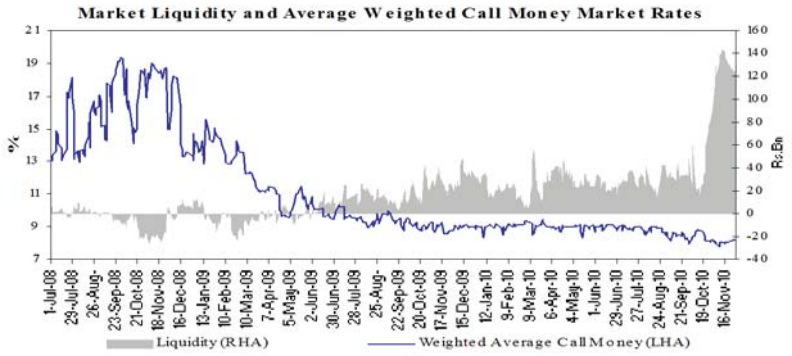
Table 3
External Sector Performance

	2005	2006	2007	2008	2009
Current A/C balance (% of GDP)	-2.7	-5.3	-4.3	-9.5	-0.5
Total External Assets (same year imports)	5.7	4.7	5.3	3.1	8.3
Total External Debt and Liabilities (% of GDP)	53.3	49.4	51	43.7	49.8
Exchange Rate (year end) Rs/ US $	102.12	107.71	108.72	113.14	114.38

2.1.3 Impact on Market Liquidity

The market liquidity which was in excess during the first eight months of 2008 turned into a shortage with the deepening of the financial crises. Substantial outflow of foreign investments in treasury bills and bonds and non-realisation of foreign financing up to the expected level subjected the exchange rate to depreciation pressure. The situation prompted the CBSL to intervene in the domestic market by way of supplying foreign exchange to the market during the fourth quarter of 2008 to prevent sharp depreciation of the exchange rate. The Central Bank intervention in the foreign exchange market resulted in a drain in rupee liquidity in the market.

Chart 5



However, since June 2009, there has been a turnaround in the rupee liquidity due to boost in investor confidence with the end of three decades of civil war and the securing of the IMF Stand-by Arrangement facility which resulted in a substantial increase in foreign investments in treasury bills. This led the Central

Bank to intervene in the foreign exchange market to stabilise the exchange rate allowing the Central Bank to build up its reserves. The Central Bank intervention in the foreign exchange market by purchasing foreign exchange resulted in surplus rupee liquidity in the market.

2.1.4 Impact on Stock Market

The performance of the stock market was affected by external as well as domestic factors. The global financial crises resulted in a net outflow of foreign capital amounting to Rs. 1.4 billion during the fourth quarter of 2008. At the same time, the economic downturn resulting from the global financial crisis affected the performance of the stock market through lower company earnings. The All Share Price Index (ASPI) and Milanka Price Index (MPI) felt sharply by 41% cent and 50%, respectively, in 2008. Market capitalisation was reduced from Rs. 821 billion at end 2007 to Rs. 489 billion at end 2008.

Table 4
Share Market Performance

Share Market Performance	2005	2006	2007	2008	2009	2010(a)
						1st Half
All share price index (end of period)	1922.2	2722.4	2541.0	1503.0	3385.6	6678.1
year - on - year change (%)	27.6	41.6	-6.7	-40.9	125.3	97.3
Milanka price index (end of period)	2451.1	3711.8	3291.9	1631.3	3849.4	7241.8
year - on - year change (%)	18.2	51.4	-11.3	-50.5	136.0	88.1
Market Capitalization (Rs. billion/end period)	584.0	835.0	821.0	488.8	1092.1	2209.1
As a % of GDP (%)	24.7	30.0	23.0	11.4	22.9	40.6*
Market Price Earning Ratio (end of the year)	12.4	14.0	11.6	5.4	16.5	25.2

Source : Central Bank of Sri Lanka

(a) - end October 2010
* - Based on estimated GDP for 2010

The stock market began to perform well from May 2009 reflecting positive market sentiment following the end of war. The ASPI and MPI both registered a growth of 125% and 136%, respectively. The vigorous performance of the stock market was also attributed to the sharp decline in inflation, lower interest rates and investor confidence built up with the securing of the IMF Stand-by facility. The market capitalisation crossed Rs. 1 trillion in 2009. However, net foreign flows recorded an outflow in 2009 due to the departure of major foreign

investors but these disinvestments were simply absorbed by the domestic investors.

2.2 Second-round Effects of Global Financial Crisis

2.2.1 International Trade

Exports which suffered from the contraction in global demand towards the end of the year 2008 declined by 2.9% in the fourth quarter. The slowdown in exports during the last quarter caused exports to grow only by 6.5% in 2008. The contraction in exports in 2009 was much more significant and recorded a negative growth of 11.9%, 23.1%, and 14.3% during the first three quarters, respectively. High dependence on a few markets for exports and lack of diversification of the export composition intensified vulnerability to external shocks.

Chart 6
Export Destination

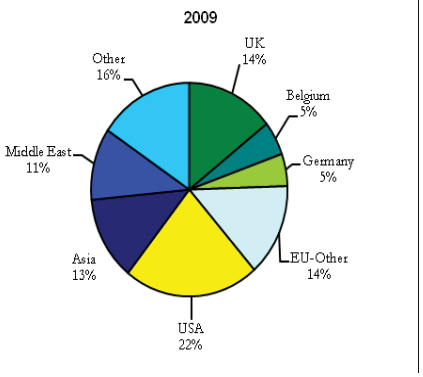
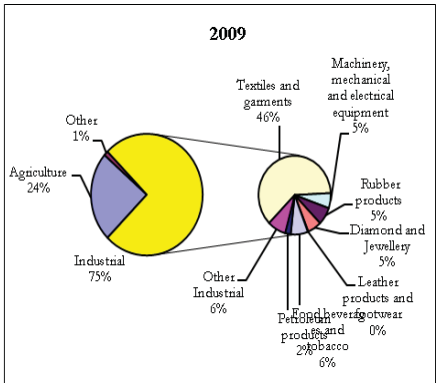


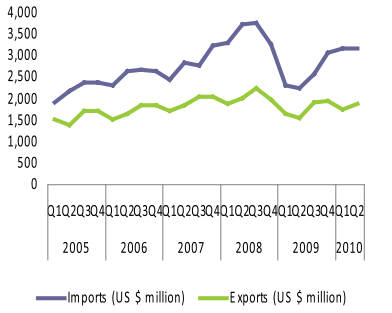
Chart 7
Export Composition



However, exports showed an improvement during the fourth quarter of 2009 registering a lower negative growth of 0.9%. The sharp increase in international commodity prices led imports to grow by 33.7% during the first three quarters of 2008. However, towards the end of the year, due to the impact of the global economic crisis, international commodity prices came down substantially. This led to a significant decline in import expenditure during the fourth quarter of 2008. Imports grew only by 1.1% during the fourth quarter of 2008. All the major categories of imports declined due to lower international commodity prices and lower demand with the slowing down in economic activity in 2009, and imports recorded an annual growth of negative 27.6%.

Chart 8
Growth in Exports and Imports

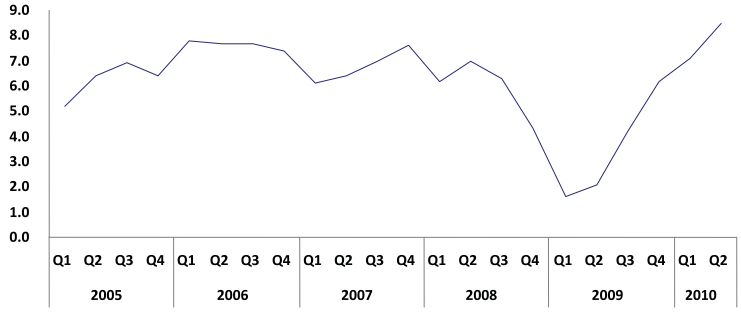
Chart 9
Performance of International Trade



2.2.2 GDP Growth

The Sri Lankan economy which recorded a healthy growth of above 6% from 2005 to 2007, started to slow down from 2008 fourth quarter onwards. The economic growth of 6% during 2008 was attributed to the high growth performance in the first nine months of the year. The adverse developments in the world economy impacted on the economic growth of the country, by decelerating the economic growth to 4.3% during the last quarter of 2008. With the deepening of the global economic crisis, economic growth was further decelerated during the first three quarters of 2009. Reflecting the signs of speedy recovery, the economy registered a 6.2% growth during the fourth quarter of 2009 and the annual growth realised for 2009 was 3.5%. The unemployment which was 5.4% of the labour force in 2008, increased to 5.8% reflecting the slowdown of economic activities in 2009.

Chart 10
GDP Growth



The slowdown in economic activities was visible in all the three sectors. Decline in external as well as domestic demand ensuing from the slowdown in economic activities resulted in a decline in the growth of the industrial sector. Output of the export-oriented industries such as garments decelerated in 2009 due to contraction in the economies of the major export destinations. As an expensive and branded clothing manufacturer, Sri Lanka's garment industry was less resilient during the crisis. The services sub-sector slowed down reflecting the slowdown in external trade activities, predominantly the contraction in the import sub-sector.

Table 5
Sectoral Growth

	2007	2008	2009
Agriculture	3.4	7.5	3.2
Industry	7.6	5.9	4.2
Services	7.1	5.6	3.3

Table 6

	2007	2008	2009
Domestic Demand			
Consumption	2,949,712	3,799,084	3,955,355
(% change)	20.9	28.8	4.1
Gross Deomestic Capital Formation	1,000,323	1,215,247	1,183,654
(% change)	21.7	21.5	-2.6
Total Domestic Demand	3,950,035	5,014,331	5,139,009
(% change)	21.1	26.9	2.5
External Demand			
Exports of Goods & Services	1,041,932	1,095,679	1,030,861
(% change)	17.7	5.2	-5.9
Imports of goods and Services	1,413,278	1,699,328	1,344,785
(% change)	16.9	20.2	-20.9
Net External Demand	(371,346)	(603,649)	(313,924)
Total Demand	**3,578,689**	**4,410,682**	**4,825,085**
(% change)	**21.8**	**23.2**	**9.4**

Source: Central Bank of Sri Lanka

Due to the slowdown in the major export destinations, external demand slowed down in 2009 and this in turn led to the slowing down of domestic economic activities and domestic income levels, decelerating domestic demand as well. Though it was expected that the low inflation that prevailed in 2009 would stimulate the domestic demand, demand for consumption and investment were both sluggish in 2009.

2.2.3 Impact on Government Fiscal Operations

The government's fiscal operations during 2008 were disturbed by many factors such as enhanced allocation for the intensified war, and allocation made for humanitarian and development work in the already liberated areas, the relatively high interest rates that prevailed till mid-2008, high international commodity prices, slowdown in domestic economic activities due to the impact of the global economic crisis, outflow of foreign investments in government securities and the virtual drying up of foreign commercial borrowings. Total revenue in nominal terms grew only by 16% due to slowdown in economic activities, and a sharp drop in international trade- related taxes. The recurrent expenditure increased due to several reasons namely, higher than expected expenditure on salaries and wages, pension payments, fertilizer subsidy, counter-terrorism activities and development work in the newly liberated areas. With these developments the overall budget deficit increased to 7.0% of GDP in 2008.

The fiscal sector was under severe stress in 2009 with the deepening of the global economic crisis. The total revenue collection declined as a result of the low economic activities. Inflation rising to the highest level since the 1980's exerted pressure on fiscal balances as duty waivers were granted in order to minimise the impact of high food and energy prices on the domestic cost of living. Total expenditure and net lending increased substantially mainly due to the fiscal stimulus generated by the government by way of subsidy payments and duty waivers. As a result, the budget deficit increased to 9.8% of GDP in 2009. With the drying up of foreign commercial borrowings due to the intensified global financial crisis, the government raised more financing from the domestic sources during the first half of 2009.

Chart 11
Behaviour of Government Debt
(% of GDP)

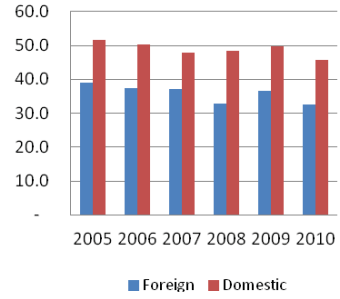
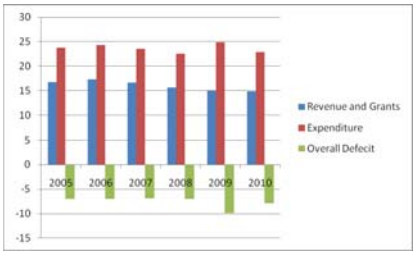


Chart 12
Government's Fiscal Position
(% of GDP)

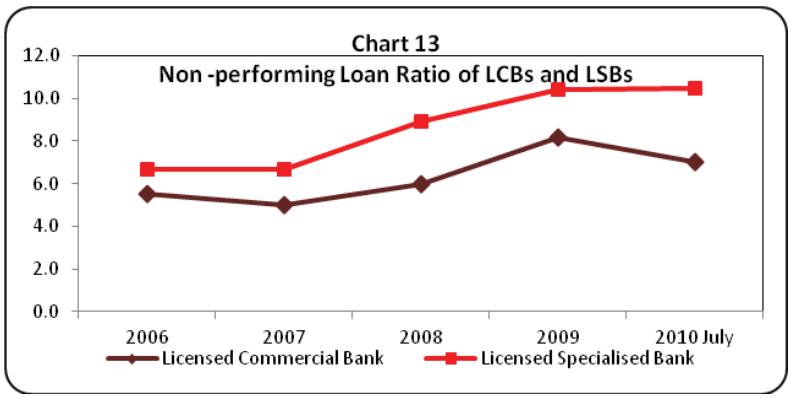


Source: Central Bank of Sri Lanka

2.2.4 Impact on Financial Institutions

In the case of Sri Lanka, since the capital account is not yet fully liberalised and many local banks did not trade in complex financial instruments, the direct impact on the financial sector was minimum. However, the slowdown in the real sector had some secondary impact on the performance of the financial sector. The financial services grew at a moderate rate in 2008, in response to the tight monetary policy. Overall, the financial markets including the banking sector remained resilient amid the domestic economic slowdown caused by the global economic and financial crisis.

Chart 13



The domestic financial markets which were somewhat volatile in 2008 and the beginning of 2009 became more liquid and stable by the end of 2009 with the resumption of capital inflows, decline in inflation, relaxation of monetary policy and change in investor confidence with the settlement of peace. Despite contraction in lending, the banking sector remained as a profitable business. However, the impact of the global economic downturn and tight domestic market conditions continued to exert pressure on the asset quality of the banking system. As a result, the gross NPL to total loan ratio and the NPL to capital funds ratio of the banking sector increased significantly in 2009.

Table 7
Micro Prudential Indicators - Banking Sector

	2005	2006	2007	2008	2009
Commercial Banks					
Capital Adequacy Ratio - Tier 1 Capital Ratio (%)	12.2	11.3	11.9	11.1	12.9
Capital Adequacy Ratio - Total Capital Ratio	12.8	12.7	13.6	13.8	15.4
Gross Non Performing Loans as % of Total Loans and Advances	6.8	5.5	5	6	8.2
Licensed Specialised Banks					
Capital Adequacy Ratio - Tier 1 Capital Ratio (%)	25.7	20.6	22.6	24.7	23.6
Capital Adequacy Ratio - Total Capital Ratio	20	19.7	19.1	20.0	22.0
Gross Non Performing Loans as % of Total Loans and Advances	8.8	6.8	6.7	8.9	10.4

Source: Central Bank of Sri Lanka.

3. The Relative Effectiveness of Policy Choices

3.1 Duration, Amplitude, Slope and Cumulative Loss of Recent Crisis

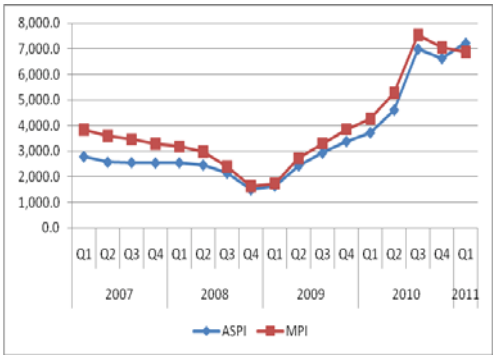
In this section, the concepts of duration, slope, amplitude and cumulative loss are used to identify the duration of the crises and assess how deep the crisis was and compute a measure of the cumulative losses which combines information about both the duration and amplitude to proxy the overall cost of a recession. The longer the duration and higher the slope, the higher was the cumulative loss.

Table 8
Crisis Impact on Real GDP

Duration	**5 quarters**
Period	**2008 Q1-2009Q1**
Amplitude	**6%**
Slope	**1.2%**
Cumulative Loss	**12.60%**

The crises last for 5 quarters and the cumulative loss to the economy in terms of GDP is 12.6% (See Chart 10).

Chart 14
Crisis Impact on Stock Market



Crises Impact on Stock market – ASPI

Duration	**6 quarters**
Period	**2007 Q3-2009Q1**
Amplitude	**1,069.2 index points**
Slope	**178.2 index points**
Cumulative Loss	**1,682 index points**

Chart 15
Domestic Market Liquidity

Crises Impact on Domestic Liquidity

Duration	**1 quarters**
Period	**2008 Q3-2008Q4**
Amplitude	**14.2**
Slope	**14.2**

Source: Central Bank of Sri Lanka

3.2 Relative Effectiveness of Policy Measures

In this section, the various policy measures implemented to deal with the issues that emerged from the global financial crisis and their relative effectiveness are discussed. A policy mix was implemented by the monetary and fiscal authorities all over the world to stimulate economic recovery and achieve macroeconomic stability. The variety of policy measures cover financial sector policies that stabilise the entire financial sector; fiscal policies that stimulate the economic activities; and monetary policy measures that deal with the liquidity issues to stabilise the market. In addition to the usual monetary policy measures, communication policy too was effectively used by the central banks to build the market confidence to restore stability.

During the crisis most of the countries introduced fiscal stimulus in order to support aggregate demand through measures targeting the domestic economy by increasing consumption, both public and private and investment, to compensate for the declining external demand. However, the effectiveness of fiscal policy depends on capacity considerations of the economy, the type of stimulus applied, method of financing the deficit and, in general, leakage affecting the size of the fiscal multiplier (Carrasco et al., 2010). At the same time, the effectiveness of fiscal policy depends on whether such policies are implemented in a timely manner, well targeted and if implemented on a temporary basis. In the backdrop of its inherited high fiscal deficit, Sri Lanka was constrained with less room for fiscal stimulus during the crisis.

Monetary policy has been more aggressive in the financial crisis. Central banks around the world used several monetary policy strategies, such as interest rate cuts, lender of last resort facility and SWAP lines. Monetary policy was adopted to mitigate the impact of the crisis basically in two steps. At the first step, the central banks pumped liquidity to their money markets to address the liquidity shortage. Once the money markets were stabilised, the monetary authorities had to address the credit crunch to induce credit to stimulate economic recovery.

3.3 Policies Implemented During the Crisis in Sri Lanka

3.3.1 Fiscal Policy Measures

Sri Lanka implemented two stimulus packages, the first in December 2008 and the second in May 2009. The fiscal stimulation made by Sri Lanka was not broad based. The government introduced a stimulus package directly targeting

the supply-side dynamics to improve market conditions. Fiscal stimulus was made to target farmers and exporters who were badly hit by the crisis and to protect local industries against the declining import prices. In Sri Lanka, the incentives to cover the demand side to stimulate consumption through lower taxes were not significant as the fiscal space was limited for stimulation. Tea, rubber, cinnamon, garment, ceramics, leather industry were given incentives such as guaranteed prices for inputs, concessions on loans and loan repayment. At the same time, Sri Lanka provided an across the board fertilizer subsidy. Meanwhile, measures were implemented to curtail the cost of production for the industries by way of granting a waiver on Fuel Adjustment Charge (FAC) on Electricity. The Value Added Tax (VAT) refunded period was reduced to a maximum of six months and export incentives were granted for exporters. The tourism industry, which was badly hit by the global economic crisis and by the intensification of security concerns in the country, was offered a number of incentives as safeguard measures. Implementation of a concessionary loan scheme, extended time period for recovery of loans and reduction of interest rate, suspension of collection of penal interest on defaulted loans and a waiver on FAC were some of the incentives offered to the tourism industry. Moreover, there were some relief measures put forward to consumers such as reduction of fuel prices, gas prices and passenger fares.

The fiscal stimulus measures taken by Sri Lanka were not very significant compared to other countries and in general they were targeted to safeguard the exporters and industrialists who were badly affected by the crisis and to ease the cost of living of the general public. A country like Sri Lanka, which already had a high fiscal deficit at the beginning of the crises, had no alternative other than offering a moderate and a limited fiscal incentive package.

3.3.2 Monetary Policy Measures

As discussed in Section 2 of this paper, the immediate impact of the financial crisis on a country like Sri Lanka was the large short-term capital outflows as investors moved their short-term investments to safer heavens. This resulted in a depletion of reserves, exerting pressure on the exchange rate to depreciate and affected badly on BOP. The drying up of liquidity from the domestic foreign exchange market due to substantial outflow of foreign investment in government securities led the Central Bank to intervene in the market, by way of supplying foreign exchange to stabilise the exchange rate to moderate the currency depreciation.

Table 9
Changes in Policy Interest Rates of the Central Bank

Per cent

Date	Repo Rate	Reverse Repo Rate	Bank Rate	SRR	Penal Rate on Reverse Repo Facility
23.02.2007	10.500	12.000	15.00	10.00	
03.12.2007	10.500	12.000	15.00	10.00	19.00
17.10.2008	10.500	12.000	15.00	9.25	19.00
28.11.2008	10.500	12.000	15.00	7.75	19.00
12.01.2009	10.500	12.000	15.00	7.75	17.00
11.02.2009	10.250	11.750	15.00	7.75	16.50
27.02.2009	10.250	11.750	15.00	7.00	16.50
18.03.2009	10.250	11.750	15.00	7.00	14.75
22.04.2009	9.000	11.750	15.00	7.00	13.00
21.05.2009	9.000	11.500	15.00	7.00	Removed
16.06.2009	8.500	11.000	15.00	7.00	
11.09.2009 (Close of Business)	8.000	10.500	15.00	7.00	
18.11.2009	7.500	9.750	15.00	7.00	
09.07.2010 (Close of Business)	7.250	9.500	15.00	7.00	
20.08.2010	7.250	9.000	15.00	7.00	

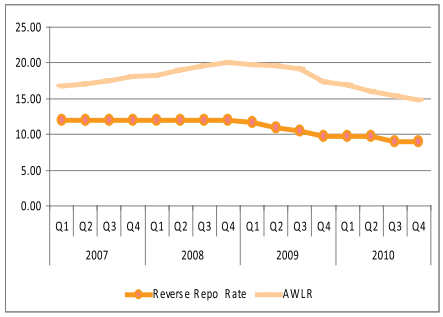
Source: Central Bank of Sri Lanka

The intervention by the CBSL in the foreign exchange market led to drain of rupee liquidity from the domestic market. In order to stabilise the domestic money and credit markets, the CBSL injected rupee liquidity to the market by reducing the Statutory Reserve Ratio (SRR) applicable to all rupee deposit liabilities. The CBSL also purchased Treasury bills both from the primary and the secondary markets to inject liquidity to the market. In May 2009, the CBSL also removed restrictions on access to its reverse repo standing facility at the Reverse Repo rate, while at the same time removing restrictions on the maximum amount that a participating institution can place with CBSL under the repo standing facility. Moreover, the penal rate of interest charged on reverse repurchase transactions with the CBSL when participating institutions exceed their monthly quota of access imposed on December 2007 was reduced to 17% per annum from 19% per annum by 200 basis points in January 2009. This was further reduced on a few occasions and removed with effect from May 2009. Since then the participating institutions have access without any restriction to both Reverse Repo and Repo facility without paying the penalty interest rate. The policy interest rates too were brought down by more than 300 basis points in several steps commencing from February 2009 to encourage credit expansion with the release of the liquidity constraints and thereby stimulate economic activity.

Table 10
Effectiveness of Monetary Policy Tools

Year	Quarter	Policy Rate	Lending Rate
		Reverse Repo Rate	AWLR
2007	Q1	12.00	16.84
	Q2	12.00	17.14
	Q3	12.00	17.46
	Q4	12.00	18.08
2008	Q1	12.00	18.32
	Q2	12.00	19.07
	Q3	12.00	19.61
	Q4	12.00	20.13
2009	Q1	11.75	19.73
	Q2	11.00	19.55
	Q3	10.50	19.18
	Q4	9.75	17.41
2010	Q1	9.75	16.89
	Q2	9.75	16.08
	Q3	9.00	15.35
	Q4	9.00	14.80

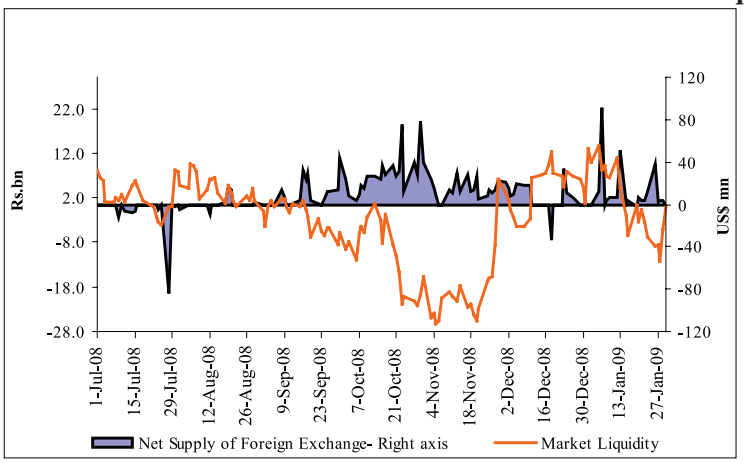
Chart 16
Reverse Repo Rate and the Weighted Average Prime Lending Rate



Source: Central Bank of Sri Lanka

However, since June 2009, there has been a turnaround in rupee liquidity. The approval of the IMF Stand-by Arrangement facility and the end of the internal conflict leading to permanent peace in the country boosted investor confidence and made a turnaround in liquidity, posing a challenge to manage the surplus liquidity. To arrest the excess liquidity in the market, the CBSL took measures to expand the instruments available to absorb the excess liquidity. The CBSL started issuing its own securities and introduced foreign exchange swaps to absorb the excess liquidity during the latter part of 2009. There was a substantial reduction in the CBSL's holdings of Treasury bills to around Rs. 4 billion by end September 2009 from around Rs. 200 billion in March 2009, mainly due to the government's retirement of Treasury bills held by the CBSL and the sale of Treasury bills by the CBSL to absorb the excess liquidity. From October 2009, the CBSL resorted to issuing Central Bank securities to absorb the excess liquidity. In November 2009, the CBSL commenced foreign exchange swap transactions under its Open Market Operations as an additional instrument for absorbing liquidity. At end 2009, the outstanding value of the foreign exchange swap transactions conducted with LCBs to absorb rupee liquidity from the domestic money market, amounted to around US$245 million. The excess liquidity in the domestic market continued to remain high in 2010 and it became a concern for monetary management.

Chart 17
Central Bank Intervention in Forex Market and Market Liquidity



3.3.3 Exchange Rate Policy and other External Sector Policies

The exchange rate was under pressure to depreciate in the latter part of 2008 and the first half of 2009 mainly due to the high import bills and repatriation of short-term investments. The exchange rate policy adopted by the CBSL during the crisis period was mainly to stabilise the foreign exchange market. In 2009, the rupee against dollar moved with a greater flexibility while the CBSL intervention prevented excessive market volatility. The rupee depreciated against the dollar gradually during the first four months to its lowest level of Rs. 120.25. With the reversal of capital flows after the ending of the civil war in May 2009, the CBSL continued to purchase foreign currency in the domestic foreign exchange market to avoid excessive rupee appreciation, which could otherwise have led to a loss of external competitiveness.

Meanwhile, there were several other external sector policies adopted during the crisis to build up official reserves and to support the economic stimulus with the improvement of the BOP. Measures were taken to attract more remittances to the country by way of offering bonus interest to NRFC accounts and RFC accounts and by promoting Sri Lanka Development Bonds among the Sri Lankan Diaspora. At the same time, there were restrictions imposed on margin requirements against letters of credit. Meanwhile, several prudential measures too were taken to safeguard stability including intensification of the extended margin deposit requirements on vehicle imports and imposing higher deposit requirement on imports considered as non-essentials. With the improvement of

the reserve position, those measures were removed. In November 2010, the Central Bank relaxed foreign exchange regulations further relating to investments by Sri Lankans abroad, foreign borrowings by resident companies and investment by non-residents in the domestic market (See Table 3.1).

3.3.4 Financial System Safeguard Measures

Since the capital account is not yet fully liberalised in Sri Lanka and many local banks do not trade in complex derivative instruments, the direct impact of the crisis on the financial sector was minimum. The Basel Committee on Banking Supervision (BCBS) has observed a number of reasons for the global financial crisis such as excessive on- and off-balance sheet exposure of banks to unregulated businesses and complex structured products markets, gradual erosion of the quality of the bank's capital and insufficient liquidity buffers of many banks (Central Bank : Annual Report, 2009). Hence, BCBS has decided on several changes to the current regulatory framework and the CBSL has issued guidelines to the commercial banks accordingly. In 2009, the CBSL introduced new prudential regulations and several amendments to the existing regulations to licensed banks such as foreign exchange risk management, strengthening the minimum capital requirements and measures were made to improve the resilience of the non-bank financial institutions (see Table 10).

3.3.5 Communication Policy

Clear communications by the central banks make their policies more effective. Central banks the world over capitalised on their communication policies more effectively to address the market and align the expectations of the market players with that of the central bank. Sri Lanka was not an exception. The Road Map presented by the Central Bank at the beginning of each year announces its monetary policy strategy for the coming year and for the medium term. In addition, the Central Bank continued to address the market by their monthly monetary policy press releases by explaining the rationale for the monetary policy actions taken by the Monetary Board. On the financial crisis, presentations were made by the Governor and senior officers of the CBSL to various segments of people, including journalists, parliamentarians, CEOs of financial institutions as well as the general public, outlining the resilience of the country and measures taken to address the issues.

Table 11
Policy Measures Adopted during the Crisis Period and their Objectives

Policy	2008 Q 3 - 2010 Q2
Monetary Policy	1. To stabilize the domestic money and credit market the Central Bank injected rupee liquidity. Reduce SRR applicable to all rupee deposit liabilities with effect from October 2008 and was further reduced in November 2008 and February 2009. CBSL also purchased Treasury bills from the primary and the secondary market to inject liquidit y. May 2009, removed restrictions on access to its reverse repo standing facility at the Reverse Repo rate . The penal rate of interest charge on reverse repurchase transactions with the CBSL was reduced by 200 basis points. In January 2009 and it was further reduced on a few occasions and finally removed with effect from May 2009. All the restrictions on overnight Repu rchase and Reverse Repurchase Transactions were removed and policy rates were reduced. 2. Banks were advised to expand credit to the private sector based on the evaluation of the credit risk in order to facilitate economic activities. 3. Since June 2009, with the reversal of capital flows there was a turnaround in rupee liqui dity. CBSL expanded the instruments available for liquidity absorption. CBSL issued its own securities and introduced foreign exchange swaps.
Fiscal Policy	1. Fiscal Stimulus Package Announced two fiscal stimulus packages in December 2008 and May 2009 to safeguard the exporters, industrialists and tourism sector.
	2. Fiscal Consolidation Measures & Tax Reforms Tax reforms were introduced in 2010 to stimulate the economy and to improve the revenue collecti on with a lag effect. Fiscal consolidation measures were implemented to address the high budget deficit.
Financial System Safeguard Measures	1. Directions on corporate governance were issued to leasing companies to promote a healthy and robust Risk Management Framework. 2. In 2009 & 2010, CB issued several amendments to existing regulations to licensed banks. Banking Act direction No. 1 of 2010 LCBs - Classification of Loans & Advances Banking Act direction No. 2 of 2010 LCBs - Classification of Loans & Advances Enhancement of minimum capital requirement for LCBs and LSBs. Sri Lanka Deposit Insurance Scheme. Directions on risk management relating to foreign exchange business of LCBs were issued.

Policy	2008 Q 3 - 2010 Q2
External Sector Policies	1. Foreign Exchange Management Though the exchange rate was to be principally determined by the market forces, CB intervened to avoid higher volatility in the market. 2008 Q4 - 2009 Q2 to moderate currency depreciation in the presence of high capital outflows. With the reversal of capital flows, CB intervened in the market to moderate currency appreciation. Other Policies: Margin requirement against letters of credit against some imports to safeguard the reserve position. Bonus interest is offered for NRFC and RFC accounts. Measures were taken to relax capital controls in identified se ctors with the improvement of reserve position to stimulate the economy. Permit foreigners to invest in rupee denominated debentures issued by local companies. Expedition of approvals for foreign companies to borrow from foreign sources. Permission for foreign companies to open places of business in Sri Lanka. Permission to foreigners on tour or business in Sri Lanka to open accounts in foreign currency.
Communication Policy	Communication Policy of the Central Bank was effectively utilized to align the expectations of market players. The Road Map - Announced its Monetary Policy Strategy for the forthcoming year. Monthly Press Releases - to communicate its Monetary Policy decisions and presentations by the higher level Central Bank officers to convince the market

Source: Central Bank of Sri Lanka

4. Relative Effectiveness of Policy Choices – Econometric Model

This section aims to develop an econometric model to capture the long-run and short-run dynamics of economic policies which are used to stimulate the economic activities.

4.1 Rationale

To examine the relative effectiveness of monetary and fiscal policies on economic growth, the Engle and Granger two-step estimating procedure is used and co-integration and Error Correction Model (ECM) is followed.

The monetary policy affects the economic growth through the quantity of money supply where the theory is described by the Quantity Theory of Money. The equation of the quantity theory of money is formed as follows,

$$MV = PY \quad (1)$$

M refers to money stock and V is the velocity of money, P denotes the price level and Y is the national income. If velocity is considered constant, the change in the stock of money affects the change in value of the national income.

$$M = kPY \quad (2)$$

The fiscal policy can affect the economic growth through change in aggregate demand which could be explained through the role of the government expenditure.

$$Y = C + I + G + (X - M) \quad (3)$$

4.2 Model Specification, Data and Limitations

The empirical model to analyse the relative effectiveness of economic policies is designed to capture the relationship between economic growth and monetary policy and economic growth and fiscal policy and other control variables.

$$Y_t = f(MP_t, FP_t, Z_t) \quad (4)$$

Y denotes output, MP is measure of monetary policy, FP denotes fiscal policy and z is other control variables which affect output.

The general form of the Error Correction Model specification is formed as follows,

$$\Delta Y_t = \sum_{i=1}\sum_{k=0} \beta_{1ki} \Delta X_{jt-k} + \sum_{k-0} \beta_{2k} \Delta Y_{t-k-1} + \lambda Z_{t-1} + \varepsilon_t \quad (5)$$

Y= output
X= consists of monetary variables, fiscal variables
Z= other control variables
n= number of explanatory variables in the model

Variables used in the model are as follows.
Growth: GDP real and GDP nominal
Fiscal: Government revenue, government expenditure and fiscal deficit
Monetary: M1, M2
US GDP in real terms to measure US economic growth

Data

The data used in this analysis are obtained from the various issues of the Annual Reports of the Central Bank of Sri Lanka. The quarterly GDP from 1990 to 1996 for which data are not available, is derived from the annual data using a seasonal index. The series are transformed into logarithm term except the overall budgetary balance. The following time series are analysed: real GDP (GDPR), nominal GDP (GDPN), and government expenditure (EX), government revenue (REV), budget deficit (BD), M1, M2 and US GDP.

4.2.1 Test for Non-stationary and Unit Root Tests

To avoid the problem of spurious regression and the failure to account for the appropriate dynamic specification, this study, first, performs unit roots tests on the variables. The examination of stationarity or non-stationarity in a time series is closely related to the test for unit roots. A number of alternative tests are available for testing whether a series is stationary. Among them, the Dickey-Fuller (DF), the Augmented Dickey-Fuller (ADF) and the Philips-Person (PP) tests are the most common. In this study we consider the order of integration (or stationary) of each series using the ADF unit root tests. The tests for integration of order zero I (0) are carried out on the levels of the variables and the tests for integration of I (1) are carried out on the first difference of the variable. The ADF test equation is re-run with different lag lengths, and including constant and trend, or only constant, or only trend, and without constant and trend.

Table 11
Unit Root Test Results

Variable	Level				First Difference			
	ADFstatistic	p value	PP statistic	p value	ADF	p value	PP statistic	p value
Real GDP	1.3792	0.9571	3.689531	0.99990	-10.19938	0.0000	-10.56983	0.0000
M1	6.0446	1.0000	21.97062	1.00000	-6.115193	0.0000	-6.213581	0.0000
M2	15.4480	1.0000	13.11945	1.00000	-3.04114	0.0028	-5.409185	0.0000
Revenue	2.5110	0.9969	3.345461	0.99970	-11.6557	0.0000	-13.89802	0.0000
Expenditure	2.8872	0.9989	8.223041	1.00000	-9.96628	0.0000	-9.941805	0.0000
Budget deficit	-0.3130	0.5699	1.513517	0.96710	-14.06187	0.0000	-17.2392	0.0000

The ADF and PP tests both show that all the variables are integrated at first difference, hence variables are I (1). Thus, the next step is to test for possible co-integration relationship among variables.

4.2.2 Test for Co-integration

Co-integration is a statistical implication of the existence of a long-run relationship between variables or co-movement of time-series data. If more variables move closely together, even if they themselves are trended, the difference between them is constant. From a statistical point of view, a long-run relationship means that the variables move together over time so that short-run disturbances from the long-run trend will be corrected (Manning and Andrianacos, 1993). In other words, a lack of co-integration indicates that such variables have no long-run relationship. The standard approach to investigate both the long-run relationship and short-run dynamic between the economic variables is the co-integration analysis and its error correction model (ECM) representation.

In this study following the Engle and Granger two-step method, the estimated OLS equation is as follows. (See OLS regression results in Annex 1)

LGDPR = 8.175259+0.564843LEX-0.177576 LM2

(81.07606)* (8.076740)* (-2.892704)*

R2 = 0.955286

F = 843.8980

* = 1% significant

The residual we obtained from the OLS is tested for unit roots in levels and the following result is obtained. The P value of residual unit root test is below 0.05 %, then real GDP, M2, Ex are said to be co-integrated.

Table 13

Null Hypothesis: ECM_RES has a unit root
Exogenous: None
Lag Length: 4 (Automatic based on SIC, MAXLAG=11)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.965104	0.0035
Test critical values:	1% level	-2.595340	
	5% level	-1.945081	

*MacKinnon (1996) one-sided p-values.

4.2.3 Error Correction Model

The existence of one co-integration vector among the variables implies that an ECM can be estimated. The ECM approach used here is useful to see the short-term adjustment of GDP to monetary and fiscal policy measures.

The error correction mechanism is as follows,

$$\Delta GDPR_t = \sum_{i=1}\sum_{k=0} \beta_{1ki} \Delta X_{jt-k} + \sum_{k-0} \beta_{2k} \Delta GDPR_{t-k-1} + \lambda Z_{t-1} + \varepsilon_t \qquad (6)$$

With the general to specific approach to several combinations of co-integrated variables and lags we found the best model as follows. (See Annex 2 for the general model)

Table 14

Dependent Variable: LGDPR
Method: Least Squares
Date: 05/26/11 Time: 10:01

Included observations: 77 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.169047	0.305340	-0.553636	0.5816
LGDPR(-1)	1.009770	0.024609	41.03276	0.0000
LDM2(-4)	1.474161	0.401212	3.674266	0.0005
LDEX	0.396535	0.082899	4.783363	0.0000
LDEX(-1)	-0.170646	0.071492	-2.386927	0.0197
ECM(-1)	-0.719721	0.109256	-6.587481	0.0000

R-squared	0.963569	Mean dependent var	12.31754
Adjusted R-squared	0.961003	S.D. dependent var	0.266418
S.E. of regression	0.052611	Akaike info criterion	-2.977063
Sum squared resid	0.196522	Schwarz criterion	-2.794429
Log likelihood	120.6169	Hannan-Quinn criter.	-2.904011
F-statistic	375.5766	Durbin-Watson stat	2.077624
Prob(F-statistic)	0.000000		

4.3 Analysis of Results

The empirical results show that real GDP co-integrates with the money supply and fiscal expenditure. The results of the Error Correction Model suggests that in the short run the changes in real GDP is significantly affected by the changes in money supply in a lag of 4 quarters and the previous quarter real

GDP changes and changes in fiscal expenditure and previous quarter changes in fiscal expenditure. However, the change in money supply is more effective compared with the fiscal variable in increasing real GDP. This finding is acceptable due to limited fiscal space in a country like Sri Lanka where monetary policy is more effective in boosting the output level. ECM suggests that in the short run, the model reaches equilibrium earlier than two quarters where monetary and fiscal policy are both effective in addressing an economic downturn.

5. Way Forward

5.1 Current Development and Outlook

The Sri Lankan economy realised a high growth rate of 7.6% during the first half of 2010 indicating the signs of economic recovery. With the gradual resumption of both domestic and global demand, the industrial sector grew by 8.0%. The agricultural sector grew by 7.2%. The services sector recorded a growth of 7.5% benefiting from the high growth realised from the wholesale and retail trade, transport, banking & finance, tourism and telecommunications. The developments in the growth prospects were revealed by the positive improvement in private sector credit growth which indicates higher growth in financial services and the growth realised from international trade. Exports and imports both recovered with the gradual pick-up of both the domestic and global economies. The external current account recorded a deficit mainly due to a widening trade deficit. The exchange rate policy in 2010 was focused on maintaining stability in the domestic foreign exchange market. The rupee appreciated by 3.09% in 2010.

Inflation and inflation outlook of the country remain low. Vigilant monetary policy, measures taken for fiscal consolidation, strong domestic supply conditions contributed to this favourable price development. Annual average inflation accounted for 5.9% in 2010. However, the rapid growth in credit demand by the private sector could result in higher monetary expansion and could create demand pressure in the economy. The CBSL relaxed its monetary policy stance further, reduced repurchase rate and reverse repurchase rate thereby reducing the width of the policy interest rate corridor. Market liquidity has been continuously in excess due to the purchase of foreign exchange by the CBSL. The Central Bank continued to mop up excess liquidity continuously. Excess liquidity and further addition of rupee liquidity to the market could make the conduct of monetary policy challenging in the future.

Chart 18

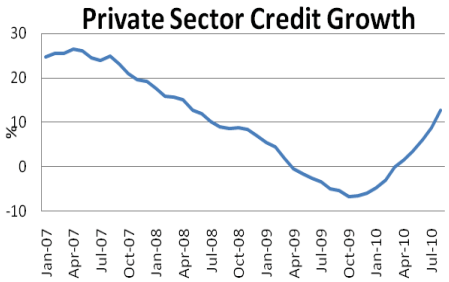
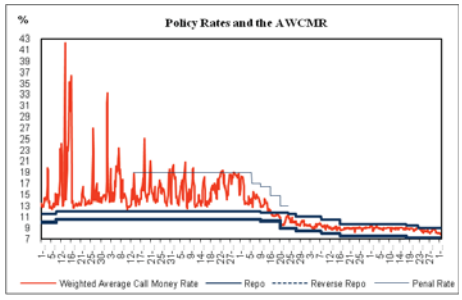


Chart 19



5.2 Exit Strategy

5.2.1 Fiscal Policy

Though there is a short-run gain in fiscal stimulus, it generates a long-run pain if withdrawal of the fiscal stimulus is not made on time. Hence, economists argue that as the fiscal stimulus has to be made on time, exit strategies are also to be implemented on time to maintain the fiscal sustainability. In the case of Sri Lanka, though the fiscal stimulus package is relatively small compared to other countries, an exit strategy is rather important in the presence of its high fiscal deficit. The Fiscal Authority has taken measures for greater fiscal consolidation by gradually removing the concessions provided to the industrialists and exporters such as waiver on FAC. Furthermore, tax reforms were introduced in early 2010 and by the budget 2011 to stimulate the economy and to generate more revenue in the medium term.

5.2.2 Monetary Policy

The capital inflows to Sri Lanka amplified with the end of the three decades long civil war, approval of IMF SBA facility and improvement of its sovereign rating. Added to these monetary policy measures implemented to improve the market liquidity during the crisis, the increase in liquidity due to capital inflows prompted the Central Bank to absorb excess liquidity from the domestic market. The excess liquidity and expansion of credit to the private sector may pose an inflationary pressure in the economy in the coming years. However, it is important to sustain the current low inflation regime in order to move into a high and sustainable economic growth path. Hence, a demand management effort of the CBSL has to be accompanied by fiscal consolidation measures to maintain the price level at a tolerable level. High government dependence on bank borrowings may crowd out private sector investments. Hence, borrowings by the government

and public corporations from the banking system have to be contained by continuation of ongoing fiscal consolidation efforts and reforms introduced to the public corporations.

The CBSL relies on monetary targeting to achieve its ultimate objective of price stability. However, it is evidenced that the statistical relationship between money and inflation, has destabilised with the advancement of financial systems in many countries. Hence, countries have moved to an alternative monetary policy regime, mostly to an inflation targeting regime, considering its effectiveness in achieving price stability. The CBSL has identified this issue and measures are being formulated to adopt a more dynamic policy to secure a low inflation in the long run. In this new framework, it is expected to focus more on economic developments that could have short-to medium-term implications for the economy, in formulating monetary policy within the monetary targeting framework. In this new approach, a comprehensive review of the economy consisting of an economic analysis and a monetary analysis would play a vital role in the monetary policy decision making process.

6. Conclusion and Policy Recommendations

It is evident that Sri Lanka being a small, external trade-oriented economy was badly hit by the global financial crisis. The main transmission channel of the crisis was the slow- down in external demand and sudden withdrawal of short--term capital from short-term investments. As discussed in the empirical analysis, it is noted that fiscal policy and monetary policy both have been effective in stimulating economic growth.

The resilience of an economy depends on strong economic fundamentals to withstand an external shock. The resilience of an economy is driven by several factors such as higher political stability, diversity of economic base, soundness of the financial sector, flexibility of an economy and the capacity of policy to respond actively. Political instability could amplify a shock. A strong financial sector can help absorb the external shocks if the banking sector is strongly capitalised and prudently managed. Diversity of economic base is critical as trade dependence, domestic and external dependence affect the aggregate demand of an economy. Sound social safety nets programmes and flexible labour rules such as downward adjustment of salaries in place determine the flexibility of an economy to overcome the crisis. Strengthening of monetary anchor and availability of fiscal space to stimulate the economy determines the capacity of economic policies to respond actively in a crisis situation.

As Sri Lanka has entered into a new era with a majority government after ending three decades of civil war, economic reforms are critical at this stage for the country to enter into a high and sustainable economic growth path. Hence, based on the factors discussed above, the following policy recommendations are made to improve the economic resilience of the Sri Lanka economy.

- Need to build resilience through counter-cyclical macroeconomic policies.

  1. Re-visit the monetary policy framework, monetary aggregated targeting to interest rate targeting to target inflation and to improve the policy effectiveness in the long run.

  2. Harness the peace dividend strategically to attract FDI which are long-term foreign investments to safeguard the reserve position.

  3. Possible over–heating of the economy if the added capacity is not properly utilised with the liberation of the Northern and Eastern regions.

  4. Fiscal consolidation measures to be continued such as reform of state-owned enterprises, target subsidies and continuation of revenue enhancement measures.

- Diversification of the economic base, specifically, diversification of industrial base, export base and trade dependence.

- Speed up infrastructure development in the country, i.e., public expenditure on infrastructure financing to be continued to address the infrastructure bottlenecks in the economy.

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Annex 1

OLS Equation Test Results

Dependent Variable: LGDPR

Method: Least Squares

Date: 05/26/11 Time: 09:46

Sample: 1990Q1 2010Q2

Included observations: 82

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.175259	0.100834	81.07606	0.0000
LM2	-0.177576	0.061388	-2.892704	0.0049
LEX	0.564843	0.069935	8.076740	0.0000

R-squared	0.955286	Mean dependent var	12.29064
Adjusted R-squared	0.954154	S.D. dependent var	0.279320
S.E. of regression	0.059807	Akaike info criterion	-2.759492
Sum squared resid	0.282572	Schwarz criterion	-2.671441
Log likelihood	116.1392	Hannan-Quinn criter.	-2.724141
F-statistic	843.8980	Durbin-Watson stat	1.337140
Prob(F-statistic)	0.000000		

Annex 2

ECM – General Model

Dependent Variable: LGDPR

Method: Least Squares

Date: 05/26/11 Time: 09:50

Sample (adjusted): 1991Q2 2010Q2

Included observations: 77 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.407401	0.317815	-1.281884	0.2045
LGDPR(-1)	1.026078	0.025466	40.29255	0.0000
LDM2	0.674181	0.409821	1.645063	0.1049
LDM2(-1)	0.335732	0.421157	0.797167	0.4283
LDM2(-2)	0.228639	0.427103	0.535325	0.5943
LDM2(-3)	0.469611	0.418781	1.121376	0.2663
LDM2(-4)	0.982408	0.432246	2.272801	0.0264
LDEX	0.301717	0.103021	2.928686	0.0047
LDEX(-1)	-0.210338	0.124601	-1.688093	0.0963
LDEX(-2)	-0.158978	0.124870	-1.273149	0.2076
LDEX(-3)	0.036509	0.117921	0.309604	0.7579
LDEX(-4)	0.015324	0.099854	0.153459	0.8785
ECM(-1)	-0.703137	0.122238	-5.752216	0.0000

R-squared	0.969868	Mean dependent var	12.31754
Adjusted R-squared	0.964218	S.D. dependent var	0.266418
S.E. of regression	0.050396	Akaike info criterion	-2.985085
Sum squared resid	0.162542	Schwarz criterion	-2.589377
Log likelihood	127.9258	Hannan-Quinn criter.	-2.826805
F-statistic	171.6663	Durbin-Watson stat	2.100522
Prob(F-statistic)	0.000000		

Chapter 9

THE RELATIVE EFFECTIVENESS OF POLICY CHOICES DURING FINANCIAL CRISIS IN CHINESE TAIPEI

By
Hue-Heng Tao*

1. Introduction

The current global financial crisis emanated from the sub-prime mortgage crisis that erupted in the US in mid-2007. It extended into 2008 and in September entered a new phase of disorder following the bankruptcy of Lehman Brothers. With globalisation prevailing in the financial services industry, the impact of the crisis has spread out from the US to other countries, as well as from the financial sector to the real economy. Furthermore, it resulted in a vicious circle with an adverse feedback loop between the financial system and the real economy.

An economy's ability to absorb shocks depends on the strength of its economic fundamentals. Chinese Taipei is an export-oriented economy and foreign trade has played a vital role in its economic development over the past years. The international trade activity has contributed to Chinese Taipei's economic growth for around 60-70% in recent years, underlining the importance of international trade in its economic development. Due to resource deficiency, Chinese Taipei has devoted to promoting the services industry and the information technology (IT) industry for a long time. Currently, the services sector dominates Chinese Taipei's economy, making up nearly 70% of the GDP. As a global leader in IT production, the export share of IT products in Chinese Taipei has remained at around 30% in recent years, the highest share among all its export categories.

The World Trade Organisation (WTO) statistics indicate that Chinese Taipei was the 17th leading exporter and the 18th leading importer in the world in 2009. Chinese Taipei's export-led growth has left it particularly vulnerable to changes in the international economic system. Chinese Taipei's external trade grew steadily from its vigorous trade relations with the Asian nations in 2007, despite a global economic slowdown caused by the sub-prime mortgage crisis in the U.S. Chinese

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Taipei's economic growth accelerated to 5.98% in 2007 from 5.44% in the previous year.

As surging international commodity prices and a typhoon-induced vegetable price hike weighed on inflationary pressure, the CPI rose by 1.80%, a moderate level compared to other economies. The unemployment rate was 3.91% in 2007, the same level as in the previous year, and the lowest since 2001.

In 2007, the major driving forces behind Chinese Taipei's economic growth were strong exports and a pick-up in private investment and consumption. External demand contributed 4.65 percentage points to economic growth. At the end of 2007, although the current account surplus reached a record high to US$33 billion, it was less than the net outflow on the financial account. The balance of payments thus exhibited a relatively small deficit. The foreign exchange reserves amounted to US$270.3 billion at the end of 2007, a US$4.2 billion increase from the end of 2006 and sufficient to cover 14.8 months of imports. The increase was mainly attributed to a current account surplus, foreign capital inflows and a higher return on investment of foreign exchange reserves.

Chinese Taipei's primary deficits shrank considerably from 2004, falling to a low of US$1.40 billion (0.35% of GDP) at the end of 2007. As the public sector relied on debt issuance to finance debt servicing expenditures, the outstanding public debt of the central and local governments increased steadily over the past decade and stood at US$131 billion in 2007, up slightly from US$128 billion as of the end of 2006. The ratio of outstanding public debt to annual GDP fell back to 33% in 2007, well below the internationally recognised warning level of 60%, mainly due to sustained economic growth. As for monetary management in 2007, the CBC (Central Bank, Chinese Taipei) focused on continuing the gradual pace of policy tightening, absorbing excess liquidity in the banking system, promoting preferential loans, and enhancing the financing mechanism for small and medium-sized enterprises (SMEs). To maintain price stability and promote sustainable economic growth, the CBC utilised the fine-tuning policy to bring down the domestic inflationary risks that resulted from the global run-up in energy and raw material prices. The discount rate was raised 8 times during 2006-2007 by a total of 112.5 basis points to the levels of 3.375%. (See Table 1a for the key indicators measuring vulnerability of economy to external shocks, and Table 1b for the key indicators on financial institutions soundness.)

In the second half of 2008, the impact of global financial turmoil resulted in downside risks to the global economy. Chinese Taipei did not have the toxic asset exposure that the U.S did, but because its economy is closely tied to the

U.S economy, it is easily damaged by a global recession. However, as a result of the fiscal and monetary stimulus in many countries, the international financial markets are stabilising and the global economy has been recovering gradually since the beginning of 2010. Against the backdrop of a recovering global economy, Chinese Taipei's domestic economic activity has steadily picked up and has expanded strongly by 12.86% in the second quarter of 2010. Furthermore, Chinese Taipei forecasted its GDP growth rate for 2010 at 9.98%. The CBC has gradually removed its quantitative easing policy since the second half of 2009, and the government has been working to facilitate a Plan to Enhance the Soundness of the Housing Market, which was announced in April 2010.

The recovery of the global economy has strengthened in early 2010, but it is still at risk from several causes, such as the surging capital inflows in the emerging-market economies and volatility in the sovereign debt market. However, the data so far support the importance of Chinese Taipei's economic power to preserve its stance on the world stage (Table 2).

The remainder of this paper is organised as follows. Section 2 examines the impact of the crisis on Chinese Taipei for three different periods: (1) before crisis; (2) during crisis; and (3) current development. Section 3 describes the policy options available and the rationale for choosing a particular policy mix that was adopted by the monetary authorities and the government. This will cover monetary policy and other macroeconomic policy measures adopted by the authorities. Section 4 examines the relative effectiveness of both monetary and fiscal policies on economic growth by using the Error Correction approach of analysing economic time series data. Section 5 reviews the important issues in the formulation of timely and sequential exit strategy for the policies in place. The conclusion is provided in Section 6.

Table 1a
Key Indicators Measuring Vulnerability of Economy for External Shocks

Indicator	1996		2007	
	(In US $ Billions)	% of GDP	(In US $ Billions)	% of GDP
GDP (Current) in billion US$	287.91	--	393.13	--
Exports of Goods and Services	117.65	40.86	246.68	62.75
Foreign Currency Reserves	88.04	30.58	270.31	68.76
Imports of Goods and Services	100.11	34.77	219.25	55.77
Average Monthly Imports	8.34	2.9	18	4.58%
Months of Imports Covered	10.6 months	--	14.8 months	--
Balance on Current Account	10.92	3.79	32.98	8.39
Total Government Debt	70.52	24.49	130.99	33.32%
Foreign Debt	N.A.	--	94.53	24.05
Composition of External Liability Short term Long term	N.A.	--	94.53 83.28 11.24	24.04 21.18 2.86
Debt Service Payment (foreign)	N.A.	--	6.71	1.71
Primary Balance (Fiscal Deficit)	-8.73	-3.02%	-1.40	-0.35

Table 1b
Key Indicators on Financial Institutions Soundness

Category	**Sub-category**	**Data** (End of 2007)
Bank soundness (domestic banks)	Avg. NPL ratio	1.83%
	Avg. NPL coverage ratio	64.07%
	Avg. capital adequacy ratio	10.80%
	Avg. ratio of Tier I capital to risk-weighted assets	8.50%
	Avg. ROA	0.28%
	Avg. ROE	4.32%
	Loan/deposit ratios	78.70
Bank efficiency	Bank assets as share of GDP	226.45%
	Bank output as share of GDP	5.6%
	Financial services output as share of GDP	9.25%

Table 2
Real GDP Growth – by Expenditure Components (%)

Year	Economic growth rate	Domestic demand			Net foreign demand	
		Consumption		Gross fixed capital formation	Exports of goods & services	Imports of goods & services
		Private	Gov't			
2005	4.70	2.90	0.19	2.66	7.78	3.16
2006	5.44	1.49	0.71	0.07	11.41	4.57
2007	5.98	2.08	2.09	0.55	9.55	2.98
2008	0.73	-0.57	0.68	-11.17	0.56	-3.12
2009	-1.93	1.08	3.88	-11.01	-8.71	-12.83
2010(f)	9.98	3.43	0.88	23.12	24.35	27.27
2008 Q1	6.88	2.14	1.32	3.60	12.37	9.51
Q2	5.38	0.65	1.68	-9.32	9.12	-0.47
Q3	-0.80	-2.78	-0.54	-14.65	1.87	-2.34
Q4	-7.11	-2.18	0.49	-21.85	-17.93	-17.94
2009 Q1	-8.56	-2.12	4.11	-28.79	-25.53	-32.86
Q2	-7.23	-0.75	3.20	-21.79	-17.20	-18.87
Q3	-1.21	2.01	4.44	-6.09	-8.29	-11.04
Q4	9.24	5.30	3.79	15.49	19.66	16.08
2010 Q1	13.59	3.02	2.91	28.61	39.11	49.32
Q2	12.86	4.32	1.33	31.98	32.89	34.04

Source: Directorate General of Budget, Accounting and Statistics (DGBAS), R.O.C.

2. Impact of Global Financial Crisis on Chinese Taipei

This section reviews the impact of the global financial crisis on Chinese Taipei for three periods: (1) the first-round effects (Q1- Q3:2008); (2) the second-round effects (Q4:2008 - Q2:2009); and (3) the current developments (Q3:2009 - Q2:2010).

2.1 First-round Effects (Q1-Q3:2008)

2.1.1 Economic Growth Slowed

Chinese Taipei's economy exhibited resilience supported by a sustained current account surplus, ample foreign exchange reserves and strong short-term external debt servicing capacity despite increases in the scale of its external debt. The robust export growth helped Chinese Taipei's economic growth reach 5.40% in the first half of 2008. However, as the momentum in export growth waned in the face of the global economic downturn, along with sluggish consumer

spending and lackluster private investment, Chinese Taipei's economy turned to a negative growth of 0.8% in the third quarter of 2008 (Table 2, Figure 1).

2.1.2 Unemployment Rate Trended Upward

Chinese Taipei's labour market witnessed an unfavourable trend of rising unemployment rates amid an economic slowdown under the impact of the global financial crisis in 2008. In the first half of the year, employment grew at a healthy pace with steady economic expansion. However, the labour market softened from September, with slower employment growth and increasing unemployment rates. The average unemployment rate for 2008 stood at 4.14%, the highest level since 2005 (Figure 2).

2.1.3 Current Account Remained in Surplus, and Foreign Exchange Reserves Stayed Sufficient

For the first three quarters of 2008, the current account showed a surplus of US$17.43 billion, the financial account exhibited a net outflow of US$4.74 billion, and the overall balance registered a surplus of US$13.31 billion, reflecting an increase in the Bank's reserve assets (Figure 3).

For the third quarter of 2008, in terms of the current account, exports and imports reached the second highest and the highest quarterly figures, respectively. Exports grew by 7.7% in value from the same period of the previous year, bolstered by a steady increase in exports to neighbouring Asian economies. Imports expanded by 20% year-on-year due to a substantial increase in imports of crude petroleum and other minerals as well as iron and steel products. Goods trade recorded a surplus of US$1.51 billion, a large decrease of US$6.39 billion, or 80.9%, compared to the same period of the previous year.

The financial account balance tends to be more volatile because capital flows are sensitive to the changing domestic and global economy as well as market conditions. For the third quarter of 2008, with regard to the financial account, both direct and portfolio investment showed net outflows with respective values of US$1.19 billion and US$11.06 billion. Residents' portfolio investment abroad turned into a net inflow of US$4.17 billion, the first net inflow since the fourth quarter of 1990, as residents liquidated their investment in foreign financial products amid the global financial turmoil. Non-residents' portfolio investment hit the largest quarterly net outflow on record at US$15.23 billion. This was primarily because foreign institutional investors slashed their holdings of local stocks and government bonds to inject funds into their parent companies or to

meet redemption pressures from fund investors. Other investment exhibited a net inflow of US$5.74 billion, as the private sector withdrew overseas deposits and the banking sector brought in funds from their overseas branches.

External debt reached US$107.5 billion at the end of September 2008, fueled by a significant rise in private short-term debts that mainly emanated from the increased deposits of overseas correspondent banks and foreigners. Meanwhile, the ratio of external debt to annual GDP stood at 26.78%, still far lower than the internationally recognised warning level of 50%. In addition, the external debt as of the end of September 2008 was equivalent to 39.45% of annual exports, higher than the 38.32% registered at the end of 2007. Nevertheless, export revenues were still sufficient to cover external debt, and there was no clear sign of pressure on external debt servicing capacity.

With sizable foreign capital inflows, Chinese Taipei's foreign exchange reserves grew substantially in the first half of 2008 and reached a peak of US$291.4 billion as of the end of June. The outstanding amount, however, trended generally downward as a result of net foreign capital outflows in the third quarter, and declined to US$281.1 billion at the end of September, slightly up 4% from the end of 2007. Nevertheless, the foreign exchange reserves remained adequate, enough to cover 12.91 months of imports, while the ratio of short-term external debt to foreign exchange reserves registered 33.35% at the end of September 2008. These data indicated that Chinese Taipei has built up a strong capacity through the accumulation of reserves to meet payment obligations for imports and to service short-term external debt (Figure 4).

2.1.4 NT Dollar Exchange Rate Reversed from Appreciation to Depreciation

The NT dollar exchange rate is in principle determined by market forces. Nevertheless, excess volatility and disorderly movements in exchange rates have adverse implications for economic and financial stability. Hence, when seasonal or irregular factors (such as massive flows of short-term capital) cause the NT dollar exchange rate to become more volatile than can be explained by the economic fundamentals, the CBC will step in to maintain an orderly market.

After a dramatic appreciation in the first quarter of 2008, the NT dollar exchange rate generally moved in a narrow range between 30 and 31 against the US dollar in the second quarter, but then depreciated to 32.13 at the end of September, a 5.53% drop compared to the end of June, or a rise of 0.97% compared to the end of 2007. The NT dollar exchange rate turned into

depreciation due mainly to continued foreign capital outflows from the Chinese Taipei stock market and the rebound of the US dollar caused by sizable international capital inflows into the US to address a worsening financial crisis. The depreciation of the NT dollar has not only alleviated the pressure of foreign exchange losses faced by financial institutions, but has also helped to enhance the competitiveness of export industries (Figure 4).

2.1.5 Stock Prices Fell and Fluctuated Sharply

Motivated by the developments of cross-strait economic and trade issues after the presidential election in March 2008, the Chinese Taipei Stock Exchange Weighted Index (TAIEX) of the Chinese Taipei Stock Exchange (TWSE) market trended upward and reached a high of 9,295 in mid-May 2008. Afterward, affected by the global stock market crash, poor performance of the domestic economy, and massive sell-off from foreign investors, the TAIEX slumped to a low of 4,090 in the second half of 2008. Compared to the major stock markets around the world, Chinese Taipei was one of the hardest-hit markets, but the fall in its stock price index in 2008 was smaller than those in Hong Kong, Singapore, Thailand and Shanghai. The TAIEX stood at 5,719 at the end of September, down 38.47% compared to its highest closing level in 2008 (Figure 5).

2.1.6 Market Liquidity Continued to Remain Ample

Against the backdrop of weak demand for funds, liquidity in the financial system continued to remain ample and reserve money grew at a modest pace. With respect to monetary aggregates, the daily average of M2 grew by 2.67% in 2008, a slower pace than the 4.25% of the preceding year, mainly reflecting net capital outflows and the sluggish growth in bank loans and investments. However, the growth rate of M2 still fell within the target zone of 2% - 6% set by the CBC (Figure 6).

2.1.7 Domestic Banks Maintained Satisfactory Asset Quality and Adequate Capital Level

Domestic banks were subject to declining profitability in the first half of 2008, while asset quality continued to be improved. The average capital adequacy ratio rose slightly, whereas only a few banks had ratios below the statutory minimum. The average external credit ratings of domestic banks increased slightly on the whole. Domestic banks held ample liquidity, except for a few banks that were faced with a temporary problem of insufficient liquidity in the

second half of 2008. However, the liquidity tensions in these banks have since eased.

Domestic bank credit exposures at the end of June 2008 remained concentrated in the real estate market as well as in the electronics and electrical machinery manufacturing sectors. Credit risk appeared to increase as the real estate market turned to a slowdown and the global economy worsened. In respect to market risks, the VaR (value at risk) for equity risk increased as a result of the sharp fluctuations in the stock market in the third quarter of 2008. However, the impact on the domestic banks was limited due to their relatively small positions. The VaR for interest rate risk and foreign exchange risk once rose owing to the higher volatility in these markets. Nevertheless, both of them declined substantially when the markets gradually stabilised at the end of September 2008, leading to a considerable decrease in total VaR on domestic banks as a whole compared to the end of the previous year.

2.2 Second-round Effects (Q4:2008- Q2:2009)

2.2.1 Sharp Contraction of Real GDP and a Higher Unemployment Rate

After the collapse of Lehman Brothers in September 2008, the global financial crisis battered economies worldwide. Chinese Taipei's economy which depends heavily on external demand has contracted significantly since the second half of 2008. Following a 7.11% negative growth in the fourth quarter of 2008, Chinese Taipei's real GDP still shrank a record 9.06% in the first quarter of 2009, largely due to a sharp fall in export and private investment spending. For 2009, Chinese Taipei's real GDP contracted by 6.85% in the second quarter, better than the first quarter (Table 2, Figure 1).

Chinese Taipei's labour market softened from September 2008, mainly attributable to a weakened economy at home and abroad. Chinese Taipei's unemployment rate in 2009 reached 5.85%, up by 1.71% from 2008 (Figure 2).

2.2.2 Current Account Remained in Surplus; Financial Account Exhibited a Net Inflow; Foreign Exchange Reserves Stayed Sufficient

For the first half of 2009, the current account showed a surplus of US$22.59 billion, the financial account exhibited a net inflow of US$3.88 billion, and the

overall balance registered a surplus of US$24.71 billion, resulting in an increase in the Bank's reserve assets (Figure 3).

Due to the rapid slowdown in the international economy caused by the global financial tsunami, Chinese Taipei's exports declined for fourteen consecutive months since September 2008. The worst situation ended in the last quarter of 2009 with exports amounting to US$59.8 billion, an increase of 8% compared with the previous 3 quarters of consecutive growth, though it has not fallen back to the 2008 level.

For the second quarter of 2009, the overall balance of payments registered a surplus of US$11.82 billion, reflecting an increase in the CBC's reserve assets. The current account posted a surplus of US$9.92 billion (an increase by US$2.87 billion or 41% over the same period last year) and the financial account showed a net inflow of US$4.65 billion. In the current account, both exports and imports registered a year-on-year decreases, falling by 31.9% and 37.2%, respectively, due to the global recession. However, the decline was smaller than 2008, benefiting from the gradual stabilisation of the world economy supported by governments' economic stimulus efforts.

With regard to the financial account, direct and portfolio investment exhibited small net outflows of US$0.80 billion and US$1.10 billion, respectively. Residents' portfolio investment abroad registered a net outflow of US$9.79 billion, mainly attributable to an increase in residents' investment in foreign mutual funds and more bond investment abroad by local insurance companies. Non-residents' portfolio investment turned into a net inflow of US$8.68 billion after showing net outflows in the past year, induced mainly by foreign capital inflows targeting at domestic stock and bond markets. Other investment exhibited a net inflow of US$6.03 billion, attributable to the withdrawal of overseas deposits by the private sector.

Chinese Taipei's foreign exchange reserves continued to accumulate and reached US$317.56 billion in June 2009, indicating that Chinese Taipei's foreign exchange reserves have a strong capacity to meet payment obligations for imports and to service short-term external debts (Figure 4).

2.2.3 NT Dollar Exchange Rate Remained Relatively Stable Despite Higher Volatility

The NT dollar remained relatively stable despite with higher volatility. After experiencing appreciation for six months, the NT dollar exchange rate against

the US dollar turned to depreciation in the second half of 2008 due to the increasing hedging needs for US dollars and continued outward remittance by foreign investors. The NT dollar exchange rate continued to trend downward in early 2009 as the global economy worsened, exports dwindled and demand for US dollars became stronger in the domestic foreign exchange market. However, the NT dollar exchange rate began to pick up after March, led by renewed foreign capital inflows and a weaker US dollar. The NT dollar stood at 32.82 per US dollar at the end of June, 2009. Compared to the major currencies, the NT dollar exchange rate was relatively stable (Figure 4).

2.2.4 Profitability and Financial Structure in the Corporate Sector Deteriorated but Began to Show Slight Improvement since Q1:2009

Against the backdrop of a sharp decline in domestic and foreign economic activities, the profitability of TWSE-listed companies shrank considerably in 2008. The return on equity (ROE) ratio dropped from 18.03% for 2007 to 8.08% for 2008, together with a marked rise in leverage ratios, indicating aggravated financial structures in the corporate sector. In the first quarter of 2009, the profitability of TWSE-listed companies still declined heavily year on year, but with a smaller downward movement. Furthermore, there was a slight improvement in financial structures owing to reduced liabilities.

2.2.5 Stock Prices Bottomed Out, while Volatility Moderated after a Sharp Increase

Fueled by a sharp rise in orders for the products of the domestic electronic companies and their inventory restocking, the TAIEX stabilised in early 2009. Subsequently, the TAIEX rebounded from March onwards thanks to net foreign capital inflows, a reversal of investment funds back from overseas to local equity markets and a more open policy towards China's investment in Chinese Taipei. The Chinese Taipei stock markets' volatility increased dramatically post July 2008, reflecting a rise in investment risks. The volatility moderated somewhat from early 2009 onwards, but investment risks arising from volatile share prices still remained at a high level (Figure 5).

2.2.6 Financial System Remained Stable

The global financial crisis set off by the US housing bubble bust had severely undermined financial systems in the US and Europe. In contrast, Chinese Taipei's financial system remained relatively stable, financial intermediation functioned

normally, and problems such as liquidity shortage and undercapitalisation were generally absent. It might be because they were more conservative about derivatives activity.

The non-performing loan (NPL) ratio of domestic banks registered 1.50% in June 2009, reflecting a satisfactory asset quality (Figure 7). Funding remained ample in the banking system and liquidity risks were moderate on the whole. In September 2008, a few private banks temporarily experienced a large number of withdrawals and suffered funding difficulties because of the uncertainty. However, the liquidity tensions of these banks eased after the CBC's expansion of Repo facility operations and the government's blanket guarantee for deposits of all insured institutions. Amid worsened domestic economic conditions, the domestic banks faced heightened credit risks in their credit exposure to the corporate sector, household sector and the real estate market, while their market risk in equity investments also increased notably.

Profitability of the domestic banks posted a sharp decline of 55.68% in 2008 from the previous year, while both return on equity and return on assets fell. Bank profitability also contracted by 25% in the second quarter of 2009 on a year-on-year basis. Shrinking interest rate spreads between deposits and loans, coupled with increasing disputes and contracting wealth management business, eroded the profitability of domestic banks and posed considerable challenges to their operations. Domestic banks' capital remained adequate. Except for a few banks and life insurance companies, the majority of the financial institutions played their intermediation role effectively on the back of adequate capital levels. The payment and settlement systems operated smoothly with improved efficiency. Accordingly, the financial system in Chinese Taipei remained stable.

2.3 Current Developments (Q3:2009- Q2:2010)

2.3.1 Economic Recovery and Improved Employment

The global recovery has picked up pace since the beginning of 2010. The international institutions have revised up their projections of global economic growth for 2010. Still, uncertainty remains as governments try to address challenging issues such as high unemployment and huge fiscal deficits. Economic activity in Chinese Taipei has regained momentum since the fourth quarter of 2009. Exports and capital expenditure have both registered significant growth, largely bolstered by growing demand from the emerging Asian economies and other major trade partners. In addition, a moderate increase in private expenditure has been supported by improving labour market conditions. In June 2010, the

unemployment rate dipped to 5.16%, down from a high of 6.13% in August 2009. As a result, Chinese Taipei's economy has expanded strongly by 12.86% in the second quarter of 2010 (Table 2, Figures 1 & 2).

2.3.2 A Higher CPI Growth Rate

Rising worldwide demand has pushed up the international prices of raw material, including crude oil, which has subsequently fed into domestic retail prices. Chinese Taipei's annual CPI growth averaged 1.19% for the first six months of 2010 (Figure 1).

2.3.3 Current Account Remained in Surplus; Financial Account Exhibited a Net Inflow; Foreign Exchange Reserves Stayed Sufficient

For the first quarter of 2010, the overall balance of payments registered a surplus of US$13.40 billion, reflecting an increase in the Bank's reserve assets. The current account posted a surplus of US$9.93 billion, and the financial account showed a net inflow of US$2.40 billion.

In the current account, exports rose by 52.8% from the same period of the previous year, bolstered by a recovering world economy in addition to a lower base effect; imports surged by 78.2% year on year, reflecting an increase in imports of agricultural and industrial raw materials and capital equipment to meet export-derived demand. As a result of a greater increase in imports over exports, goods trade exhibited a narrower surplus of US$6.05 billion, a decrease of US$3.11 billion from the same period last year.

With regard to the financial account, direct and portfolio investment exhibited small net outflows of US$0.95 billion and US$2.63 billion, respectively. Residents' portfolio investment abroad registered a net outflow of US$5.25 billion, mainly attributable to an increase in residents' investment in foreign mutual funds and more bond investment abroad by local insurance companies. Non-residents' portfolio investment showed a net inflow of US$2.62 billion, induced primarily by foreign capital inflows targeting domestic stock and government bond markets. Other investment exhibited a net inflow of US$5.96 billion, largely attributable to the withdrawal of overseas deposits by the private sector.

The foreign exchange reserves amounted to US$362.38 billion (Figure 4) at the end of June 2010, showing an increase of US$2.26 billion from the figure recorded at the end of the previous month. The main factor responsible for the

increase in foreign exchange reserves in June 2010 was returns from foreign exchange reserves management.

2.3.4 Stock Market Fluctuated

The TAIEX closed the year 2009 up 78.3% from the end of the previous year. All industrial groups performed better for year 2009 than the previous year, with construction and textile industry shares among the strongest. However, the interplay of the brighter global economic situation and the pressure from mainland China's tightening monetary policy and European debt crisis fears have had a fluctuating effect on TAIEX since the beginning of 2010 (Figure 5).

2.3.5 CBC's Move in June 2010

2.3.5.1 Raising Interest Rates by 0.125%, Effective from June 25, 2010

Against a backdrop of economic recovery both at home and abroad, the CBC has gradually removed its quantitative easing policy since the second half of 2009. As the domestic economic recovery accelerates, bank credit and market interest rates have increased, along with rising property and consumer prices. The CBC decided to raise the discount rate by 0.125% to 1.375% (Figure 8). The CBC believed that the policy rate increase will gradually guide market rates back to normal and support the CBC's efforts to maintain price and financial stability.

2.3.5.2 Announcing the Regulations Governing the Extension of Housing Loans in Specific Areas by Financial Institutions, Effective from June 25, 2010

Heightened housing prices and over-concentration of mortgage loans in specific areas in Chinese Taipei have gradually become a source of concern. To address this issue and safeguard financial stability, the CBC has actively adopted a series of targeted prudential measures since October 2009, and the government has been working to facilitate a Plan to Enhance the Soundness of the Housing Market, which was announced in April 2010.

In recent years, the increase in housing prices has been more pronounced in the Taipei metropolitan area, adding to the burden of homebuyers. Moreover, this area has posted higher price-to-income (PTI) ratios and loan-to-income (LTI) ratios than elsewhere in Chinese Taipei. The total value of real estate loans extended by all banks have amounted to 38% of their total lending, a value

equivalent to 52% of GDP. Meanwhile, a large portion of the newly extended mortgage loans has concentrated in or around Taipei City and 10 other cities in Taipei County. The concentration of lending may undermine the effectiveness of risk management of the banks.

To urge financial institutions to better manage credit risk and to promote financial stability, the CBC judges that it is necessary to announce the Regulations Governing the Extension of Housing Loans in Specific Areas by Financial Institutions (hereinafter the Regulations), effective from June 25, 2010. The key points of the Regulations are as follows:

(1) The Regulations apply to ‘’newly-extended housing loans’’ in specific areas.

(2) With regard to housing loans extended to borrowers who have taken out other outstanding housing loans, the financial institutions shall:

— approve loans not exceeding 70% of the value of the collateral,

— remove grace periods, and

— grant no additional loans against the same collateral for home renovations, as working capital, or for other purposes.

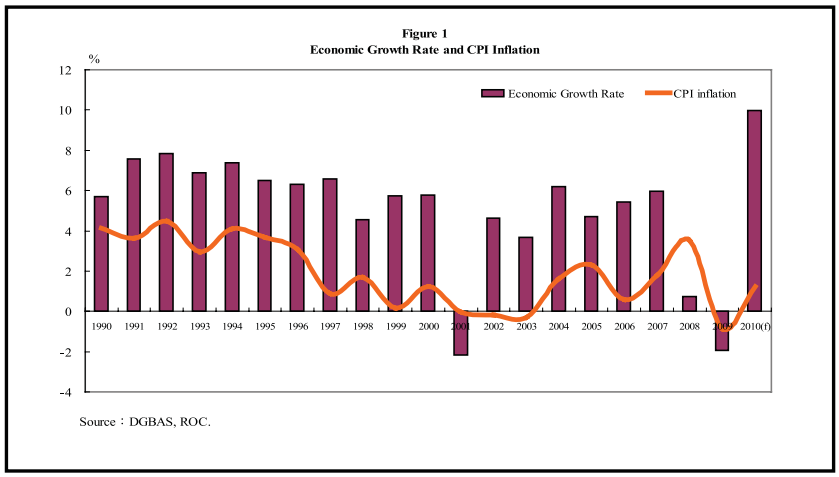
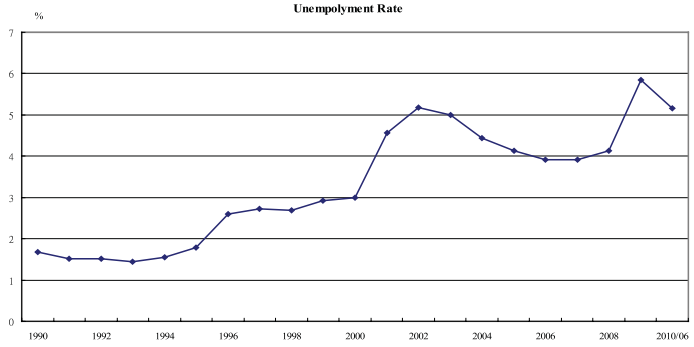
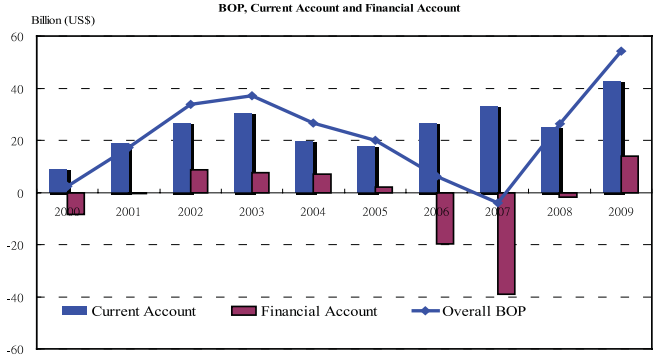


Figure 2
Unempolyment Rate



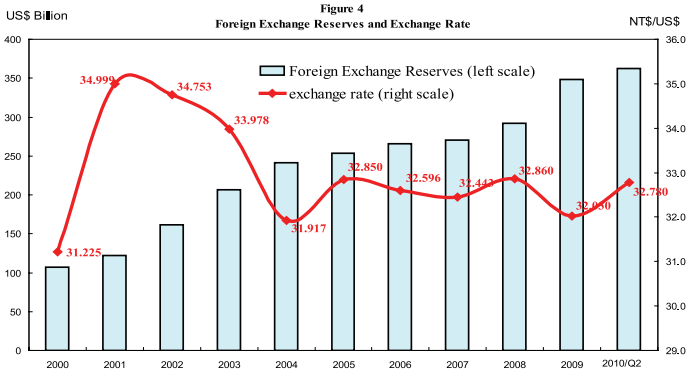
Source：DGBAS, ROC.

Figure 3
BOP, Current Account and Financial Account



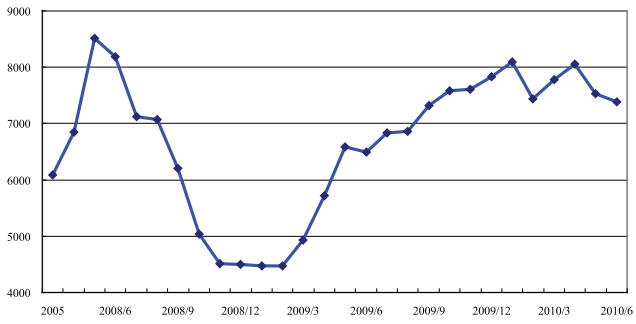
Source：CBC.

Figure 4
Foreign Exchange Reserves and Exchange Rate



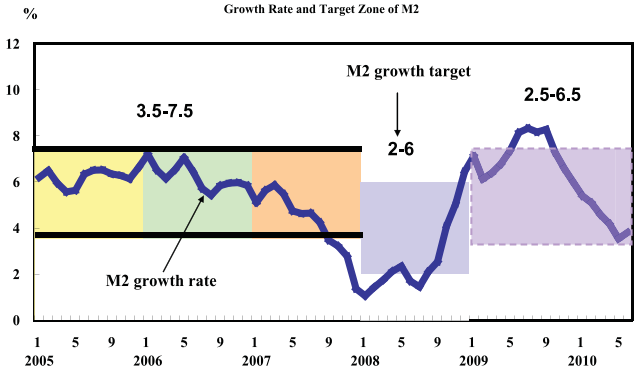
Source：CBC

Figure 5
Chinese Taipei Stock Exchange Weighted Index (TAIEX)



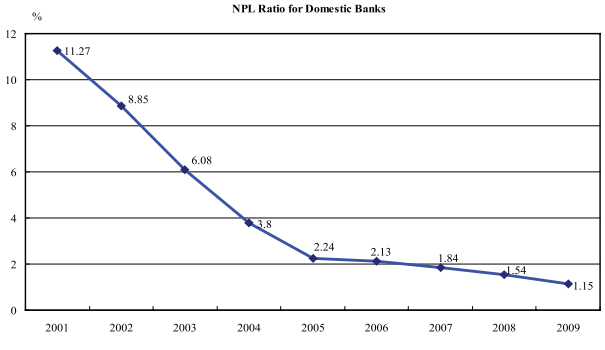
Source : DGBAS, ROC.

Figure 6
Growth Rate and Target Zone of M2

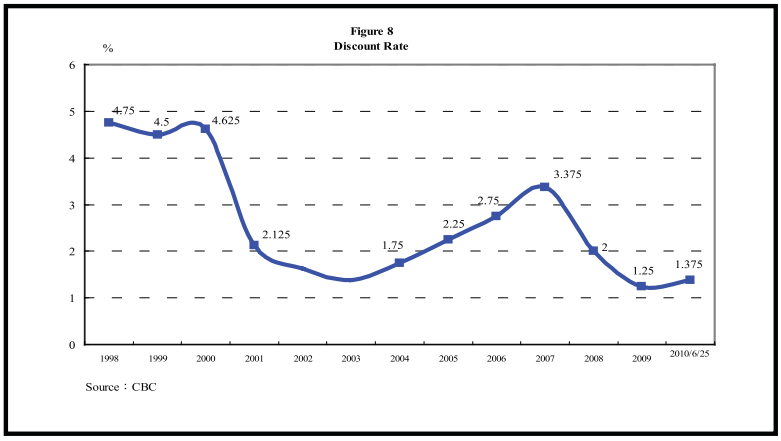


Source：CBC

Figure 7
NPL Ratio for Domestic Banks



Source：CBC.



3. Relative Effectiveness of Policy Choices

3.1 Framework of CBC's Monetary Policy

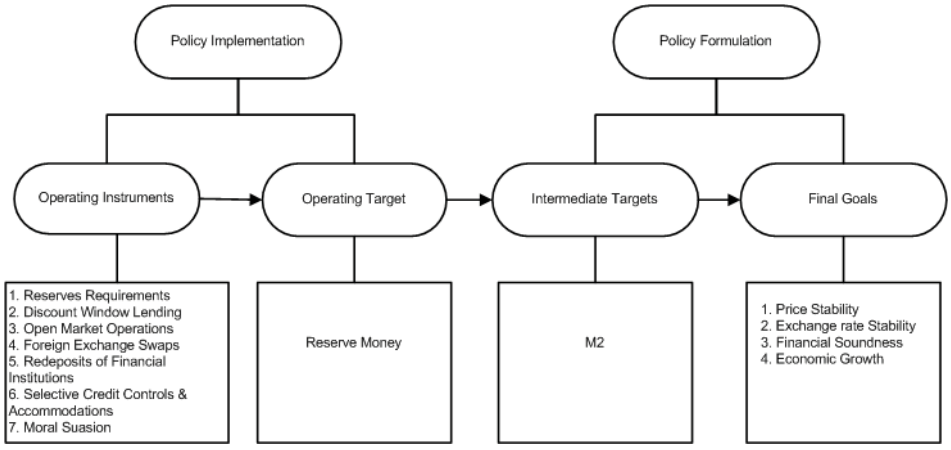
Monetary policy influences economic activity mainly by affecting the cost and availability of money and credit to those who produce and consume the nation's output. Through a series of financial and economic responses, the effect of monetary policy is transmitted to total output, employment and prices. Basically, the monetary policy affects economy activity through the following channels: (1) interest rate channel; (2) bank credit channel; (3) wealth channel; (4) relative asset price channel; and (5) exchange rate channel. In Chinese Taipei, commercial banks play a very important role in the financial system because they dominate the channel of funds between lenders and borrowers. Therefore, the bank credit channel is relatively important in the transmission mechanism of monetary policy. However, as direct finance in capital markets becomes more essential for borrowers and investors, the function of bank intermediation will be getting weaker, which implies that the importance of the interest rate channel is expected to increase.

The CBC has the following four final goals: to promote financial stability, to guide sound banking operations, to maintain domestic price and exchange rate stability, and to foster economic development within the scope of the aforementioned objectives. Because changes in monetary policy affect the economy with considerable time lags, the CBC pays close attention to some intermediate targets such as monetary aggregates. In practice, the CBC adopts

a monetary policy framework where it periodically checks whether the operating targets have been achieved in the short run, and in turn measures the intermediate targets to assess how effectively the monetary policy is being transmitted to achieve its final goals.

Since mid-1980s, the CBC has adopted a framework of monetary targeting. The CBC chooses a broad monetary aggregate - M2- to be the intermediate target and reserve money to be the operating target. Since 1992, the CBC has been publishing the intermediate targets on a yearly basis. The CBC initially affects reserve money and inter-bank call loan rates with its policy instruments, which in turn affect various monetary aggregates, interest rates and other financial and economic variables, and eventually achieves the final goals of monetary policy (Chart 1).

Chart 1
Basic Framework of the CBC's Monetary Policy



Source: CBC

3.2 Policy Choices Available during the Crisis

The recent global financial crisis has had an adverse impact on Chinese Taipei's export-oriented economy and the government has responded with expansionary monetary and fiscal policies to boost domestic demand. Chinese Taipei's government launched the Economic Vitalisation Package in September 2008 and implemented a succession of easy monetary policies, financial stability measures and expansionary fiscal policies in order to increase domestic demand,

stabilise the financial system and maintain the momentum of economic growth (Table 3).

Table 3
Policy Measures (Q1:2008- Q2:2010)

Policy	Q1-Q3:2008	Q4:2008 – Q2:2009	Q3:2009-Q2:2010
Monetary Policy • Conventional	1.Lowering the discount rate 2.Lowering the required reserve ratios 3. Expanding the scope of Repo Facility operations	1.Lowering the discount rate 2.Maintaining higher excess reserves of banking system	
Measures to Stabilise Financial System	1.Coordinating Corporate Financing Support ***Objectives/Targets:*** (1)Expected to increase lending to SMEs by NT$300 billion (July 2008 – Dec. 2009) (2)Providing NT$600 billion in loans to non–SMEs (until the end of 2010) 2.Assisting Individuals to Get Loans from Banks ***Objectives/Targets:*** Providing preferential mortgage loans by NT$400 billion (Sep. 2008 – Dec. 2009)	1.Adopting an Interim Blanket Deposit Guarantee 2.Initiating Approaches for Stabilising Stock Markets 3.Increasing Securities Market Momentum and Expanding Capital Market Size 4.Temporarily Adjusting the Risk-based Capital System of the Insurance Industry	1.Extend the Interim Blanket Deposit Guarantee to the end of 2010
Fiscal Policy • Tax Measures • Expenditure Driven	Announcing the Economic Stimulus Package	1.Issuing Consumption Vouchers (NT$80 billion) ***Objectives/Targets:*** Expected to increase real GDP by 0.28-0.43% in 2009. 2.Expanding Investment in Public Works ***Objectives/Targets:*** 2009-2012 with a total of NT$500 billion 3.Lowering the Estate and Gift Tax Rates	
	Promoting Employment--***Objectives/Targets:*** 1. 2008-2009 Short-Term Employment Promotion Programme: providing 46,000 and 56,000 job openings in 2008 and 2009, respectively. 2. 2009-2012 Employment Promotion Programme: creating 50,000 employment opportunities per year from 2009 to 2012.		
External Sector • Exchange rate • Other related	Foreign Exchange Management: 1. The NT dollar follows a managed float regime, principally determined by market forces. Nevertheless, when seasonal or irregular factors cause the NT dollar exchange rate to become more volatile than can be explained by economic fundamentals, the CBC will step in to maintain an orderly market. 2. The CBC monitored cross-border capital flows closely and urged foreign investors to deploy their funds in a manner consistent with their declaration statements.		
Financial sector reforms (proposed reforms to be implemented)	The CBC and FSC are considering the following issues: 1. Enhancing macro-prudential supervision. 2.Increasing the quality and level of capital requirements for financial institutions 3. Strengthening risk management in financial institutions. 4. Reforming financial institutions' remuneration systems. 5.Enhancing supervision and infrastructure for securitisation and OTC derivatives. 6. Improving the surveillance and transparency of credit rating agencies.		

3.2.1 Monetary Policy Measures

3.2.1.1 Lowering the Discount Rate

The CBC lowered the discount rate by 2.375 percentage points, from 3.625% to 1.25%, in seven cuts from September 2008 to February 2009 (Table 4). The lower interest rates helped to reduce individual and corporate funding costs, encourage private consumption and investment, and stimulate domestic economic growth.

In addition, in order to prompt domestic banks to speedily lower their interest rates in line with the CBC's rate cuts, the CBC, Ministry of Finance and Financial Supervisory Commission (FSC) held meetings twice with the primary mortgage banks in November 2008. With the consent of these banks, the rate adjustments of mortgage loans and corporate loans could be made monthly instead of quarterly (or semi-annually) without the additional renewal fees before March 2009.

Table 4
CBC Discount Rate Cuts

Effective date	Change (percentage point)	Discount rate (%)
26 Sept. 2008	-0.125	3.50
9 Oct. 2008	-0.250	3.25
30 Oct. 2008	-0.250	3.00
9 Nov. 2008	-0.250	2.75
11 Dec. 2008	-0.750	2.00
7 Jan. 2009	-0.500	1.50
18 Feb. 2009	-0.250	1.25

Source: CBC

3.2.1.2 Lowering the Required Reserve Ratios

From 18 September 2008 onward, the CBC lowered the required reserve ratios on demand deposits and time deposits by 1.25 and 0.75 percentage points to 9.775% and 5%, respectively, releasing around NT$200 billion of funds with a view to increasing the momentum of bank lending.

3.2.1.3 Expanding the Scope of Repo Facility Operations

To provide the financial institutions with sufficient liquidity when they need, the CBC decided to expand the scope of its Repo facility operations since 25 September 2008. The following decisions were included:

(1) Expanding eligible counterparties to securities firms and insurance companies.

(2) Extending the term of the Repo facility operations to within 180 days from 30 days to provide market access to longer-term liquidity.

(3) Expanding eligible instruments to CDs issued by the CBC.

(4) Allowing the financial institutions, according to their funding demand, to apply for CBC Repo operations approved by the CBC, in addition to the operations announced by the CBC.

3.2.1.4 Maintaining Higher Excess Reserves

The CBC allowed the banking system to maintain higher excess reserves for ensuring that financial conditions remain accommodative enough to meet the demand of economic activities. From the fourth quarter of 2008 to the second quarter of 2009, the average excess reserves in the banking system reached as high as NT$132 billion, much higher than the usual level of NT$20 billion.

3.2.1.5 Foreign Exchange Management

The NT dollar follows a managed float regime and its exchange rate is principally determined by market forces. Nevertheless, when seasonal or irregular factors (such as massive flows of ''hot money'') cause the NT dollar exchange rate to become more volatile than can be explained by economic fundamentals, the CBC will step in to maintain an orderly market. This is consistent with the notion that managed flexible exchange rates absorb external shocks more efficiently for emerging economies with an open capital account, as pointed out by the United Nations Conference on Trade and Development early September in its Trade and Development Report, 2009.

Frequent movements of short-term capital are likely to exacerbate volatility in economic cycles and undermine financial stability. The CBC continues to monitor cross-border capital flows closely and urge foreign investors to deploy their funds in a manner consistent with their declaration statements[1].

3.2.2 Measures to Stabilise the Financial System

The government also implemented a number of measures to improve market confidence and assist the funding needs of individual/corporate, which helped to stabilise the financial system.

3.2.2.1 Adopting an Interim Blanket Deposit Guarantee

On 7 October 2008, the government first announced that it would guarantee all deposits in insured financial institutions up to their full amount until the end of 2009, and then extended the coverage to the end of 2010. Additional deposits to be guaranteed included foreign currency-denominated deposits, inter-bank deposits and lending, and financial bonds issued before or on 23 June 2005. This measure effectively stabilised the market and restored the confidence of depositors.

3.2.2.2 Initiating Approaches for Stabilising Stock Markets

The impact of the global financial turmoil resulted in acute slumps in the local stock markets. In order to stabilise domestic equity prices, the government launched the following measures:

(1) Temporarily resuming the ban on short-selling of 150 listed shares below the previous day's closing price, suspending borrowed and margin stocks from short-selling, and narrowing the percentage fall limits of share prices.

(2) Encouraging companies to buy back their own stocks as treasury stocks or company directors to purchase their companies' stocks.

(3) Encouraging state-owned financial institutions and the four government-managed funds to purchase low-priced stocks of well-performing companies.

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1. According to the "Regulations Governing the Declaration of Foreign Exchange Receipts and Disbursements or Transactions", a person within the territory of Chinese Taipei who possesses or needs foreign exchange with the value equal to or over NT Dollars 500,000 and engages in its receipts and disbursements or transactions shall make a declaration pursuant to these Regulations.

3.2.2.3 Coordinating Corporate Financing Support

In order to assist corporations to weather the current economic downturn and to tackle their business difficulties, the government introduced the following projects:

(1) It established a Special Task Force to facilitate enterprises to obtain operational funds to help SMEs and large corporations find financing support;

(2) Released two self-disciplined mechanisms by the Bankers' Association allowing corporations that face financial difficulties but still operate normally and pay loan interest as scheduled to extend loans by six months if their expiry date is before the end of 2009, and temporarily loosened collateral requirements on margin loans to ease selling pressure from margin calls;

(3) Extended the settlement period for dishonoured cheques;

(4) Implemented a Programme to Encourage Lending by Domestic Banks to SMEs, which is expected to increase SMEs' lending by NT$300 billion from July 2008 to the end of 2009;

(5) Provided NT$600 billion in loans to large corporations under the Directions for the Provision of Special Loans and Credit Guarantees to non-SMEs, effective until the end of 2010; and

(6) Loosened the qualification requirements for credit guarantees, lowered the guarantee fees and expanded authorised guarantee coverage by the Small- and Medium-enterprise Credit Guarantee Fund of Chinese Taipei (Chinese Taipei SMEG), effective until June 2010.

In order to help corporations raise funds from the capital markets, the government also implemented several related measures:

(1) It relaxed the lower limit of offering prices for equity offerings;

(2) Allowed issuers of convertible bonds which were due before the end of 2009 to set additional conversion price, reset provisions or modify terms, such as extending the due date, after reaching the final decision at shareholders' meetings and negotiating with bondholders;

(3) Allowed companies to issue new corporate bonds to pay off previous bond indentures; and

(4) Allowed public-issuing companies to repay corporate bonds using the residual funds of previous bond issues.

3.2.2.4 Assisting Individuals to Get Loans from Banks

In order to assist individuals to get loans from banks and to reduce the interest cost for homebuyers, the government introduced several measures:

(1) It provided preferential mortgage loans in September 2008 and April 2009 amounting to a total of NT$400 billion; and

(2) Allowed borrowers of preferential mortgage loans to extend the expiry date or defer principal repayment of loans if applicable, and allowed involuntarily unemployed workers to defer principal payments of their mortgage loans.

3.2.2.5 Temporarily Adjusting the Risk-based Capital System of Insurance Industry

In view of the impact of the global financial crisis and to maintain the function of the risk-based capital system as well as the stability of the domestic insurance market, the FSC promulgated a new regulation in November 2008 allowing insurance companies to raise funds through the issuance of bonds with a capital nature.

The FSC also amended the risk-based capital system of the insurance industry in October and November 2008, effective until the end of 2009. The main amendments were: (1) the issuance of bonds with a capital nature can be included in eligible capital, and the maximum limit of bonds with a capital nature and preferred stock of a liability type being included in eligible capital, is raised; (2) except for the cross-investments among insurance companies, the funds invested in bonds with a capital nature or preferred stock of a liability type need not be deducted from eligible capital; and (3) the special reserve for major events and part of unrealised gains or losses arising from investments on stocks, exchange-traded funds (ETFs) and mutual funds can be included in eligible capital.

3.2.3 Fiscal Policy

In addition to the monetary policies and financial stability measures mentioned above, there were expansionary fiscal policies to promote domestic demand and maintain the momentum of domestic economic growth.

To safeguard the stability of Chinese Taipei's economy by stimulating domestic demand as a means of sustaining the economic growth momentum, the government first took a short-term measure of issuing consumption vouchers for an immediate stimulus effect, and followed this with the adoption of a mid-term 4-year project to expand and accelerate the implementation of public works, with the aim of creating a second wave of economic revitalisation to augment the benefits generated by the consumption voucher scheme.

3.2.3.1 Expanding Investment in Public Works

On 20 November 2009, the government announced a four year (2009-2012) project of Expanding Investment in Public Works to Revitalise the Economy with a total of NT$500 billion. Its objectives were to: (1) create a comprehensive and rapid transit network; (2) create a safe and disaster-free environment; (3) improve the quality of the cultural and living environment; (4) strengthen the infrastructure to enhance national competitiveness; (5) improve transportation facilities in the outlying islands; and (6) foster education and employment. This project was expected to increase real GDP by 0.68 percentage points in 2009 and create 19,000 - 22,000 job opportunities.

3.2.3.2 Issuing Consumption Vouchers

The government issued consumption vouchers valued at NT$3,600 per person starting from 18 January 2009, totaling around NT$80 billion, to effectively stimulate private consumption and boost the domestic economy. This project was expected to increase real GDP by 0.28-0.43 percentage points in 2009. The consumption vouchers scheme had a marked effect in stimulating private consumption, particularly during the Chinese Lunar New Year holidays.

3.2.3.3 Lowering Estate and Gift Tax Rates

The ceiling of the estate and gift tax rates was both lowered from 50% to 10%, and the tax-exempt thresholds was raised to NT$12 million and NT$2.2 million from NT$7.79 million and NT$1.11million, respectively, effective from 23 January, 2009. They are expected to attract capital remitted abroad to flow back and revitalise the domestic markets.

3.2.3.4 Promoting Employment

The government was alert early on to the threat of an unemployment crisis stemming from the economic slump, and took countermeasures in advance. In

October and November 2008, the government introduced the following employment promotion policies (Chart 2):

(1) The 2008-2009 Short-term Employment Promotion Programme: It aims to provide approximately 46,000 and 56,000 job openings in 2008 and 2009, respectively.
(2) The 2009-2012 Employment Promotion Programme: It is expected to add 50,000 employment opportunities per year from 2009 to 2012, and effectively reduce the unemployment rate.

Chart 2
Employment Resource Map

Source: The Council for Economic Planning and Development (CEPD), Chinese Taipei.

3.2.4 Financial Sector Reforms

From the beginning of 2009, the advanced countries and international organisations successively proposed a number of plans or recommendations on financial reform in the hope of preventing future financial crises. These include:

(1) The *Turner Review* and the white paper on *Reforming Financial Markets* in the UK.

(2) A comprehensive plan for financial regulatory reform and related draft legislation proposed by the US.
(3) Initiatives or resolutions relating to financial regulatory reform made by the G20 and the European Union (EU) summit members.
(4) A series of proposals to enhance the Basel II framework and strengthen the liquidity risk monitoring framework announced by the Basel Committee on Banking Supervision (BCBS).
(5) Policy recommendations issued by the IMF.

In view of these international proposals for financial reform, the current financial regulation in Chinese Taipei has, in some areas, made significant progress, such as:

(1) All systemically important financial institutions are covered by current financial regulation.
(2) A well-established deposit insurance scheme and resolution mechanisms for impaired financial institutions have been put in place.
(3) Regulators have actively engaged in the improvement of consumer financial education and protection; an exclusive chapter for coping with consumer disputes involving financial services is included in a draft of the Financial Service Act.
(4) Significant progress has already been made in facilitating anti-money laundering work. For example, anti-terrorism is governed by the Money Laundering Control Act, which was amended in 2009; the required amount of large cash transactions that should be reported by financial institutions has been lowered from NT$1,000, 000 to NT$500, 000.

In terms of international cooperation of financial supervision, considering the internationalisation with respect to either financial institutions or financial markets in Chinese Taipei is not as developed as that of the US or European countries, the authorities can actively seek opportunities for participation in international cooperation of cross-border supervision.

With regard to other key issues and recommendations, the CBC and FSC have deliberated on some of them and are considering the feasibility and alternatives in Chinese Taipei, such as:

(1) Enhancing macro-prudential supervision;
(2) Increasing the quality and level of capital requirements for financial institutions;
(3) Strengthening risk management in financial institutions;

(4) Reforming financial institutions' remuneration systems;
(5) Enhancing supervision and infrastructure for securitisation and OTC derivatives; and
(6) Improving the surveillance and transparency of credit rating agencies.

3.3 Analysis of Policy Responses

3.3.1 Use of Communication Effectively in Crisis Situation

The usual communication channels for the CBC are as follows:

(1) Moral suasion:
The CBC urges banks to fulfill their intermediary function by meeting the funding demand of well-managed enterprises and households.

(2) Press release.

(3) Publishing Financial Stability Report:
To promote the sound operation of financial institutions and safeguard financial stability, the Bank has established a financial stability evaluation framework. In 2008, the Bank began publishing the Financial Stability Report and launched a study project to develop an approach to stress-testing the Chinese Taipei's financial system.

3.3.2 Monetary Policy Responses

3.3.2.1 Impact of Crisis on Recession: 1997/98 Crisis vs. Current Crisis

The economic performance in the 1997/1998 East Asian financial crisis period was relatively healthy and favourable. This may be related to the better domestic real economy, continued surplus in the current account, low external debt, high foreign exchange reserves, rapid reaction of firms, and orderly opening of the capital account.

The spread of the global financial crisis in the second half of 2008 simply resulted in a relatively limited loss for domestic banks, due to less globalisation and less investment in complicated new financial products of domestic banks. However, it had serious adverse impact on Chinese Taipei's export-oriented economy.

Table 5 and Figures 9-1 to 9-7 offer some descriptive statistics on selected indicators for the 1997/98 crisis and current crisis, including recession, credit

growth, inflation rate, stock market index, and policy rate. Obviously, the current crisis had much more serious impact on Chinese Taipei's economy.

Table 5
Comparison between 1997 and 2008 Crisis

Indicators	1997/98 Crisis	Current Crisis
1. Recessions (Real GDP Growth Rate) (Figure 9-1)		
duration	4Q	6Q
amplitude	3.6%	16.14%
slop	10.44%	40.68%
cumulative losses	0.9%	2.69%
2. Credit Growth (M2 Growth Rate) (Figure 9-2)		
duration	2Q	3Q
amplitude	3.53%	4.5%
slop	1.765%	1.5%
cumulative losses	5.22%	8.12%
3. Inflation (CPI Growth Rate) (Figure 9-3)		
duration	2Q	4Q
amplitude	2.96%	6.95%
slop	1.48%	1.74%
cumulative losses	5.55%	17.64%
4. Stock Market Index (Figure 9-4)		
duration	4Q	5Q
amplitude	2299	4573
slop	575	915
cumulative losses	8023	9716
5. Policy Rate (Discount Rate) (Figure 9-5)		
duration	3Q	3Q
amplitude	0.75%	2.375%
slop	0.25%	0.79%
cumulative losses	1.375%	4.125%

Figure 9-1
GDP Growth Rate

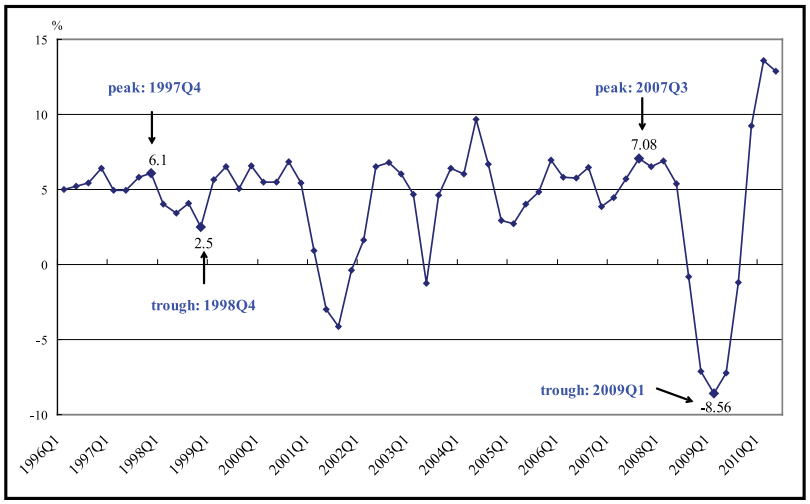


Figure 9-2
M2 Growth Rate

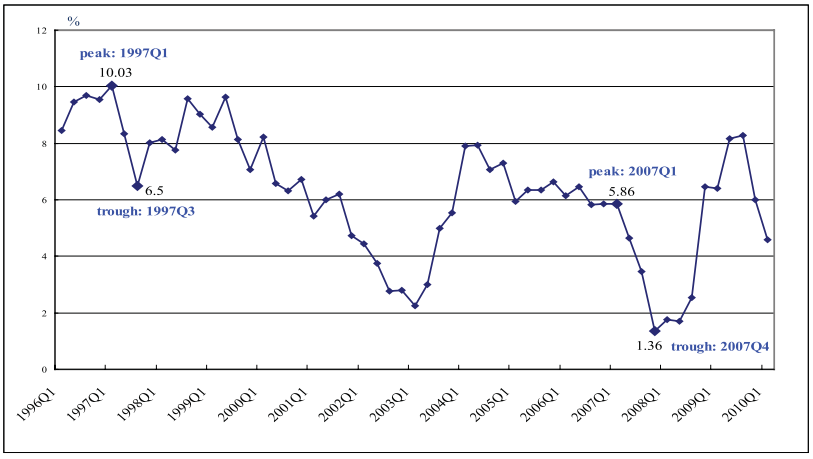


Figure 9-3
CPI Growth Rate

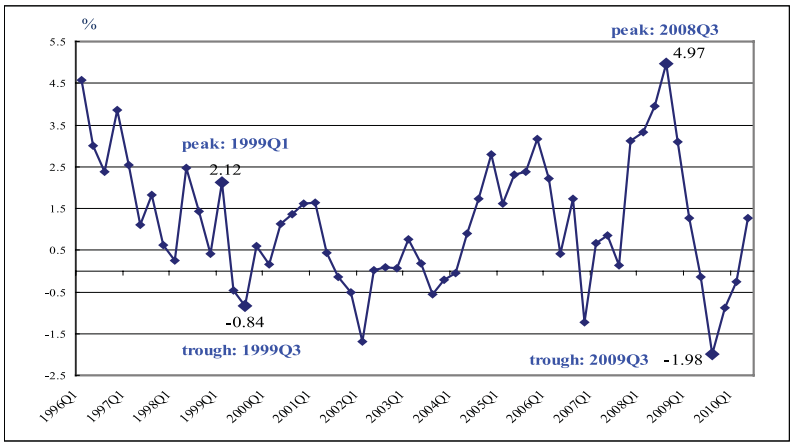


Figure 9-4
Stock Market Index

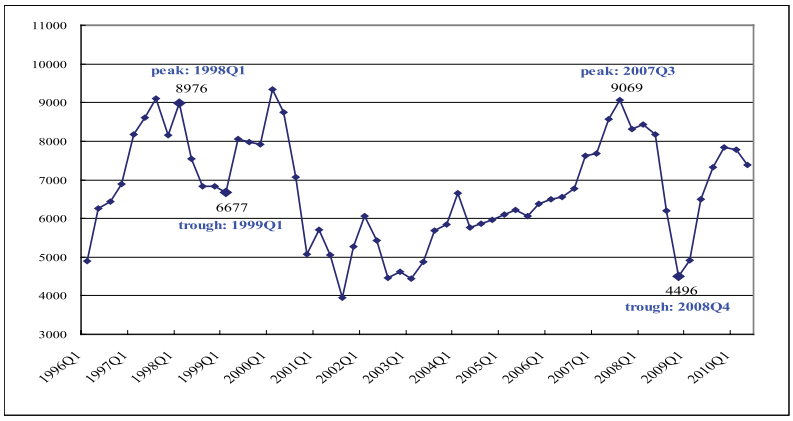


Figure 9-5
Policy Rate

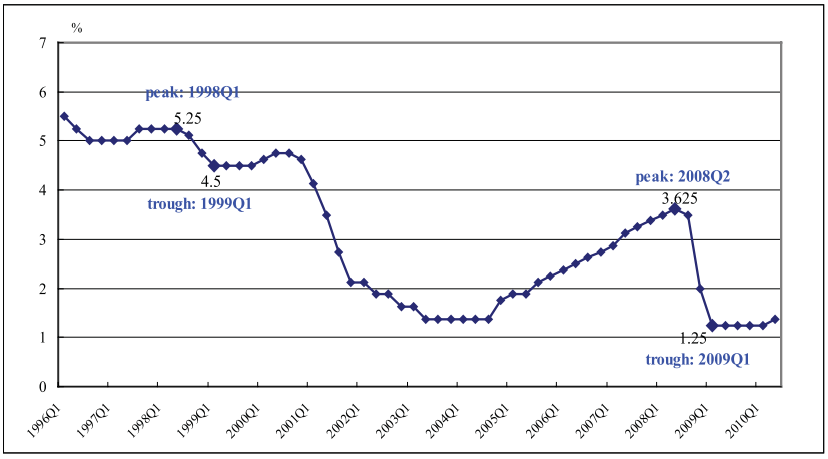


Figure 9-6
Exchange Rate

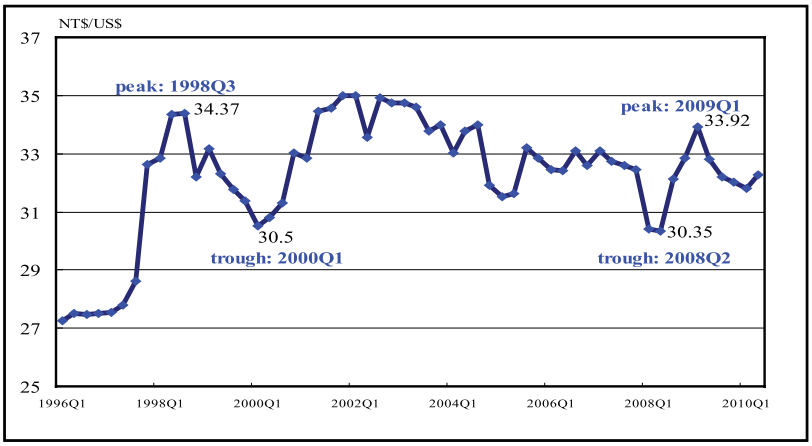
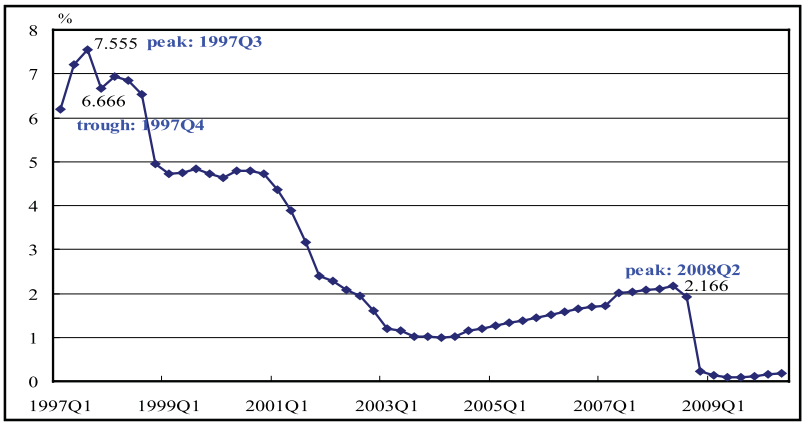


Figure 9-7
Call Loan Rate



3.3.2.2 Monetary Policy Management Reaction to 1997/98 Crisis[2]

During the 1997/98 crisis periods, large capital outflows from Asia exerted downward pressure on the NT dollar, tightened Chinese Taipei's financial conditions, and threatened the stability of the economy. The CBC responded with the following measures:

(1) Reducing Depreciation Expectations of the NT Dollar

The CBC stepped in the foreign exchange market from July to October in 1997 to curb depreciation expectations of the NT dollar. As a result of heavy intervention, foreign exchange reserves fell by US$7 billion within four months. At the same time, the monetary conditions were tightened and interest rates went up and stock prices fell sharply.

(2) Alleviating the Volatility in the Money Market and Conducting a Flexible Exchange Rate Policy

As the Asian financial crisis showed no signs of abating, the CBC decided to change its policy approach in order to shield the asset markets and the real economy from the damage caused by the prolonged monetary tightness. In mid-October 1997, the CBC ceased to defend the exchange rate, and at the same time lowered the required reserve ratios. The NT dollar

2. See Chun-Nan Liao (2010).

consequently exhibited a sharp downward trend from mid-October 1997 onwards and reached a low of 34.4 against the US dollar in mid-January 1998, depreciating by 17% within three months.

The implementation of a flexible exchange rate policy in mid-October 1997 was an important turning point to address the financial crisis. More importantly, the CBC fended off speculative attacks in the foreign exchange market by prohibiting domestic institutional investors from engaging in non-delivery forward (NDF) transactions to block speculators' access to NT dollar funds in May 1998.

As a result, the downward pressure on the NT dollar was largely relieved, and the exchange rate of the NT dollar fluctuated between 32.0 and 34.9 against the US dollar during the remainder of the crisis period. Monetary conditions have become moderately easy. As the Asian currencies rebounded strongly in September 1998, the CBC implemented a more relaxed monetary policy to stimulate domestic demand. The CBC's policy actions included lowering the required reserve ratios and the discount rate, appropriating the postal savings re-deposits to assist banks in extending mortgage loans to first-time home buyers and project loans for small and medium-sized enterprises. These measures largely mitigated the negative impact of the Asian financial crisis on Chinese Taipei's economy. The event also demonstrated the close economic ties among the East Asian economies and the growing influence of international capital flows on the policies of the Asian central banks.

In brief, the CBC reacted to the above-mentioned adverse conditions by removing distortions from the foreign exchange market and adopting an accommodative monetary policy. As a result, Chinese Taipei was largely unscathed by the crisis.

3.3.2.3 Policy Effectiveness: The Interest Rates Pass-through Effect

(1) 1997/98 Crisis: Downward Rigidity of Lending Rates

Table 6 and Figure 10 indicate that the lending rate (i.e. banks' prime rate) exhibited downward rigidity and the interest rate pass-through effect did not exist in financial market. Although the CBC cut the discount rate for a total of 0.75 percentage points from September 1998 to February 2000, the lending rate

was just lowered by 0.253 percentage points[3]. This downward rigidity of lending rate had hampered the transmission mechanism of monetary policy.

To address this issue, from the beginning of 2002, the CBC introduced a number of measures to facilitate the role played by the banking sector in the monetary transmission process, such as:

(i) Urging banks to adopt the new flexible prime rate benchmark scheme (base lending rates) so that lending rates could reflect the funding conditions of the market more efficiently.

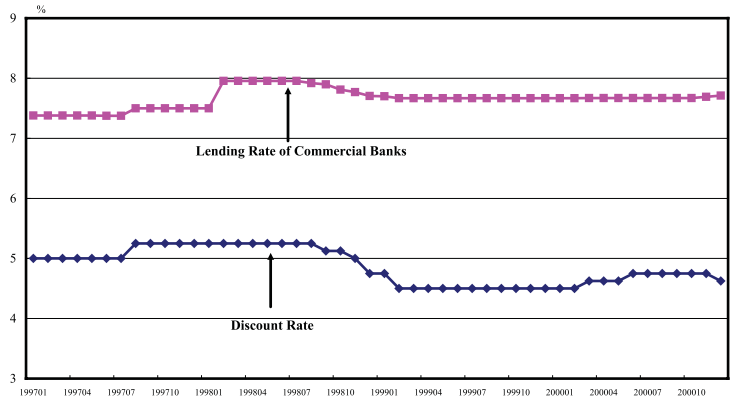
(ii) Encouraging banks to commence adjustable rate mortgages.
The CBC worked closely with the financial institutions to reform the pricing system of lending rates. After working closely among the CBC and financial institutions to reform the pricing system of lending rates, the new pricing system has improved transparency, introduced flexibility, and is based on actual market conditions, which helped to improve the effectiveness of monetary policy.

Table 6
Reduction of Key Interest Rates (1997/98 Crisis)

Interest Rate / Date	Discount Rate	Average Lending Rate of Commercial Banks
1998.09(1)	5.25%	7.920%
2000.02(2)	4.50%	7.667%
(1)-(2)	0.75%	0.253%

3. From December 2000 to June 2003, the CBC cut the discount rate 15 times for a total of 3.375 percentage points, while the lending rate was just lowered by an average of 0.782 percentage points.

Figure 10
Key Interest Rtes (1997/98 Crisis)



Source：CBC

(2) Current Crisis: Interest Rate Pass-through Effect May Exist

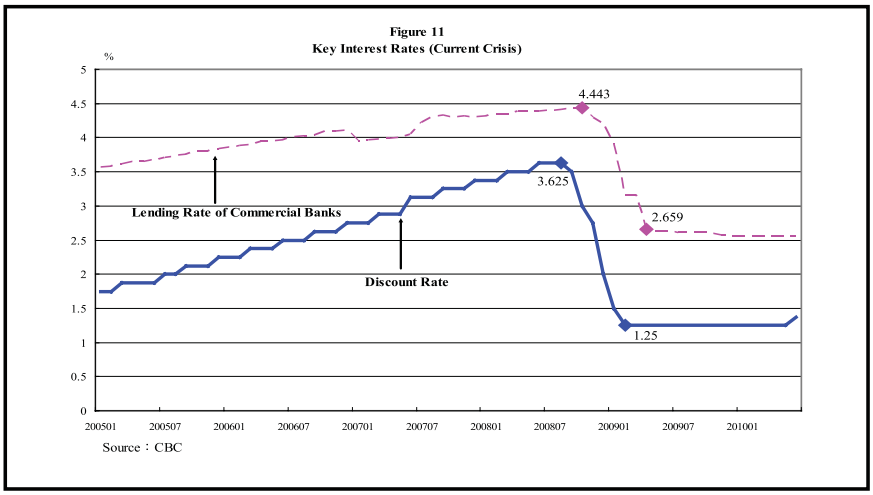
Table 7 and Figure 11 indicate that the short term market interest rates, affected by the CBC's successive rate cuts and other operations, declined significantly. This implies that the interest rate pass-through effect may exist in the financial market.

The CBC's actions have helped reduce the funding costs of individuals and enterprises, bolster their demand for bank credit, and encourage banks to extend credit, and are thus expected to boost domestic demand.

Table 7
Reduction of Key Interest Rates (Current Crisis)

Interest Rate / Date	Discount Rate	Average Lending Rate of Commercial Banks
2008.09(1)	3.625%	3.53%
2009.02*(2)	1.250%	1.95%
(1)-(2)	2.375%	1.58%

*The last discount rate cut for current crisis.



3.3.3 Fiscal Policy Responses

It is believed that a sound policy mix is required to effectively stimulate the economy. The CBC has been consistently creating an easy monetary environment and the government has also adopted expansionary fiscal policy. These coordinated policy efforts have taken effects in due course and brought economic growth back on track.

3.3.3.1 Project to Expand Investment in Public Works

(1) Promoting economic growth

At an execution rate of 100% (Table 8), and after deduction of land purchases, it is estimated that the Project to Expand Investment in Public Works will raise real GDP by an average of 1.02% per year.

(2) Creating employment opportunities

On average, it will create around 180,000 jobs per year; 190,000 to 220,000 jobs in 2009; 200,000~230,000 jobs in 2010; 160,000~190,000 jobs in 2011; and 120,000~150,000 jobs in 2012.

Table 8
Project to Expand Investment in Public Works - Six Main Targets

Unit: NT$ billions

Six main targets	Sub-projects	2009	2010	2011	2012	Total
Completing a fast and convenient transportation network	18 sub-projects, including the Nangang MRT line eastern extension, the Xinyi MRT line, grade separation of railways, railway safety improvement, and widening Wuyang section of Freeway 1.	24.3426	45.0951	42.5350	26.5636	**138.5363 (27.7 %)**
Building a safe and disaster-free environment	8 sub-projects, including the urgent rebuilding of old bridges on provincial highways, remediation of land subsidence, strengthening of old school buildings, and disaster-prevention slope management.	31.0561	40.6874	15.2111	12.3489	**99.3035 (19.9%)**
Raising the quality of the cultural and living environment	20 sub-projects, including extending the network of bicycle trails, reducing the piped-water leakage rate, rebuilding retail markets, constructing sewers, and regenerating farm villages.	48.3810	38.7895	20.2046	19.4346	**126.8097 (25.4%)**
Strengthening national competitiveness infrastructure	13 sub-projects, including the MRT link to Taoyuan Airport, the national ICT infrastructure, urban renewal related work, and coastal regeneration.	16.9719	27.6.405	25.3524	24.6597	**94.6245 (18.9 %)**
Improving offshore island transport facilities	3 sub-projects for developing offshore island transport facilities.	0.6553	1.2245	0.9930	0.5955	**3.4683 (0.7 %)**
Fostering prime R&D manpower, and helping to stabilize schooling and employment	2 sub-projects for creating a schooling safety net and cultivating high-grade manpower to promote employment.	29.2569	7.2318	0.7690	0.000	**37.2577 (7.4 %)**
Total	64 sub-projects	**150.6638 (30.2%)**	**160.6688 (32.1%)**	**105.0651 (21.0%)**	**83.6023 (16.7%)**	**500.00**

Source: CEPD, Chinese Taipei.

3.3.3.2 Impact of Fiscal Stimulus on Government Budget

Driven by the implementation of measures aimed at revitalising the economy and promoting consumption from September 2008 onwards, fiscal deficits trended upwards. The primary balance[4] to GDP ratio rose to -4.5% in 2009 and may further increase to -3.9% in 2010 (Table 9). The ratio, however, is much lower than those of the US, the UK and Japan, which all exceeded -10% in 2009.

4. Primary balance describes the condition where expenditures (excluding interest payment and debt redemption) are covered by revenues excluding bond revenues (deficits).

Table 9
Impact of Fiscal Policy on Government Budget

Period	Primary Balance as a % of GDP
1990-1996 Average	-4.43
1997-1998 Average	-0.68
1999	-0.47
2000-2008 Average	-2.04
2009	-4.5
2010 (Estimates)	-3.9

Source: CEPD, Chinese Taipei

Accordingly, a substantial expansion in government expenditures have effectively supported domestic demand and maintained the economic growth momentum in 2009 (Table 10).

Table 10
Contributions to GDP Growth (%)

Unit: percentage points

Period	Economic Growth Rate (yoy)	Domestic Demand								Demand of Rest of The World		
		Subtotal	Private Final Consumption	Government Final Consumption	Gross Fixed Capital Formation				Increase in Stocks	Subtotal	Exports of Goods and Services	Less: Imports of Goods and Services
						Private Enterprises	Public Enterprises	Government				
2000	**5.80**	**5.65**	**3.03**	**0.19**	**2.07**	**2.46**	**-0.09**	**-0.29**	**0.36**	**0.15**	**9.01**	**8.86**
2001	**-1.65**	**-6.21**	**0.62**	**0.27**	**-5.18**	**-4.59**	**0.00**	**-0.59**	**-1.93**	**4.56**	**-4.73**	**-9.29**
2002	**5.26**	**2.84**	**2.12**	**0.24**	**0.27**	**1.11**	**-0.07**	**-0.77**	**0.22**	**2.42**	**5.81**	**3.39**
2003	**3.67**	**2.37**	**1.85**	**-0.18**	**-0.02**	**0.31**	**-0.11**	**-0.22**	**0.72**	**1.30**	**5.53**	**4.23**
2004	**6.19**	**7.34**	**3.27**	**0.08**	**3.12**	**4.01**	**-0.46**	**-0.43**	**0.88**	**-1.15**	**8.86**	**10.01**
2005	**4.70**	**1.85**	**1.81**	**0.03**	**0.64**	**0.28**	**0.25**	**0.11**	**-0.63**	**2.86**	**4.86**	**2.00**
2006	**5.44**	**0.95**	**0.92**	**-0.09**	**0.02**	**0.59**	**-0.16**	**-0.42**	**0.10**	**4.49**	**7.34**	**2.85**
2007	**5.98**	**1.34**	**1.23**	**0.25**	**0.12**	**0.24**	**0.02**	**-0.14**	**-0.27**	**4.65**	**6.49**	**1.85**
2008(r)	**0.73**	**-2.11**	**-0.53**	**0.10**	**-2.61**	**-2.62**	**-0.03**	**0.03**	**0.94**	**2.84**	**0.61**	**-2.23**
Ⅰ(r)	7.55	3.94	1.27	0.39	0.49	0.51	0.11	-0.13	1.78	3.61	8.68	5.07
Ⅱ(r)	5.66	-1.84	0.19	0.09	-2.32	-2.36	0.05	-0.02	0.20	7.51	6.64	-0.87
Ⅲ(r)	-1.23	-4.47	-1.81	-0.31	-3.42	-3.29	-0.12	-0.01	1.07	3.24	1.72	-1.53
Ⅳ(r)	-7.53	-5.19	-1.47	0.24	-4.72	-4.85	-0.13	0.26	0.75	-2.34	-12.62	-10.28
2009(r)	**-1.93**	**-3.17**	**0.61**	**0.45**	**-2.03**	**-2.52**	**0.04**	**0.46**	**-2.20**	**1.25**	**-6.13**	**-7.38**
Ⅰ(r)	-8.56	-10.25	-1.25	0.43	-5.60	-5.69	-0.33	0.43	-3.82	1.69	-18.37	-20.06
Ⅱ(r)	-7.23	-5.77	-0.41	0.35	-4.08	-4.65	0.05	0.51	-1.63	-1.46	-12.55	-11.09
Ⅲ(r)	-1.21	-1.74	1.11	0.52	-1.12	-1.81	0.04	0.64	-2.24	0.53	-6.10	-6.63
Ⅳ(r)	9.24	4.93	2.96	0.50	2.64	2.01	0.39	0.23	-1.17	4.30	12.36	8.06
2010(f)	**9.98**	**8.01**	**1.98**	**0.11**	**3.86**	**3.76**	**0.14**	**-0.04**	**2.05**	**1.97**	**15.96**	**13.98**
Ⅰ(r)	13.59	12.78	1.91	0.34	4.33	4.71	-0.02	-0.36	6.20	0.81	22.92	22.11
Ⅱ(r)	12.86	8.92	2.52	0.16	5.05	4.36	0.43	0.26	1.18	3.94	21.42	17.49
Ⅲ(p)	9.80	8.38	2.55	0.04	4.15	4.36	-0.01	-0.20	1.63	1.42	13.74	12.32
Ⅳ(f)	4.70	2.95	1.05	-0.07	2.18	1.92	0.16	0.11	-0.21	1.75	7.57	5.83
2011(f)	**4.51**	**1.35**	**1.91**	**0.09**	**-0.53**	**-0.39**	**-0.05**	**-0.09**	**-0.11**	**3.15**	**4.60**	**1.44**
Ⅰ(f)	3.09	0.53	2.36	0.04	-0.36	-0.23	-0.06	-0.07	-1.50	2.55	4.62	2.07
Ⅱ(f)	4.27	1.76	1.91	0.12	-0.17	0.22	-0.17	-0.22	-0.09	2.50	3.71	1.21
Ⅲ(f)	4.77	1.25	1.71	0.24	-0.89	-1.05	0.06	0.10	0.19	3.52	4.04	0.52
Ⅳ(f)	5.74	1.79	1.69	-0.02	-0.69	-0.47	-0.04	-0.19	0.81	3.94	5.94	2.00

Explanation：Contributions of component X at time T=$(rx_T-rx_t)/rGDP_t\times100\%$, where rx : real value of component X, rGDP : real GDP, T and t represents reference period and the corresponding period of previous year.

Source: DGBAS, Chinese Taipei.

4. Relative Effectiveness of Policy Choices - Econometric Model

In this section, we will examine the relative effectiveness of monetary policy and fiscal policy on economic growth using the Error Correction approach of analysing economic time series.

4.1 Model Specification and Data Description

The empirical model can be specified in the following manner:

$$Y_t = f\ (MP_t\ ,\ FP_t) \ldots\ldots\ldots\

with the testing for the order of integration of the variables, which appear in our model. To characterise the time series property of the variables, the Augmented Dickey-Fuller (ADF) tests will be used. If the individual series are integrated in the same order, then the co-integration test is applied to the initial level of regression.

4.2.1 Unit Root Test

Table 11 indicates that RY_GR, RM2_GR and RPB are all I(1) level non-stationary. Therefore, we take the first difference for these I(1) variables in OLS estimation.

Table 11
Unit Root Test Results

Variables	ADF
RY_GR	-2.46 (4)
RM2_GR	-1.75 (5)
RPB	-2.74 (3)
D(RY_GR)	-9.06 (3) ***
D(RM2_GR)	-5.47 (4) ***
D(RPB)	-22.52 (2) ***

Note: 1. A constant term is included in ADF test equation.
2. The numbers of parentheses refer to automatic selection of lag length based on ADF test.
3. *, ** and *** indicate the 10%, 5% and 1% level of statistical significance (two-tailed).

4.1.2 Co-integration Test

Following the above findings that all variables are of I(1), therefore we test for possible co-integration among these variables. Both the trace test and maximum eigenvalue test show that there is only one co-integrating equation among the variables at the 0.05 level (Table 12). After normalisation, the co-integration relation among variables is as follows:

RY_GR =5.311257+ 0.177907 RM2_GR + 3.66189 RPB……. (3)

Table 12
Co-integration Test Results

Series: RY_GR RPB RM2_GR

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.440562	62.92881	35.19275	0.0000	42.98091	22.29962	0.0000
At most 1	0.170446	19.94790	20.26184	0.0552	13.82812	15.89210	0.1026
At most 2	0.079372	6.119776	9.164546	0.1817	6.119776	9.164546	0.1817

Trace test indicates 1 co-integrating eqn(s) at the 0.05 level.
Max-eigenvalue test indicates 1 co-integrating eqn(s) at the 0.05 level.
* denotes rejection of the hypothesis at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-

1 Co-integrating Equation (Log likelihood -365.3572)

Normalised co-integrating coefficients (standard error in parentheses)

RY_GR	RPB	RM2_GR	C
1.000000	**-1.928697 (0.78850)**	**-0.367117 (0.07336)**	**-3.094754 (0.64472)**

Adjustment coefficients (standard error in parentheses)

D(RY_GR)	-0.725680 (0.12647)
D(RPB)	0.117113 (0.05217)
D(RM2_GR)	-0.058660 (0.11833)

4.1.3 Error Correction Models

Based on the evidence that RY_GR co-integrates with both RM2_GR and RPB, the existence of one co-integrating linear combination is, therefore, established which corresponds to a long-run RY_GR function with respect to RM2_GR and RPB. Next we build a vector error correction model. In theory, the coefficient of error correction term should be negative to ensure the dynamic system is stable. Table 13 reports the result of the vector error correction estimates, which show that there is a long-run equilibrium relationship among economic activity, monetary policy and fiscal policy actions.

Table 13
Vector Error Correction Estimates

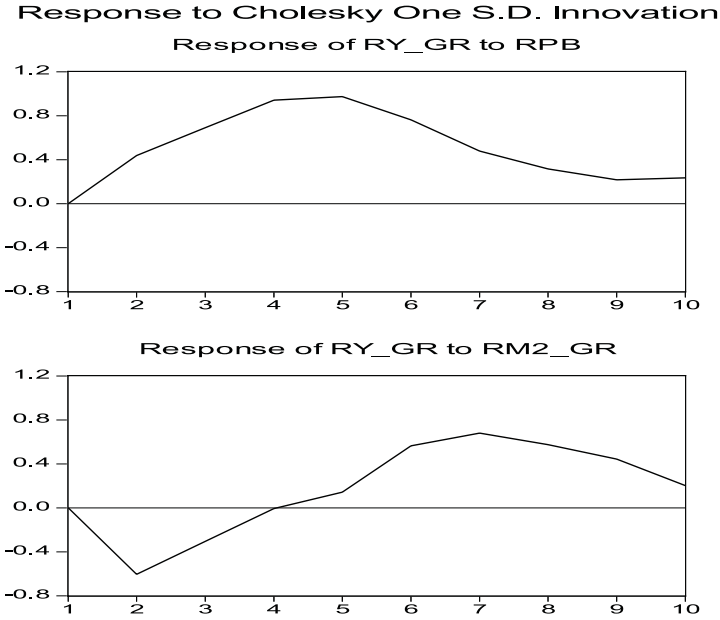
Error Correction:	D(RY_GR)	D(RPB)	D(RM2_GR)
CointEq1	***-0.725680*** ***	0.117113**	-0.058660
	[-5.73806]	[2.24497]	[-0.49574]
D(RY_GR(-1))	0.528395***	-0.125042***	-0.352674 ***
	[4.96422]	[-2.84794]	[-3.54121]
D(RY_GR(-2))	0.291637***	-0.020058	-0.037827
	[2.40283]	[-0.40063]	[-0.33309]
D(RY_GR(-3))	0.244738**	-0.064755	-0.027948
	[1.85844]	[-1.19208]	[-0.22682]
D(RPB(-1))	-1.934608***	-0.612966***	-0.164624
	[-5.42967]	[-4.17062]	[-0.49381]
D(RPB(-2))	-1.334133***	-0.650953***	-0.094294
	[-4.74566]	[-5.61346]	[-0.35848]
D(RPB(-3))	-0.619176***	-0.744457***	-0.103111
	[-3.27337]	[-9.54122]	[-0.58260]
D(RM2_GR(-1))	-0.477034***	-0.001008	-0.254347**
	[-3.32871]	[-0.01704]	[-1.89687]
D(RM2_GR(-2))	-0.106495	0.030824	-0.147956
	[-0.76358]	[0.53578]	[-1.13382]
D(RM2_GR(-3))	-0.070185	0.065697	0.282119***
	[-0.55792]	[1.26605]	[2.39685]
D1	-1.563624*	0.141541	-0.114925
	[-1.59333]	[0.34966]	[-0.12516]
D2	-3.285556***	0.002753	0.359454
	[-3.67085]	[0.00746]	[0.42923]

R-squared	0.562843	0.862093	0.335104
Adj. R-squared	0.485283	0.837626	0.217139
Sum sq. resids	225.9977	38.45357	197.8481
S.E. equation	1.909221	0.787540	1.786365
F-statistic	7.256854	35.23451	2.840700
Log likelihood	-146.3105	-80.78075	-141.3885
Akaike AIC	4.278661	2.507588	4.145636
Schwarz SC	4.652293	2.881220	4.519268
Mean dependent	0.060405	0.001522	-0.153103
S.D. dependent	2.661164	1.954404	2.018960

Note: *, ** and *** indicate the 10%, 5% and 1% level of statistical significance (two-tailed).

We also use the impulse response function as an additional check on the findings of the co-integration test. The function accounts the dynamic response of RY_GR to a one standard deviation shock of RM2_GR and RPB (Figure 12).

Figure 12
Impulse Response



4.3 Analysis of Empirical Results

The co-integration relation among the variables (Equation (3)) shows that RM2_GR is positively correlated to RY_GR in the long run, agreeing with the theoretical expectations. However, it also shows that RPB are positively correlated to RY_GR in the long run, which is not consistent with the theoretical expectations[6]. This may suggest that the soundness of government financial condition, rather than the government expenditure itself, helps to improve economic growth.

The result of the vector error correction estimates (Table 13) shows that there is a long-run equilibrium relationship among economic activity, monetary policy and fiscal policy actions. The implication of this is that both the monetary policy and fiscal policy maintain the GDP equilibrium through time. The negative coefficient of the error correction term, - 0.72568, means that the system will

6. When government expenditure increases, the PB will decrease. Therefore, when RPB are positively correlated to RY_GR, it implies that the increase of government expenditure has negative effect on economic growth.

gradually approach the long-run equilibrium within one quarter, at a significant speed of 72.568% convergence.

As for the result of the impulse response function (Figure 12), it indicates that: (1) the fiscal policy has a positive short-run and long-run effect on economic activity; (2) the monetary policy has a negative short-run effect and positive long-run effect on economic activity.

5. The Way Forward

5.1 Solid Economic Recovery

Driven by the robust growth of its major trade partners, especially the emerging Asian economies, Chinese Taipei's economy returned to positive growth in the fourth quarter of 2009 and expanded strongly by 13.71% and 12.53% in the first and second quarter of 2010, respectively. Despite the recent signs of moderation in the global recovery, Chinese Taipei has showed strength in both domestic demand and foreign demand (Table 10). The unemployment rate also has declined since the fourth quarter of 2009. The Directorate General of Budget, Accounting and Statistics (DGBAS) of the Executive Yuan projects that Chinese Taipei's GDP will grow by 9.98% in 2010 and by 4.51% in 2011 (Table 10, Figure 2).

5.2 Exits from Monetary Policy

Amid the economic recovery, bank credit has increased steadily and the M2 annual growth rate has remained close to the median of the 2010 target range of 2.5%~6.5%. The CBC has gradually adjusted its easing policy to properly reflect the economic conditions while pursuing financial stability since the second quarter of 2009.

To ensure that the liquidity in the banking system is kept at appropriate levels, the CBC has, in addition to accepting the banks' re-deposits and issuing short-term CDs, held auctions of 364-day CDs each month since April 2010. By the end of June 2010, the amount of 364-day CDs auctioned totaled NT$300 billion. With the increased issuance of CDs by the CBC, the excess reserves in the banking system dropped to NT$27 billion in June 2010 from a peak of NT$154 billion in April 2009.

In addition, the CBC has increased the policy rate and adopted "targeted prudential measures" as described in Section 2.3.5. The CBC will continue to

adopt an appropriate monetary policy in a timely manner in response to the new economic and financial developments.

5.3 Plan to Enhance the Soundness of Housing Market

The housing market is an important part of the overall economy, and makes a significant direct contribution to economic growth. It is also an important target of lending in the financial system, while housing constitutes a major part of the people's wealth and assets. The government has the responsibility to reasonably and effectively guide the sound development of the housing market as well as the stable growth of the economy. Therefore, the Council for Economic Planning and Development (CEPD) has drawn up a proposal for the "Plan to Enhance the Soundness of the Housing Market" in April 2010, with the aims of promoting socio-economic stability and meeting the basic housing needs of the low- and middle-income earners and members of the salaried class. This plan contains 21 working principles and 44 specific measures to address the following six tasks: (i) achieving a balance of housing supply and demand in the Taipei metropolitan region; (ii) helping the low- and middle-income earners and salaried employees to increase their ability to purchase or rent a home; (iii) improving housing information; (iv) enhancing risk management for real estate loans; (v) enhancing social fairness; and (vi) taking the relevant complementary measures. The plan will be actively implemented by all the government agencies and institutions.

The CBC has introduced a series of targeted prudential measures since June 2010, which are an integral part of the efforts to enhance risk management for real estate loans as in the "Plan to Enhance the Soundness of the Housing Market". However, the sound development of the housing market must rely on concerted policy efforts from the various government agencies and institutions.

5.4 Opportunity and Challenges

Chinese Taipei has maintained sound macroeconomic policies over the recent years. It has kept inflation low and improved public finances, mainly on account of higher tax revenues. Nevertheless, the sharp drop in global demand owing to the global economic crisis has exposed the risks associated with Chinese Taipei's heavy dependence on a few manufactured exports, prompting the authorities to seek new engines of economic growth and diversify the economy. Furthermore, as cross-strait economic relations have improved in the recent years, China has become Chinese Taipei's major export market and its second-largest supplier (Table 14).

In 2010 and 2011, the government will work actively to bolster the domestic economic growth momentum and improve the investment environment, particularly in respect of heightening incentives for private investment and attracting investment of private capital in public works. Furthermore, the implementation of the Economic Cooperation Framework Agreement (ECFA) marks a milestone in the normalisation of economic relations between Chinese Taipei and mainland China, not only representing a giant step for Chinese Taipei towards Asia-Pacific regional economic integration but also providing the government with a powerful incentive to use in its current global push for investment. In fact, it lays the foundation for a "Golden Decade of Development" for the island. The government is currently pursuing free trade agreements (FTAs) with the US, Japan, Singapore, the ASEAN, and the European Union with the aim of helping Chinese Taipei companies diversify their investment and carry out globalisation strategy, and avoid excessive reliance on the Chinese market. Hopefully, the ECFA will allow Chinese Taipei to reinforce its export competitiveness by using China as a gateway to integration into the East Asian free trade groupings.

Table 14

Changes in Two-way Trade with Major Trading Partners (yoy%)

	Exports					Imports				
	USA	Japan	Europe	China (incl. Hong Kong)	ASEAN 6*	USA	Japan	Middle East	China (incl. Hong Kong)	ASEAN 6*
2002	-2.7	-5.0	-5.9	29.4	7.4	-0.8	5.5	9.8	24.2	3.7
2002 Share	**18.6**	**8.5**	**15.1**	**10.1**	**9.8**	**14.9**	**26.6**	**5.2**	**8.3**	**13.3**
2003	-3.0	0.5	10.4	23.6	10.5	-6.9	19.6	43.7	30.9	5.2
2004	8.3	11.1	14.7	28.8	33.0	28.2	33.6	34.6	47.7	16.2
2005	1.3	9.4	-0.7	12.2	13.8	-2.8	5.3	36.5	16.2	3.8
2006	11.2	7.9	10.6	14.8	13.8	7.1	0.5	30.1	20.1	10.4
2007	-0.9	-2.2	9.7	12.6	16.7	17.0	-0.7	12.0	11.9	1.7
2008	-4.0	10.2	4.6	-0.8	7.3	-0.7	1.3	40.3	10.3	8.4
2009	-23.5	-17.4	-24.6	-15.9	-21.5	-31.0	-22.1	-42.1	-22.3	-22.8
2009 Share	**11.6**	**7.1**	**11.1**	**41.1**	**14.8**	**10.4**	**20.8**	**12.9**	**14.7**	**11.3**
2010 Jan-Aug	35.3	30.1	36.5	51.2	49.4	50.4	58.0	57.2	58.0	56.1

Source: DGBAS, Chinese Taipei.

6. Conclusion

The global financial crisis set off by the US housing bust has severely undermined the financial systems in the US and Europe. Fortunately, Chinese Taipei's financial system remained stable, which implied that financial intermediation was functioning normally, and problems such as liquidity shortage and undercapitalisation were absent. However, as a small and highly open

economy heavily reliant on exports, the weak external demand resulted in a serious contraction of Chinese Taipei's economic growth in 2009.

In the first half of 2008, the CBC focused on monetary policy tightening to address the upside risks to domestic inflation. As the US sub-prime mortgage debacle evolved into a global financial crisis after the third quarter of 2008, the CBC promptly shifted to monetary policy easing. The CBC also maintained an appropriate level of liquidity in the banking system, while helping to promote preferential loans and enhance the financing mechanism for SMEs. Therefore, a sharper plunge in business and consumer confidence was averted by a substantial easing of its monetary policy and a proactive crisis management framework. Overall, economic resilience has been supported by strong monetary management. In the meantime, the government actively adopted an expansionary fiscal policy to stimulate economic growth, as well as initiated some necessary measures to stabilise the financial system. These coordinated policy efforts, together with the strong rebound in the major Asian emerging countries, especially China, have helped Chinese Taipei's economy to recover quickly.

To examine the relative effectiveness of policy choices during the financial crisis, we adopt the Error Correction approach of analysing the economic time series. The empirical result shows that both the monetary policy and fiscal policy maintain the GDP equilibrium through time. The result of vector error correction estimates clearly shows a well-defined error correction term, ECM, and indicates a feedback of 73% of the previous quarter's disequilibrium from the long run money supply and primary balance elasticity of economic activity. Furthermore, the result of the impulse response function shows that: (1) the fiscal policy has positive short-run and long-run effect on economic activity; (2) the monetary policy has negative short-run effect and positive long-run effect on economic activity.

The current financial crisis has given us a lesson in learning the importance of financial stability. Before the US sub-prime debacle triggered the global financial crisis, most central banks focused mainly on price stability as the key to economic and financial stability. Nevertheless, they have recognised that economic and financial stability cannot rely solely on stable prices. Meanwhile, effective financial regulation requires a macro prudential policy, in addition to a micro purdential one. It is thus imperative for a central bank to pursue both price and financial stability. International institutions, including the IMF and the BIS, have recognised a central bank's responsibility in financial stability. To that end, credit growth and asset price movements cannot be ignored when a central bank formulates its monetary policy. The CBC notes that price stability has

always been a key mandate of the CBC. Indeed, the Central Bank Act also stipulates financial stability as an important objective of the CBC, predating the current global trend.

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