

Chapter 8

CAPITAL FLOWS AND THEIR IMPLICATIONS FOR CENTRAL BANK POLICIES IN PAPUA NEW GUINEA

by
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1. Introduction

This paper examines the nature of capital flows into and out of the Papua New Guinea (PNG) economy and discusses how these flows may influence monetary policy. The management of capital flows varies from country to country. PNG's major policy tool relating to capital flow management has been the Exchange Controls and Gold Regulation² which has been enforced by the Bank of PNG (BPNG) since 1976. The exchange controls are aimed primarily at controlling the amounts of foreign exchange transactions between PNG and the rest of the world to preserve the level of foreign exchange reserves and to protect the domestic banking and financial sector. There have been several episodes of reform to the exchange control system. The first of these was in 1987. These reforms represent an ongoing need to adapt to changes in economic policy and environment as well as international and domestic institutional and structural changes. Reducing controls on foreign exchange transactions over the years has been part of the overall process of liberalisation in line with the government's market-orientated approach to economic development. Other government agencies, such as the Investment Promotion Authority (IPA), Internal Revenue Commission (IRC) and the Department of Trade and Industry, also have policies relating to different aspects of capital flows. An integral component of the government's development strategy is the promotion of investment in PNG. The IPA was established by an Act of Parliament in 1992. Its focus is

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1. The author is a Senior Research Analyst, Research Department, Bank of Papua New Guinea (BPNG). The author expresses his gratitude to the project leaders Min B. Shrestha and Vincent Lim of The SEACEN Centre for their leadership and guidance on the project and to Gae Kauzi, Boniface Aipi, James Lloyd, Elim Kiang, George Awap, Gaona Gwaibo and Williamina Nindim of the Bank of PNG for their editing and comments. The views expressed herein are those of the author and do not necessarily reflect those of the BPNG.
 2. Exchange control refers to the enforcement of limits on amounts in foreign exchange transactions carried out by individuals or entities into and out of Papua New Guinea with the rest of the world. The main objective of exchange control is to conserve the country's foreign exchange reserves. The controls are administered by the BPNG and commercial banks who may grant approvals within the limits of their delegated authority.

centred on attracting new investors to the country as well as encouraging existing investors, both foreign and domestic, to expand their investment.

The paper is structured as follows. In Section 2, the major policies relating to capital flows are discussed. This is followed, in Section 3, by a review of the trends in the major macroeconomic indicators and capital flows since 1985. Section 4 provides the empirical analysis of the determinants of capital inflows into PNG. Capital inflows and their relation to the BPNG's monetary policy are covered in Section 5, while Section 6 discusses capital flows and financial stability. Section 7 concludes the paper by identifying policy issues, prospects and recommendations.

2. General Framework and Major Capital Flow Management Policies in Papua New Guinea

2.1 Policies Implemented by the Bank of Papua New Guinea

A uniform set of exchange controls under the Exchange Controls and Gold Regulation came into effect with monetary independence in 1976. The fixed exchange rate regime adopted in 1975 obviated the need for extensive exchange controls and, with the exception of restrictions on some capital transactions, a reasonably liberal exchange control regime was put in place. Approval was readily given for imports and most types of current account payments.

The main focus of exchange controls was on investment from overseas for which approval was dependent on the compatibility of the investment with the government's objectives. Limits were also imposed on annual remittances overseas for portfolio investments made by PNG residents and all export proceeds were to be repatriated to PNG.

In November 1982, the BPNG made amendments to the controls relating to borrowing. Offshore borrowing by private sector companies in PNG required the specific approval of the BPNG if the borrowing resulted in a debt to equity ratio exceeding 3:1. A three-year moratorium on principal interest payments was also imposed.

Several liberalisation measures were taken in 1987. These included a 50% increase in the amounts that authorised dealers could approve under delegated authority; a 50% increase in the allowable levels of overseas portfolio investments for individuals and a reduction to one year of the moratorium on principal repayments. In 1992, foreign exchange controls were liberalised further by

increasing the delegated authority of the authorised dealers and relaxing controls on capital transactions. For overseas debt, the authorised dealers could approve borrowing in foreign currency up to K5 million at a debt to equity ratio of 5:1. By 1992, the exchange controls related primarily to the outflows and not the inflow of capital. Inflows were welcome, providing that they were consistent with government policy. Repatriation and loan repayments were still monitored to ensure that the terms were fair and reasonable.

In October 1994, the kina was floated. This prompted minor changes to the exchange controls. The remaining capital controls were designed to limit short-term speculative capital flows, assist tax surveillance and prevent transfer pricing³ (BPNG, 2007: 170).

The creation of the Port Moresby Stock Exchange (POMSoX) in 1999, financial sector reforms, the need to remove impediments to investment and good economic fundamentals provided the motive for major foreign exchange control liberalisation in 2005. Liberalisation from this stage forward was implemented through exemptions, so that exchange controls could be re-implemented if a balance of payments crisis required them to be invoked.

In 2005, all current account contracts and flows, all capital account contracts and flows to the government and all private capital account flows whose contracts had been approved by the BPNG were liberalised. The need for foreign exchange approval was retained for all private capital account contracts to acquire or deal with an asset within or outside Papua New Guinea; the opening of foreign currency accounts outside PNG; licensing of gold exporters; and licensing of foreign exchange dealers. The conditions imposed included (a) approval required to take K20, 000 (about US\$7,600) out of the country; and (b) only authorisation for dealers to conduct foreign exchange transactions.

In September 2007, private capital account contracts between residents and non-residents; securities and guarantees in favour of non-residents; listed and un-listed securities and other investments with underlying written contracts; and

3. Refers to the pricing of contributions (assets, tangible and intangible, services, and funds) transferred within an organisation. For example, goods from the production division may be sold to the marketing division, or goods from a parent company may be sold to a foreign subsidiary. Since the prices are set within an organisation (i.e., controlled), the typical market mechanisms that establish prices for such transactions between third parties may not apply. The choice of the transfer price will affect the allocation of the total profit among the parts of the company. This is a major concern for fiscal authorities who worry that multi-national entities may set transfer prices on cross-border transactions to reduce taxable profits in their jurisdiction. This has led to the rise of transfer pricing regulations and enforcement, making transfer pricing a major tax compliance issue for multi-national companies.

foreign currency accounts of individuals opened prior to 1st June 2005 were liberalised.

The Bank retained controls on the opening of offshore foreign currency accounts, including kina accounts outside PNG; licensing of gold exporters; licensing of foreign exchange dealers; and the removal of physical cash in excess of K20, 000 or equivalent in foreign currency.

2.2 PNG Policies to Manage Foreign Direct Investment (FDI) Inflows

The National Investment Development Authority (NIDA) was established by the government in 1989 to channel foreign investment into areas of business that would make the best use of resources consistent with national development and investment policies. It was also aimed at encouraging citizen participation in business activities or projects facilitated by foreign investment. Government regulated monopolies were restricted from receiving any foreign investment. No new foreign firms were allowed into the retail sector and established foreign firms in the retail sector had to sell 50% of their equity to local enterprises. In 1990, NIDA, which was considered as being overly regulatory and an impediment to investment growth, was replaced with the Investment Promotion Authority (IPA) which was given clear goals to encourage foreign investment in the economy.

The Government, through the IPA and the Department of Trade and Industry, launched the five-year National Investment Policy in 1998 to achieve the following objectives (National Investment Policy, Vol. I, 1998:4):

- The creation of a social and economic environment conducive to private investment;
- The development and maintenance of infrastructure;
- The development of human resources;
- Greater clarity and transparency in investment incentives;
- The elimination of regulatory and procedural obstacles to investment;
- The promotion of small and medium enterprises;
- The encouragement of backward and forward linkages and support for domestic value added;
- The provision of greater consistency in policy measures; and
- The creation of the necessary institutional framework, in order to ensure strong implementation of its investment policy.

Furthermore, other government development aspirations and plans, such as the Medium Term Development (MTDS) 2005-2007, call for export promotion; employment growth; aiding the development of new industries; influencing the spatial distribution of economic activity in favour of less developed areas; increasing training; aiding investment; promoting fuel efficiency; environmental conservation; and aiding primary production. Some of the initiatives covered under these areas can be initially exempted from company income tax to encourage investment flows.

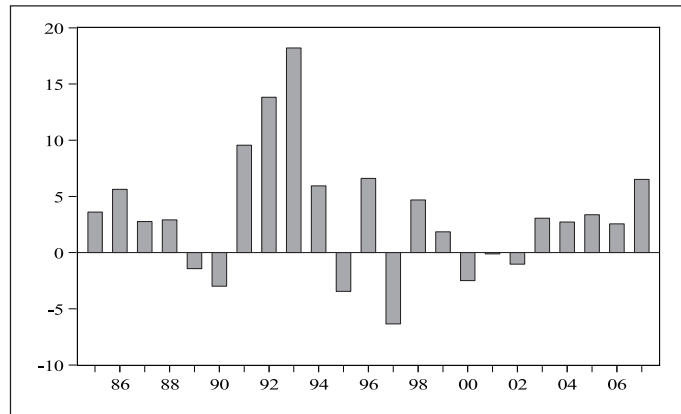
3. Trends in Macroeconomic Indicators and Capital Flows in Papua New Guinea

3.1 Gross Domestic Product

Economic growth in PNG averaged 3.0% for the period, 1985-2007. In the sub-period, 1985-1990, real GDP growth averaged 1.7%. The prices of PNG's export commodities were generally low during this period. The commencement of production at Ok Tedi mine in 1984 contributed positively to GDP growth during the period. However, the closure of the Bouganville mine and a significant decline in mineral prices resulted in the decline in real GDP in 1989 and 1990. The decline would have been higher had it not been for the increase in the number of other mineral projects.

The period 1991 – 1995 saw real GDP growth rates averaging around 8.8% per annum with a high of 18.2% in 1993. The high growth during the period was mainly due to the boom in the mineral sector which had positive spin-offs to the other sectors of the economy. It was during this period that production commenced at Hides gas and Kutubu oil projects, whilst Wapolu gold/silver project was under construction.

Figure 1
GDP Growth Rate (%)



From 1996 – 2002 economic activity was influenced by unfavourable internal and external developments. These lead to an average growth rate of 0.4% for the period. Internally, these included the El Nino drought, the Sandline⁴ crisis and unproductive overspending by the government. Meanwhile, the prices of PNG’s export commodities were low. These factors had the effect of reducing economic activity for most of the years during this period. However, in 1998 and 1999 real GDP grew by 4.7% and 1.9%, respectively, largely due to the commencement of production at the Lihir gold mine.

GDP growth for the period 2003 - 2007 averaged around 3.6% per annum and was broad-based, with all sectors contributing strongly to the growth. The growth was largely driven by high international commodity prices due to higher global demand which was supported by prudent fiscal and monetary policy.

3.2 Inflation

Changes in the domestic prices of goods and services are closely associated with movements in the kina exchange rate. Under the fixed exchange rate regime the kina’s foreign currency value was high and stable, and therefore headline inflation during the period 1985-1994 was relatively stable and low. Most of the inflationary pressure came from foreign inflation and domestic factors. Other factors that contributed to these inflation outcomes were: disciplined government spending, a favourable balance of payments position, low international oil prices

4. A period when foreign mercenaries were brought into the country by the government to help halt the Bouganville crisis. Some factions of the Defence Force were not happy with this arrangement and therefore had to remove the mercenaries by force.

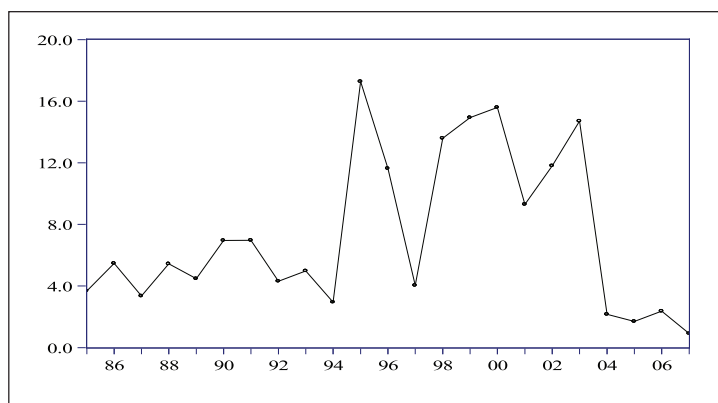
and low inflation in PNG's major trading-partner economies. Annual inflation averaged around 5.0% during the period, with a low of 2.9% in 1994 and a high of 7.0% in 1991.

Under the floating exchange rate regime, which was adopted in 1994, the kina exchange rate trended downwards and inflation was volatile and high. Internal research by the Bank shows that pass-through to inflation was 50-60% of a one percent depreciation in the effective exchange rate.⁵ This depreciation in the exchange rate fed through to the Consumer Price Index over 4-6 quarters during the period 1989-2004 (Sampson, Yabom, Nindim & Marambini, 2006: 25). Annual inflation between 1995 and 2002 averaged around 12.0%. When the kina depreciated by 11.6% against the Australian dollar and 13.1% against the US dollar in 1995, inflation peaked at 17.3%. The high inflation rate in 1998 and 1999 were due to irresponsible government spending, the effects of El Nino and the Asian financial crisis. The impact of the Asian financial crisis had manifested itself in balance of payments pressure and rapid depreciation of the currency. Prices of PNG's export commodities, particularly oil, copper and logs, fell dramatically. Log volumes declined due to a contraction in the demand in the main export markets of Korea and Japan. Between 2000 and 2003, the kina depreciated by 30.9% and 22.3% against the Australian and the US dollars, respectively, resulting in an inflation outcome of 14.7% in 2003.

The exchange rate stabilised between 2004 and 2007 as a result of high commodity prices and favourable international conditions. This led to annual inflation falling within a range of 0.9 – 2.4%, with an average of 1.8%. Prudent fiscal and monetary management also contributed to the stable rate of inflation.

5. The exchange rate is the weighted average of the exchange rates of the kina with the US, Australian, New Zealand and Singapore dollars and the Japanese yen. Two alternative weightings are used to calculate the effective exchange rate. One based on the average share of PNG's imports purchased from each country during 1989–2004 and the other based on the average share of imports purchased in each currency during 1996–2004. The effective exchange rates calculated using these weightings is labeled the country-based exchange rate and the currency-based exchange rate, respectively.

Figure 2
Annual Headline Inflation (1985-2007)

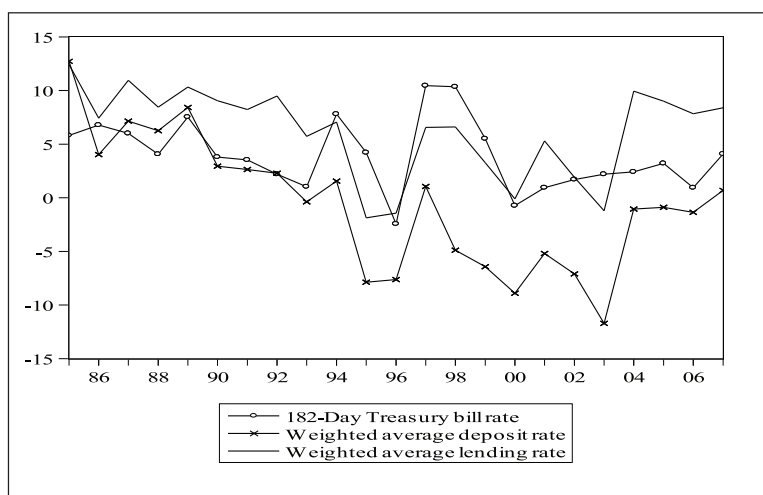


3.3 Interest Rates

During the fixed exchange rate period from independence to 1994, real interest rates in PNG were generally stable and positive reflecting low inflation over most of the years. The margin between the lending and deposit rate was around 4.0% on average during the period. Following the float of the kina, real interest rates fluctuated widely as inflation was volatile, and, for some years, negative real interest rates were realised, particularly for term deposits. In an attempt to realign interest rates and signal its monetary policy stance, the BPNG introduced a price-based signalling mechanism, the Kina Facility Rate (KFR), with the aim of enhancing the transmission of monetary policy. Any change in the KFR signals the monetary policy stance of the Bank of PNG and sets the rate at which the BPNG deals with the commercial banks for over-night and term⁶ repurchase agreements. Following the introduction of the KFR, the commercial bank's lending rate and the 6-12 month deposit rate moved in line with the KFR. However, the margin between the lending and deposit rate remains wide.

6. Apart from the overnight repos, 7- and 14-day term repos are also offered by the BPNG to commercial banks.

Figure 3
Interest Rates (%)

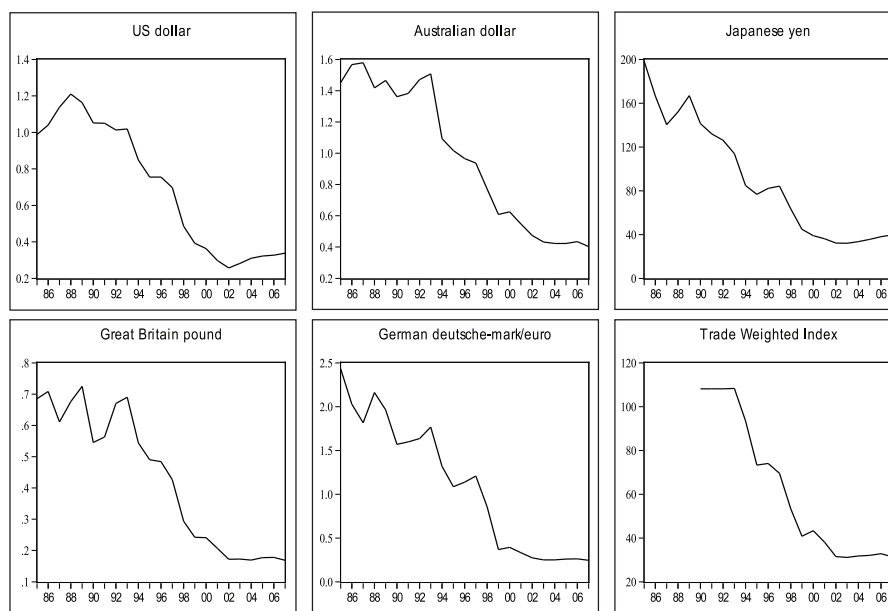


From 2003 to 2007, inflation stabilised and averaged around 4.0%. This was driven by high international commodity prices and stable kina exchange rates. The BPNG, in response, reduced its KFR progressively down to 6.0% and maintained it up until June 2008 when it raised the KFR to 6.25% due to a high inflation outcome in the March quarter of 2008 and expectations of continued inflationary pressures for the rest of the year.

3.4 Exchange Rate

The exchange rate regime adopted by the Bank of PNG provides the basic framework within which rates are determined and it influences the way in which the Bank conducts its monetary, exchange rate and foreign currency management. The transition to a floating regime therefore introduced some fundamental changes to the nature of monetary management. Under the fixed exchange rate regime, foreign exchange reserves acted as a shock absorber, allowing injections of liquidity to be diffused without an adverse effect on inflation. Under the floating regime, imbalances between demand and supply are brought into equilibrium through changes in exchange rates (BPNG, 2007: 110).

Figure 4
PNG Exchange Rate against Major Currencies and the Trade Weighted Index (TWI)

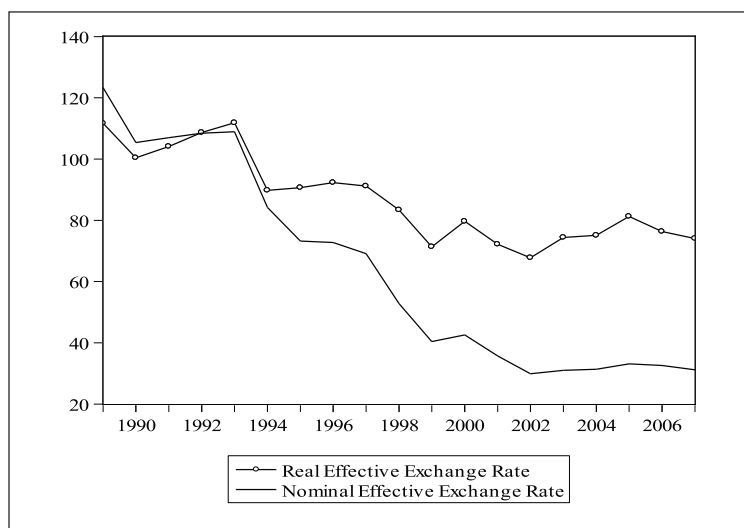


During the fixed exchange rate period⁷, the kina value in terms of foreign currencies of the major trading partners was relatively high and stable. Following the adoption of the floating exchange rate system in 1994, the kina fluctuated considerably, mostly depreciating against the key currencies. By 2002, the kina stabilised and has since remained fairly stable. The stability in the kina in recent years has been due to the favourable external and domestic economic conditions that the country has been experiencing.

Figure 5 shows that, until 1994, PNG's real effective exchange rate (REER) tracked the nominal effective exchange rate (NEER) during the fixed exchange rate period. Following the float of the kina in 1994, the NEER has been volatile, particularly on the downward side, and the REER no longer tracks the NEER. The REER has generally depreciated and is at a level lower than it was when the kina was floated. In combination with the abolition of index-linked minimum wage determination, this implies an increase in the international competitiveness of the PNG economy (BPNG, 2007: 80).

7. PNG had a fixed exchange rate regime known as the "hard kina policy" from 1975-1994. One of the primary purposes of the 'hard kina' policy that Papua New Guinea pursued from the time of independence until the kina was floated in 1994 was to avoid imported inflation by maintaining the value of the kina (Garnaut and Baxter 1983).

Figure 5
Real and Nominal Effective Exchange Rates (1989 – 2007)



3.5 Current Account, Foreign Exchange Reserves and Overall Balance of Payments (US\$ million)

The overall balance of payments position of the country has moved in line with the developments in the current account. Historically, changes in the trade account balance are dependent on international export commodity prices. Generally, when commodity prices are high there is a high trade surplus and when commodity prices are low the trade account tends to be low or in deficit. However, given the high import dependency of the economy, the service account has usually been in deficit which more than offset the trade surpluses resulting in a current account deficit between 1985 and 1992. Correspondingly, there was a balance of payment deficit during this period. The current account balance prior to the float was always in deficit until 1993 when it recorded a surplus of US\$474 million. This was underpinned by increased production in minerals which was due to the commencement of production at the Porgera gold mine. Together with an improvement in the export performance of the agriculture/forestry/fisheries sector, the current account continued to be in surplus from 1994 to 1996. When the current account returned to surplus between 1985 and 1992, the balance of payment also improved.

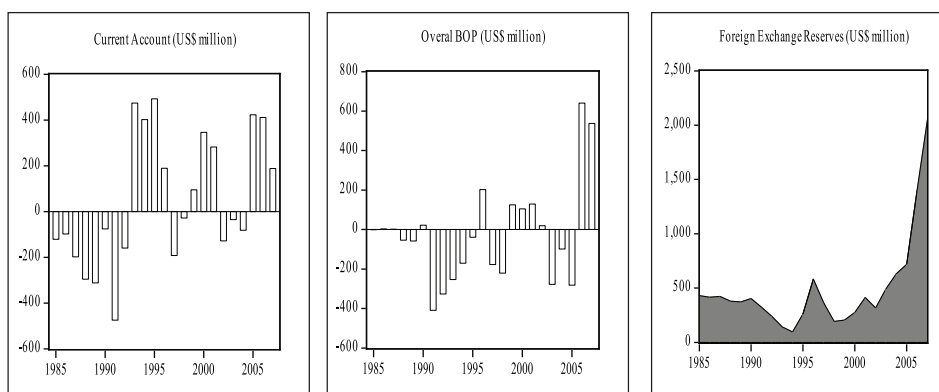
PNG's level of foreign exchange reserves has been around US\$500 million from 1985 up until the early 1990s. Despite the healthy position of the current account in the mid 1990s, the reserve level began to slide downwards from

US\$323 million in 1991 and reached a low of US\$85 million in 1994, because a large part of increased government spending was on imported goods and services, which translated into a high usage of foreign exchange reserves under the fixed exchange rate regime. Eventually, when the reserves were not sufficient to support the fixed exchange rate regime, the kina was floated in October 1994. After the floating, the foreign reserve level increased under the government's effort to restore macroeconomic stability. In the late 1990s excessive government spending became a feature of the economy. Combined with the adverse effects of the El Nino drought on agricultural exports and copper exports from Ok Tedi mine, the current account went into deficit once again. These had the effect of reducing foreign exchange reserves and causing the overall balance of payments to be in deficit.

After 2000, international commodity prices rose which assisted in improving the trade and current accounts, the balance of payments and the nation's foreign exchange reserves position. The surpluses in the balance of payments in 2000 and 2001 were due to higher international prices for mineral exports and some of the agricultural commodities, increased activity in the agriculture/forestry/fisheries sectors and the depreciation of the kina. The level of international reserves increased to a level where they were sufficient for 4 months of total import cover and 5.4 months of non-mineral import cover.

Economic activity declined in 2002, resulting in lower exports and increased service payments, this deteriorated the balance of payments and lowered international reserves. In 2003, improved export activity, a lower value of exports and prudent fiscal management by the government led to an increase in the level of foreign exchange reserves and an improvement in the overall balance of payments. From 2004 onwards, there has been macroeconomic stability in the economy. High export commodity prices have led to an increase in international reserves and a favourable balance of payments position.

Figure 6
Current Account & Overall BOP Balances and Foreign Reserves
(US\$ million)



3.6 Capital Flows

Total capital flow consists of FDI, portfolio and other investments. The value of each component at the end of a year is a net figure and therefore the total is a net value. These can be either positive or negative. For example, in a particular year, some capital may be coming into the country from abroad as FDI⁸ while at the same time, part of the capital that came as FDI in the previous years may be returned as earnings to foreign investors. So, the FDI figure (Dir. Invest. in Rep. Econ⁹) in a given year is derived by subtracting the returned amount in that year from the new FDI amount received that year. If the amount of incoming new FDI is greater than the returned amount, then the FDI value in that year will be positive. But if returned investment amount is greater than the incoming new FDI amount, then the value would be negative.

3.6.1 Capital Inflows - Foreign Direct Investment

Most of the FDI inflows to PNG are associated with large scale mining and petroleum projects. In 2004, of the total volume of FDI stock received by PNG, 76.3% was destined for the mineral sector, while the manufacturing and

8. Foreign direct investment occurs when a non-resident acquires a stake of at least 10% in a domestic enterprise (or if he increases that stake).

9. Short for Direct Investment in Reporting Economy.

agriculture sectors received smaller but still significant volumes of FDI inflows (Table 1).

Table 1¹⁰
Sectoral Distribution of FDI in Papua New Guinea, 2004

SECTOR	% Composition
Mineral	76.3
Manufacturing	4.4
Agriculture	5.5
Forestry	4.1
Banking, Insurance & Finance	3.2
Other	3.0
Fishery	0.9
Power	0.6
Retail	1.3
Hotel/Restaurant	0.3
Drilling	0.1
Transport	0.2
Source: CSDRMS ¹¹ – Bank of Papua New Guinea	

Foreign direct investment in PNG averaged around US\$113 million during the period 1985-2007. FDI has been the dominant component of total capital inflows into PNG. On an annual basis, FDI inflows have been below US\$200 million. However, this hides the volatility in capital inflows into PNG which have been due to the volatile nature of FDI inflows into the mineral sector (Figure 7.0). As PNG receives, on average, only small volumes of FDI inflows per year, large inflows that are used to fund large scale capital-intensive mining projects have a large impact on the country's capital account. The highest FDI inflow was recorded in 1995, totalling over US\$450 million, which was primarily due to the Tolukuma and Lihir Gold mine projects. The significant FDI inflows received in 1989 and 1990, as shown in Figure 7.0, were due to the construction of the Porgera gold mine, while the increase in FDI inflows received in 1997

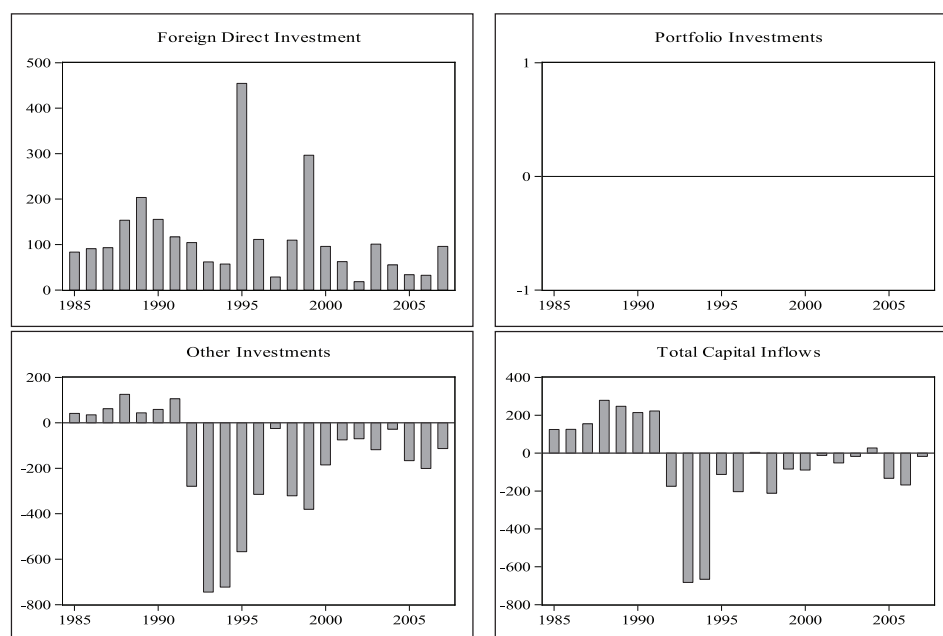
10. Taken from the working paper (FDI and Economic growth in Papua New Guinea) by B. Aipi and J. Lloyd, Research Department, Bank of Papua New Guinea.

11. Commonwealth Secretariat Debt Recording and Management System.

were mainly destined for the construction of the Lihir gold project and the RD Tuna canning plant in Madang. The continued inflow in FDI between 1997 and 2002 reflected the development of the Moran oil project, on-going work at Lihir and the borrowings under the 2000 structural adjustment programme (SAP).

In the years since 2000, PNG has seen an increase in FDI inflows into both the manufacturing and the other sectors, which includes the telecommunications sector. In addition there were new mineral projects, such as the Ramu Nickel/Cobalt, Hidden Valley, Wafi, Kainantu and Simberi gold projects, which attracted a significant volume of FDI inflows.

Figure 7
Capital Inflows (US\$ million)



3.6.2 Portfolio¹² and Other Investment¹³ Inflows

There has been little portfolio investments into PNG between 1985 and 2007. This reflects the small size and immaturity of the domestic security market.

12. Portfolio investment includes purchases of securities and equity shareholdings. It also includes tradable financial derivatives.

13. Other capital flows include non-tradable instruments, such as loans and deposits, trade credit and payment of arrears on outstanding debt.

Lack of proper management of records by the relevant agencies could have also contributed to the state of data on this category of investment.

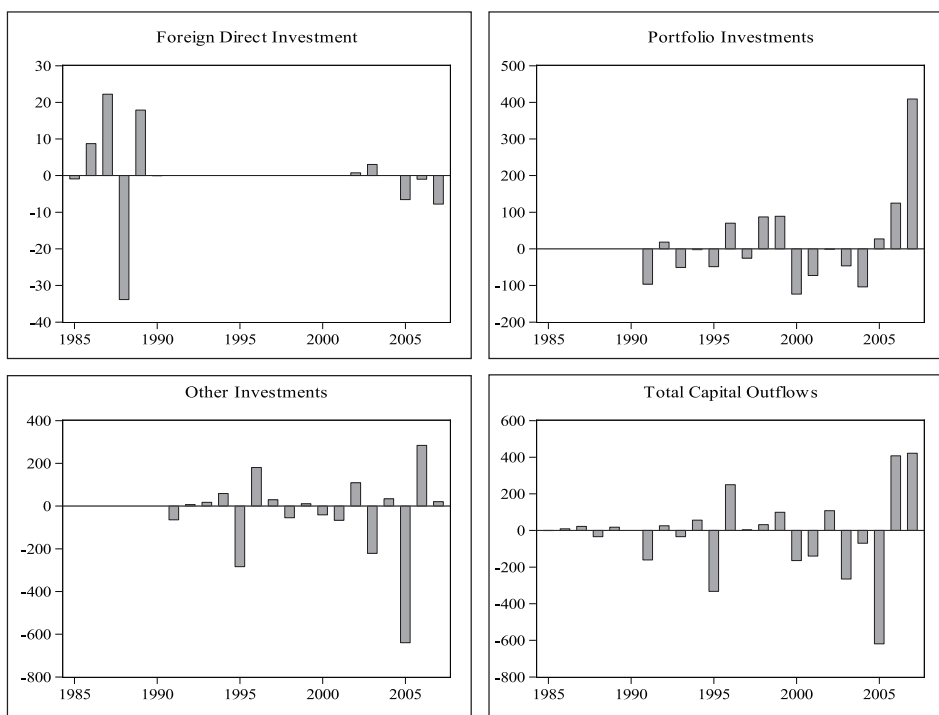
During the period 1985 to 2007, Papua New Guinea had other investments from abroad which averaged around US\$160 million per annum. Since 1992, while there was net FDI inflow, there has been net outflow of other investments. This means that there has been a greater outflow of earnings on previous investments than inflows into the country for new other investments. The negative other investment inflows also reflect the payment of arrears on outstanding debt.

3.6.3 FDI, Portfolio and Other Investment Outflows

Capital outflows are investments made abroad by PNG residents. These have been low compared to the inflows since 1985. Prior to 1990, there were some FDI outflows while portfolio and other investments were very little or non-existent. From 1991 onwards there have been some portfolio and other investment outflows while FDI outflows have been insignificant. During the period 1985-2007, total capital outflows averaged negative US\$15 million per annum, reflecting a reduction in investments abroad through the sale of previously held foreign assets by residents.

Foreign direct investment remained very low and this is attributed to a number of factors. These include a lack of capital and PNG companies not having the competitive advantage over foreign companies.

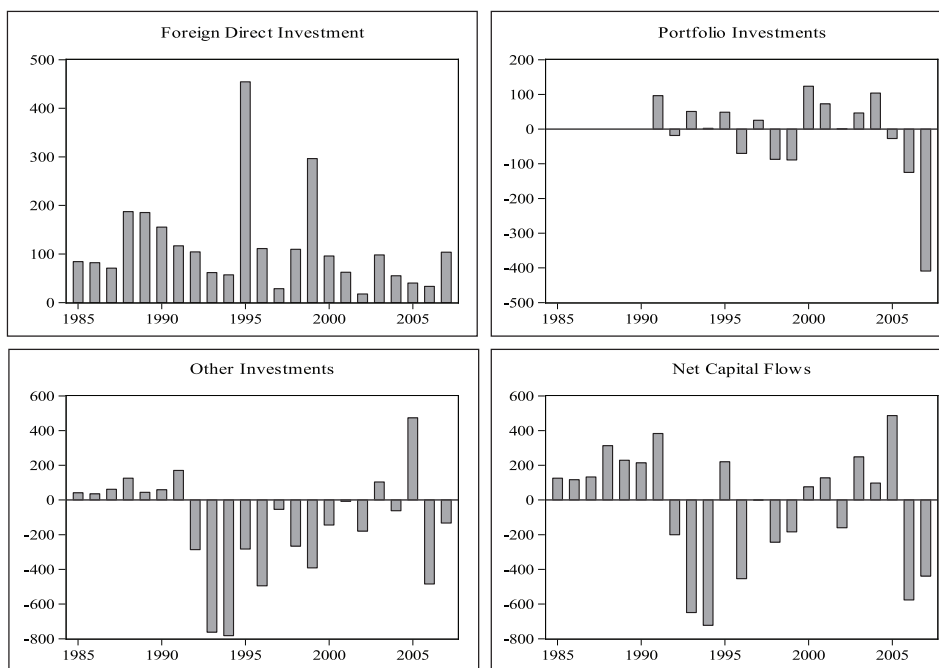
Figure 8
Capital Outflows (US\$ million)



3.6.4 Net Capital Flows

Papua New Guinea's net capital flow position has been volatile since 1985. Between 1985 and 1991, PNG had successive net inflows reflecting the developments in the mineral (including petroleum and gas) sector. From 1992 onwards, net outflows of other investments, particularly payment of arrears on outstanding debt to international financial institutions, have resulted in total net capital outflows. Figure 9 presents net capital flows by components and it is clear that net FDI inflows into Papua New Guinea have been dominant whilst portfolio and other investment flows have mostly shown net outflows.

Figure 9
Net Capital Flows by Components (US\$ million)



4. Capital Flows and Monetary Policy

The discussion of capital flows and monetary policy almost without doubt starts with the well known concept of the “Impossible Trinity”, that is, the observation that a country cannot simultaneously have open capital markets (or free capital mobility across borders); a fixed exchange rate regime; and an independent monetary policy (Obstfeld, Shambaugh and Taylor, 2004).

Economists have long argued that trade in assets (or capital flows) provides economic benefits by enabling residents of different countries to capitalise on their differences. According to Eichen-green, et al. (1999), capital flows allow countries to trade consumption today for consumption in the future. Capital flows allow countries to get out of large falls in national consumption from economic downturn or natural disaster by selling assets to and/or borrowing from overseas. Capital flows also allow countries as a whole to borrow in order to improve their ability to produce goods and services in the future. In more recent times, economists have emphasised other benefits of capital flows in terms of technology transfer that normally accompanies foreign investment, or greater competition in the domestic markets that results from allowing firms to invest locally. However,

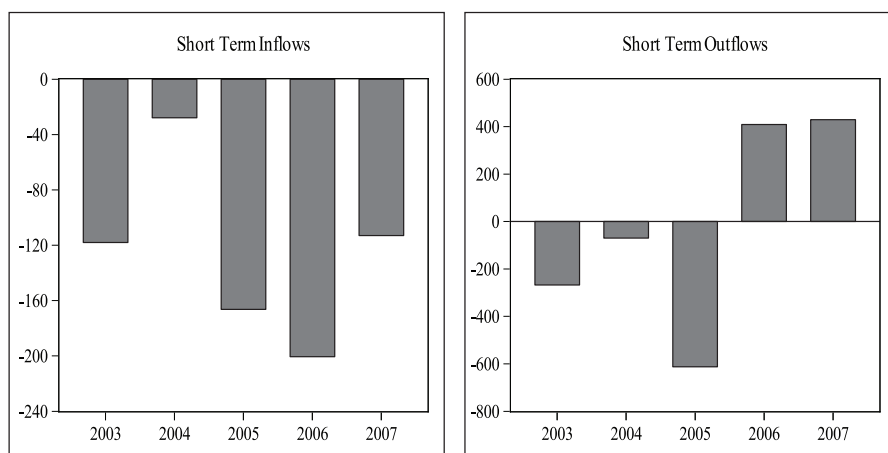
on the other hand, the benefits from capital flows do not always come without a price. Capital flows can complicate economic policy or even be a source of instability themselves and therefore relevant authorities have used some form of capital controls to mitigate the adverse impact of capital flows.

The core objective of monetary policy is to achieve and maintain price stability. This entails low inflation and stable interest and exchange rates. The implementation of monetary policy to achieve this objective is done through open market operations and from time to time intervention in the foreign exchange market.

Papua New Guinea, being a small capital-importing country with a floating exchange rate regime, the nominal exchange is expected to appreciate in response to capital inflows, and the opposite is expected to happen when there is capital outflow. When the flows are such that the movements in the exchange rate threaten price stability, the Bank of PNG intervenes in the foreign exchange market to smooth out volatility in the exchange rate.

Figures 11 and 12 show developments in short-term capital flows, foreign exchange reserves and US\$/kina exchange in recent years.

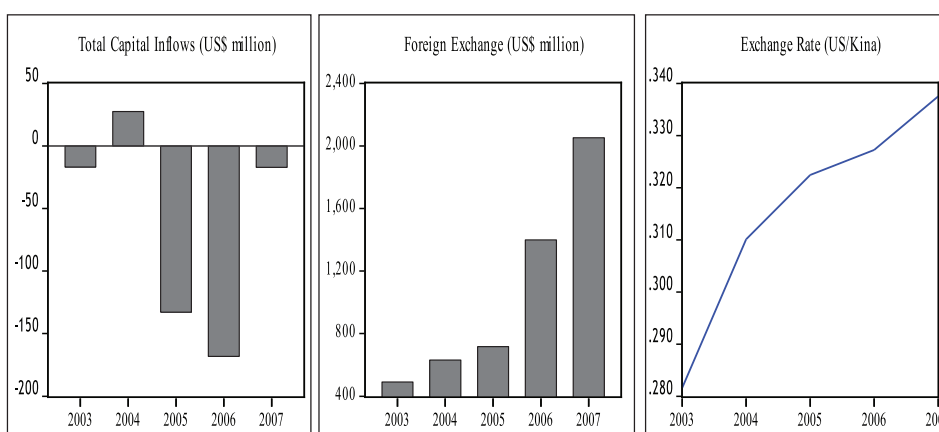
Figure 10
Short-term Capital Flows: 2003-2007 (US\$ million)



As presented in Figure 7, whilst there have been negative other investment inflows in the last five years, portfolio investments from abroad have been non-existent. This is primarily attributed to the securities market being undeveloped and therefore foreign investors are not able to come into the securities market. The negative other investment inflows reflects trade credits and dividend payments by mineral companies to foreigner shareholders.

Figure 11 shows the short-term capital flows in recent years, 2003-2007. Whilst there have been negative short-term capital inflows due to the reasons mentioned above, short-term capital outflows were negative between 2003 and 2005, reflecting residents bringing back their earnings from previous investments. Short-term outflows were recorded in 2006 and 2007, where residents invested in short-term money market instruments.

Figure 11
Capital Inflows, Foreign Exchange Reserves and US\$/kina
Exchange Rate



Total capital inflows (as shown in Figure 12) in recent years have been mostly negative, whilst the exchange rate and foreign exchange reserves have been on an upward trend. The accumulation of foreign exchange reserves and the appreciation of the exchange rate may not necessarily be influenced by capital inflows but by mineral tax receipts (paid through BPNG) and export earnings.

Monetary policy focuses on the implication of mineral tax receipts. When the Bank gets the foreign exchange from this source it pays local currency to the government via the banking system. This is injection of liquidity. It would therefore respond to an increase in liquidity through its open market operations for price stability considerations. The most popular policy response to foreign exchange inflows into the banking system in recent years has been sterilisation. Through sterilisation, inflationary pressures, high volatility in exchange rate movements and changes in the money stock are mitigated. However, if there is a perceived increase in the demand for money which the BPNG wishes to accommodate then non-sterilised intervention may be desirable.

5. Capital Flows and Financial Stability

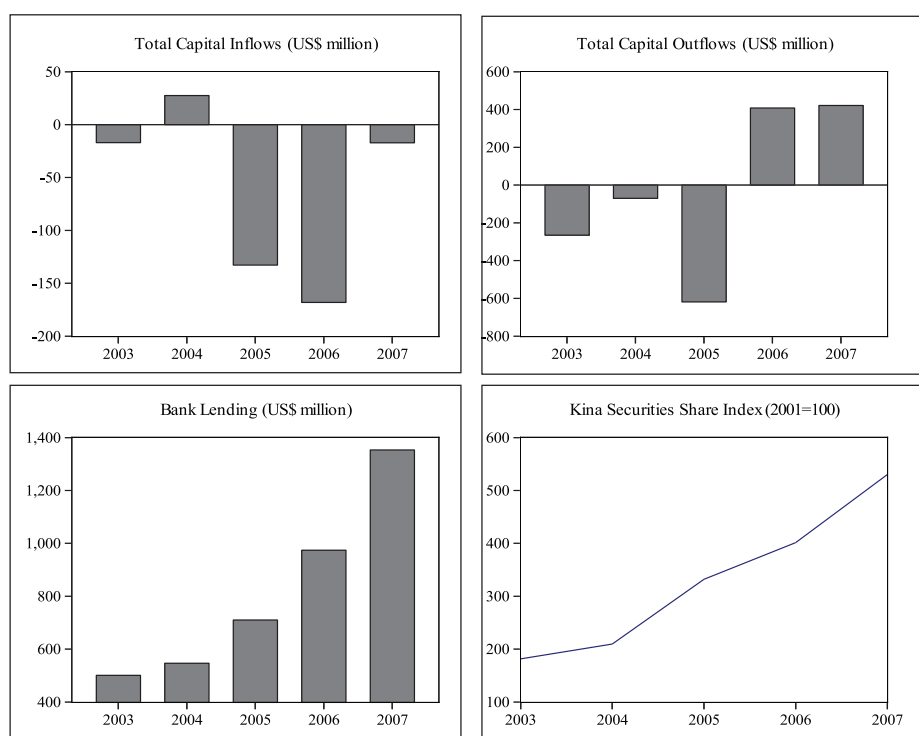
As stipulated in the Central Banking Act (CBA) 2000, one of the core objectives of the Bank of Papua New Guinea is its responsibility for financial stability. The BPNG focuses on the prevention of financial disturbances which potentially can have adverse consequences on the economy, particularly the financial system. The Bank applies prudential standards and guidelines through its off-site surveillance and on-site reviews and examination to ensure soundness and stability of financial institutions. On an on-going basis, the Bank assesses a range of aggregate financial and economic data which help gauge the soundness of the financial system and potential vulnerabilities.

Broadly, financial stability can be thought of in terms of the financial system's ability to: facilitate both an efficient allocation of economic resources and the effectiveness of other economic processes (such as economic growth); assess, price, allocate, and manage financial risks; and maintain its ability to perform these key functions - even when affected by external shocks. A definition consistent with this broad view defines a financial system as stable whenever it is capable of facilitating (rather than impeding) the performance of an economy, and of dissipating financial imbalances that arise as a result of significant adverse and unanticipated events.

The impact of capital inflows on commercial bank lending is not clear as lending has been increasing during the last five years while total capital inflows have mostly been negative. Theoretically, we would expect lending to increase if there are short-term capital inflows because the increase in liquidity or loanable funds caused by the inflows would result in lower lending rates, thus encouraging borrowing. This is not the case, as shown in Figure 7, PNG has received negative other investment inflows and no portfolio investments. Though FDI inflows have been positive during the last five years, this has been offset by the outflows.

The increase in lending may not be associated with capital inflows but rather caused by domestic factors, such as increased levels of deposits. The level of deposits increased from US\$370 million in 2003 to around US\$1455 million in 2007, an increase of over 293%.

Figure 12
Capital Flows, Bank Lending and Kina Securities Share Index



The Kina Securities Share Index (KSi), launched on 29th October 2003, tracks the price performance of stocks listed on the Port Moresby Stock Exchange (POMSoX). The aggregate market capitalisation of the stock exchange is now K37.61 billion - a growth of more than 300% in less than five years. Though still in its infancy in comparison to the other stock exchanges, the performance of POMSoX is a testimony to the confidence and growth in the locally listed stocks. Since 2003, there has been significant development in the PNG economy. The upward trend of the KSi, as shown in Figure 13 (bottom right chart), reflects

PNG's development and recent strong performance in the mining, agriculture and service sectors, which have led to increased investor confidence. Other investment inflows may have found their way onto the stock market since 2003 and, with the good performances by the listed companies, dividend payments are being repatriated abroad as shown in Figure 7.

Given the natural instability of international capital flows, any country closely integrated into the world financial system is prone to financial crises and currency disorder. The extent of the impact of any financial crisis depends on PNG's investments offshore and hence its exposure. The PNG economy appears to be shielded from the direct effects of the current (2008) global financial market turmoil because the banks and financial institutions are funded primarily by domestic deposits and their liquidity are not affected by the tight conditions in international capital markets. Also, these institutions do not have large exposures to offshore financial and investment companies. PNG's external indebtedness can be affected when there are huge movements in capital given its reliance on foreign capital.

6. Conclusion

The paper looked at the types of capital flows (particularly inflows) into the PNG economy during the period 1985-2007. Papua New Guinea's major policy tool relating to capital flow management has been the Exchange Controls and Gold Regulation enforced by Bank of PNG since monetary independence in 1976. The exchange controls aimed at controlling the amounts in foreign exchange transactions between PNG and the rest of the world to preserve the level of foreign exchange reserves and to protect the domestic banking and financial sector. Reforms to the exchange control regime reflected an on-going need to adapt to changes in economic policy environment as well as institutional and structural changes. The easing of controls on foreign exchange transactions over the years has been part of the overall process of liberalisation in line with the Government's market-orientated approach to removing impediments to investment and economic growth.

On the whole, monetary policy does not directly influence capital flows but is concerned about its implications on liquidity, interest rate and exchange rate. Through its open market operations and intervention in the foreign exchange market, the BPNG influences the movements in these variables for price stability. With price stability and general macroeconomic stability, the BPNG can indirectly provide an economic climate that can be conducive for capital inflows.

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APPENDIX

Table 2
OLS Results (Sample Period: 1985Q1 – 2007Q4)

Independent Variables	MODEL A	MODEL B	MODEL C
	Dependent Variable		
	TCI_t	FDI_t	$OINV_t$
β_0	-29.481 (0.1282) [-1.537]	4.287 (0.7529) [0.316]	-12.289 (0.5768) [-0.560]
$\beta_1 \Delta LGDP_{t-3}$	-1496.435*** (0.0014) [-3.318]	-415.793 (0.1963) [-1.303]	752.746 (0.1483) [1.459]
$\beta_2 \Delta RTD3_6_t$	0.562 (0.8206) [0.228]	4.401** (0.0138) [2.516]	2.727 (0.3375) [0.965]
$\beta_3 CAGDP_t$	-811.975*** (0.0000) [-5.167]	45.861 (0.6811) [-0.4125]	-225.451 (0.2132) [-1.255]
$\beta_4 \Delta XR_t$	3.130** (0.0385) [2.103]	-0.182 (0.8635) [-0.172]	-1.140 (0.5048) [-0.670]
$\beta_5 \Delta LIBOYR_{t-1}$	-27.708* (0.0770) [-1.791]	-13.420 (0.2238) [-1.226]	-0.164 (0.9926) [-0.009]
$\beta_6 \Delta LOECD_{t-1}$	4481.606* (0.0807) [1.769]	4040.116** (0.0269) [2.254]	-375.029 (0.8973) [-0.129]
R-squared	0.4537	0.1519	0.031
Adjusted R-squared	0.4138	0.0898	-0.038
S.E. of Regression	66.375	46.963	101.843
Durbin-Watson	1.882	2.004	2.732
Diagnostic Test ¹			
a. Serial Correlation			
Breusch-Godfrey LM Test	Critical: 0.257 (0.9046) Est.: 1.157 (0.8851)		
b. Heteroskedasticity			
Breusch-Pagan LM Test (6, 82) White (27, 61) ARCH(4,80)	Critical: 0.572 (0.7517) Est.: 3.574 (0.7341) Critical: 0.532 (0.9631) Est.: 16.976 (0.9317) Critical: 0.608 (0.6583) Est.: 2.506 (0.6435)		
c. Functional Form			
Ramsey RESET (1, 81)	Critical: 3.425 (0.0679) Est.: 3.685 (0.0549)		
d. Stability Tests			
Chow test (7, 75): 1994Q4 Change in Exchange Rate Regime	Critical: 0.402 Est. 0.552		
Chow test (7, 75): 2005Q2 Exchange Control Liberalisation	Critical: 0.884 Est.: 1.214		
<i>Note: t-statistics [], probability ()</i>			
*** 1%, ** 5% and * 10% significance levels			

1. Diagnostic tests for Models B and C have been omitted because most of the estimates are statistically insignificant.