



The **SEACEN** Centre



Proceedings of the
**SEACEN High-Level Seminar on
Integrating Monetary Policies with
Macroprudential Framework**

Bali, Indonesia, 6-8 November 2013

Hosted by
Bank Indonesia



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FOREWORD

It is clear that a sound financial system is a prerequisite for an effective implementation of monetary policy. This is well illustrated by the global financial crisis of 2008-09. It is precisely this interconnectedness that, while price stability remains the main focus of central banks, increasingly they are also given the dual mandate to promote financial stability. This calls for central banks to rethink the current framework for monetary policy to include macro-prudential policies in order to fulfill these dual responsibilities. It is recognized, on theoretical and practical grounds, that although monetary policy is an integral component of the policy framework for financial stability, it has limitations. For example, the efficacy of monetary policy is questionable in an environment where consumer prices and asset prices move in opposite directions.

The escalating prominence of macro-financial linkages also implies that there is now a widespread recognition of the need to focus on procyclicality, systemic risk, and internal and external shocks to the overall economy. Clearly, the consequence of implementing macro-prudential policies will have a direct bearing on the conduct of monetary policies and vice-versa. Thus, both sets of policies need to be manifested in a coherent and effective approach which can mutually reinforce and support each other to achieve both price and financial stability. Monetary and macro-prudential policies may be most successfully implemented in the presence of an overall policy framework that fosters their complementary management. There is a need to critically examine potential synergies, trade-offs, and conflicts between them. Apart from mutual consistency in implementing both monetary and macro-prudential policies domestically, there is also a need to examine cross-border collaboration in implementing both sets of policies.

It is against the above background that the SEACEN High-Level Seminar on *Integrating Monetary Policies with Macro-Prudential Framework* was held in Bali on 6-8 November 2013, hosted by Bank Indonesia. This publication is a selected collection of the papers presented and discussed in that Seminar. The objectives of the High-Level Seminar were:

1. To propose macro-prudential tools to mitigate systemic risk and pro-cyclicality that are compatible with monetary policies;
2. To discuss macro-prudential framework in harmony with macroeconomic policies in the SEACEN context; and
3. To assess potential cross-border collaboration and coordination in implementing monetary and macro-prudential policies.

SEACEN would like to take this opportunity to record its profound gratitude and appreciation to Bank Indonesia for kindly hosting the event and specifically to Dr. Perry Warjiyo, Deputy Governor of Bank Indonesia as well as Ms Endang Kusulanjari, Assistant Governor of Bank Indonesia, who delivered Dr. Perry Warjiyo's Opening Address as well as officiated the Opening Ceremony of the Seminar. SEACEN also thanks Dr. Delano S. Villanueva, at the time of the Seminar, a Distinguished Visiting Professor at De La Salle University in Manila and concurrently Special Consultant, Bangko Sentral ng Pilipinas (BSP), and formerly a high official of the International Monetary Fund (IMF), for assisting SEACEN in designing the Seminar Programme, inviting the Keynote and main speakers, chairing the panel discussion, preparing a Summary of the Proceedings and editing this Volume.

SEACEN is grateful to the following authors of the papers included in this Volume: Dr. Otaviano Canuto of the World Bank (WB) who gave the Keynote Address; Dr. Jonathan Ostry of the IMF; Mr. Dennis Lapid of the BSP; Dr. B. K. Bhoi of the Reserve Bank of India (RBI); and Mr. Michael Zamorski of The SEACEN Centre.

SEACEN acknowledges with appreciation the support of the member central banks and monetary authorities in nominating participants for the Seminar. For sharing experiences on the interaction between monetary and macro-prudential policies, SEACEN thanks Dr. B.K. Bhoi of the RBI, Mr. C.A. Abeyasinghe of the Central Bank of Sri Lanka, Ms Suthasinee Nimitkul of the Bank of Thailand. For serving as panelists for the discussion on cross-border collaboration in implementing macro-prudential policies consistent with monetary policies, SEACEN thanks Dr. Otaviano Canuto of the WB, Dr. Jonathan Ostry of the IMF, and Dr. Mulya Siregar of Bank Indonesia.

The views expressed in these proceedings are those of the resource persons and panelists and do not necessarily reflect those of their respective institutions, SEACEN member central banks and monetary authorities or The SEACEN Centre.

Hookyu RHU
Executive Director
The SEACEN Centre
Kuala Lumpur

June 2014

SEMINAR PROCEEDINGS

By

Delano S. Villanueva, Ph. D.¹

This has been a successful High-level Seminar on “Integrating Monetary Policy with Macroprudential Framework.” I thank the Seminar Host Bank Indonesia, resource speakers, and all participants for making it a very productive Seminar.

On the Keynote Address, Otaviano Canuto recalled the consensus that open economies employing the Inflation Targeting (IT) monetary policy framework, formally or informally, with flexible exchange rates², and with monetary policy separated from prudential regulation, would achieve price and financial stability. Market failures and information asymmetry were seen as minor distractions from such a consensus. The Global Financial Crisis (GFC) of 2008 shattered this consensus, noting that such “distractions” were much more prevalent and not isolated cases.

Should the Taylor rule be augmented to include some sort of financial stability indicator? Otaviano’s answer is no, although the effects of financial instability on inflation and output must be recognized and taken into account in setting monetary policy. This is the same conclusion I reached in my presentation at last year’s SEACEN-CEMLA Conference in Punta del Este, Uruguay (Villanueva, 2012).

Canuto also noted an additional layer of complexity induced by cross-border capital flows, presenting formidable challenges to monetary policy in emerging markets. The typical central bank response is sterilized intervention with its attendant (in majority of cases, substantial) central bank losses. In fact, hedging activity on financial derivatives meant contagion without actual capital flows taking place.

Canuto proposed a middle ground on the ‘clean’ vs. ‘lean’ debate, that is, monetary policy should prevent credit bubbles while leaving equity bubbles alone (clean them afterwards). Discretion is advised—don’t expand the Taylor rule to include financial stability as target, additional to inflation and output stabilization. The interest rate is too blunt an instrument to rely on.

¹ Distinguished Visiting Professor, School of Economics, De La Salle University.

² And small economies on fixed exchange rates.

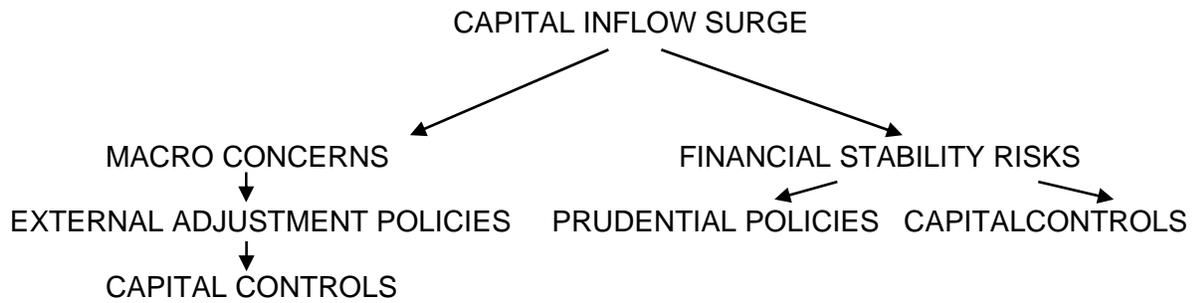
Otaviano also noted Shin's (Hahm et al., 2011) core vs. noncore bank liabilities, the latter being wholesale funding relied on by shadow banking. Interest rate and macroprudential policies should aim at both price and financial stability, should be complementary and calibrated jointly.

Dennis Lapid noted that separating monetary from prudential policies is no longer tenable, and that macroprudential instruments should target financial stability. Monetary policy is not suited to promote financial stability, while macroprudential policies are not suited to managing aggregate demand. Lapid noted asymmetric response of bank lending rates to changes in policy rates—lower policy rates lower bank lending rates, but higher policy rates have a weak effect on bank lending rates. He noted the challenges to monetary policy posed by capital flows. Policy responses can be described as follows: flexible exchange rates, sterilized intervention, liberalized foreign exchange outflows, macroprudential measures such as higher capital charge and limits on non-deliverable forward swaps, broader reporting on banks' real estate exposure, and reference standards for real estate activities. Although monetary and macroprudential policies should be assigned to the central bank, safeguards are needed -separate decision-making, accountability, and communication structure. He concluded that care should be taken in safeguarding financial stability while not engaging in financial repression, and that while macroprudential policy can provide 'room for maneuver', it cannot substitute for sound macroeconomic policies.

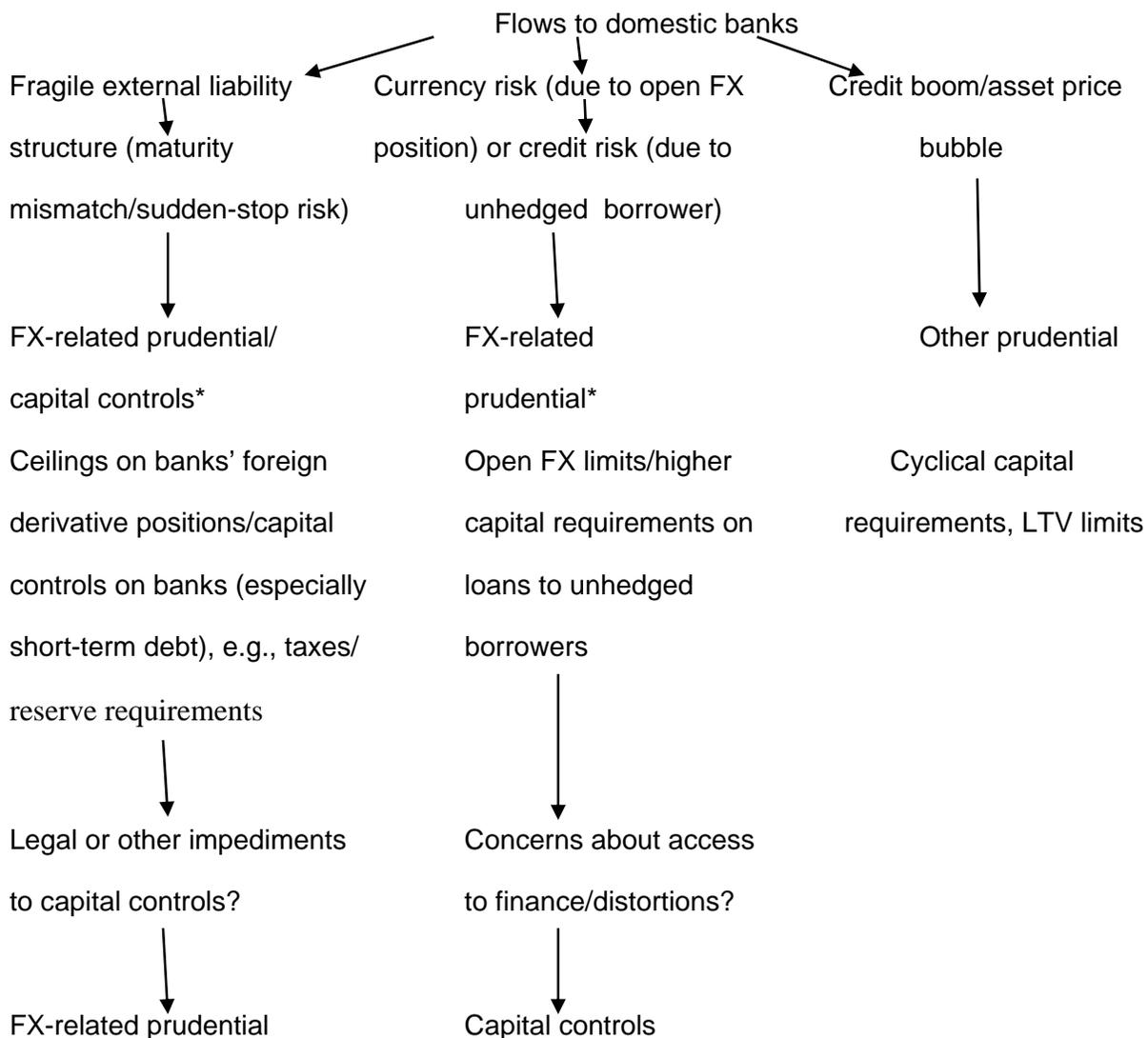
On mitigating systemic risk, Michael Zamorsky noted that macroprudential policies should address externalities that create systemic risk, threaten the stability of the financial system, and adversely affect the real economy. Macroprudential tools include: countercyclical capital buffers, LTVs, DTIs, levy on noncore bank liabilities, liquidity and capital surcharges, limits on loan-to-deposit ratios, and risk-based deposit insurance premiums. He noted Caruana's (2012) admonition that macroprudential tools 'are inadequate in the absence of effective and at times intrusive supervision: the incentives for regulatory arbitrage are simply too powerful.'

On capital flow management, Jonathan Ostry noted that managing volatility is a very important policy issue. The boom-bust cycle in capital flows has been more virulent, more frequent and of larger amplitude. The macroeconomic risks involve consequences for inflation and real exchange rate appreciation. The financial risks cover domestic credit boom and mismatches between banks' foreign assets and foreign liabilities.

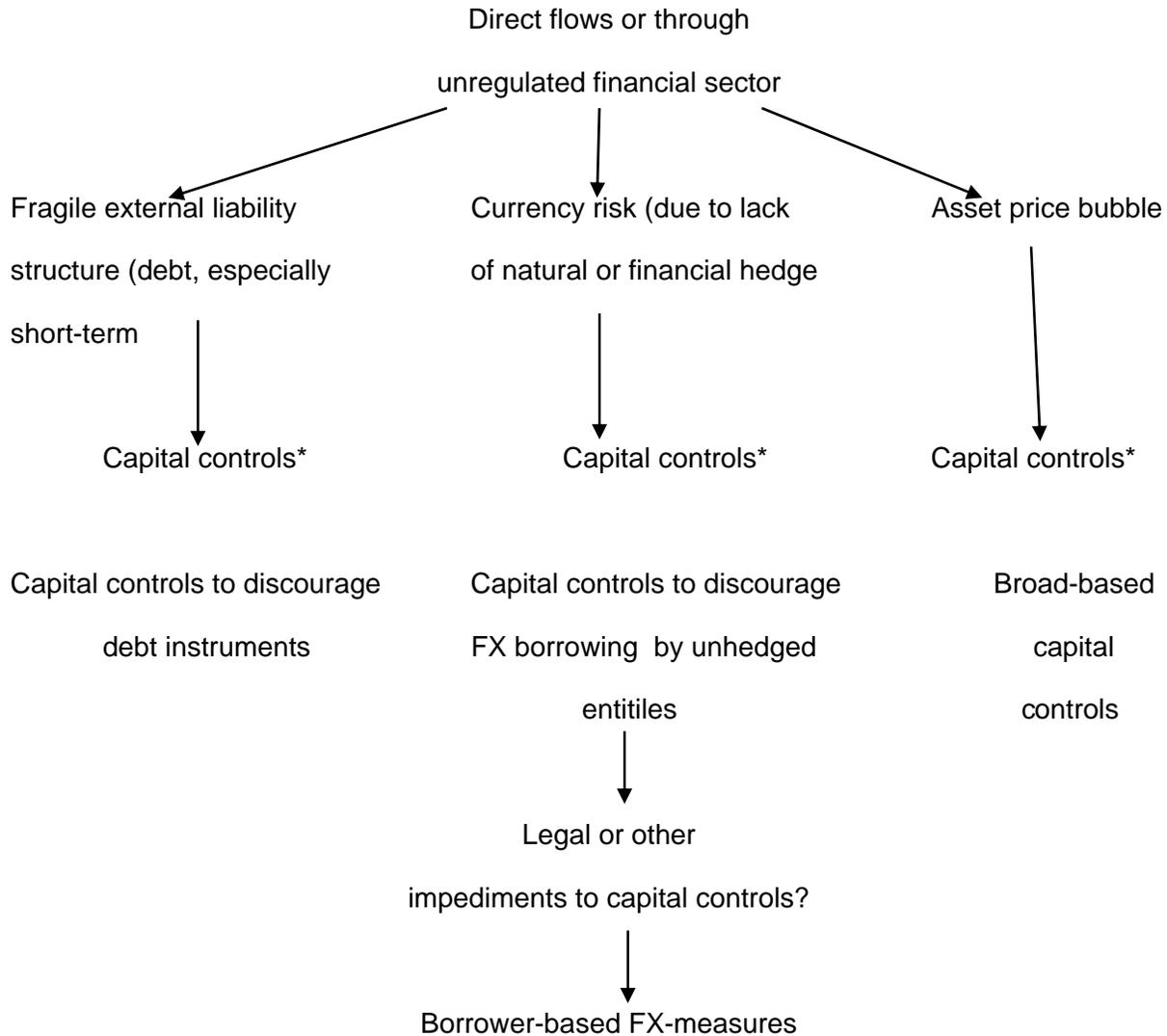
The tool kit to manage capital flows includes (1) sterilized intervention; (2) macro policies (interest rate, fiscal); and (3) prudential/capital controls. A capital inflow surge typically should be followed by the sequence depicted in the chart below.



The choice of instruments depends on whether or not the capital flows are intermediated through the regulated parts of the financial system. If they are, then prudential/capital controls are recommended; if they are not, then capital controls are suggested. See chart below for details.



*Once macro policy space exhausted, and taking due account of multilateral considerations.



*Once macro policy space exhausted, and taking due account of multilateral considerations.

The above speakers were followed by country experiences on the interaction between monetary and macroprudential policies.

The Indian experience was narrated by B.K. Bhoi, discussing macroprudential and monetary policies pursued by the RBI before and after the GFC, and their interaction. India's financial system is dominated by banks, with a long history of selective credit controls and sectoral credit allocation. Pre-GFC macroprudential policies included sector-specific variable provisioning and risk weights for assets; LTV/risk weights to control credits to sectors like housing and real estate, capital market, retail, and systematically important nonbank financial intermediaries; Statutory Liquidity Ratio (SLR); and other measures, mostly exposure limits to contain spill/contagion arising out of interconnectedness; borrowing and lending limits in the overnight call money market in terms percentages of capital, aggregate deposits and net owned funds; and capital market exposure norms for commercial banks. Post-GFC macroprudential policies include countercyclical capital buffers; dynamic provisioning; liquidity and leverage ratios. Bhoi concluded that: (1) monetary policy and countercyclical macroprudential policies are in the same direction; (2) macroprudential tools supplement monetary policy measures, particularly when the latter is believed to be less effective in containing credit growth in certain sectors, having bearing on systemic risk; and (3) prudential measures have proved to be helpful in containing sector-specific risk.

Next was the Sri Lankan experience. C.A. Abeysinghe stated that the financial sector is regulated by the Central Bank of Sri Lanka (CBSL), Securities and Exchange Commission, and the Insurance Board of Sri Lanka. CBSL conducts monetary and macroprudential policies in pursuit of both price and financial stability, consistent with full employment. Macroprudential surveillance identifies systemic risks to the financial sector and assesses its capacity to withstand such threats. To do this, CBSL analyzes macroeconomic and financial market developments as well as the risk exposures of banks and nonbanks. A comprehensive set of aggregate financial soundness indicators is compiled on a periodic basis to monitor the health of key financial institutions. Work has also been started to develop a database on corporate borrowers to assess their financial strength and debt repayment capacity.

Thailand's experience was discussed by S. Nimitkul in the context of three issues: (1) monetary policy supporting financial stability; (2) macroprudential policy complementing monetary policy; and (3) key challenges. In support of the twin objectives of price and financial stability, the Bank of Thailand (BOT) established 4 working committees to share information and coordinate policies: (1) Monetary Policy Committee (MPC); (2) Financial Institutions Policy Committee (FIPC); (3) Payment Systems Committee (PSC); and (4) Financial Stability Subcommittee (FSS). The joint meeting between MPC and FIPC is semi-annual; the first one being held in June 2012. BOT has been implementing macroprudential policies since 2002: tightened regulations on credit card loans and personal loans; limits on net foreign exchange positions; LTV ratios; loan-loss

provisioning; and withholding tax. Key challenges facing BOT are to effectively coordinate an appropriate mix of monetary and macroprudential policies. The challenges posed by capital flows are more serious: they can be countered by liberalization of resident outflows; stronger monetary and fiscal policies, and financial supervision and regulation; and, finally, flexible exchange rate regimes and limited restrictions on capital flows.

On the last session on international collaboration, the panelists were Otaviano Canuto, Mulya Siregar, and Jonathan Ostry. Canuto concludes that capital controls and exchange rate interventions can be seen as options to be combined with monetary and macroprudential policies, options which can even increase, or at least help, the effectiveness of the latter. Depending on the vulnerability identified, policy makers could choose those measures that can be most efficient and appropriate to circumstances. Consideration has to be given, though, to costs associated with curbing capital inflows in the case of countries with low saving rates. Compared to purely domestic asset price cycles, do cross-border capital flows and the potential transmission of asset price booms and busts impose additional layers of complexity? The answer is yes based on overwhelming evidence. Capital flow management policies can be an item for regulators to use in their toolkit when looking to address macroeconomic and financial instability risks. This is particularly the case in economies subject to significant spillovers from asset price cycles and policies from abroad, and in which the macroprudential and monetary policies are insufficient to ring-fence the economy. However, given the short life and usually low effectiveness of capital controls, more conventional policies should be explored first before considering this remedy.

Mulya Siregar proposed a regional financial stability architecture aimed at creating a sound and credible regional financial system, with four pillars: (1) strong national financial stability framework; (2) inclusive regional financial stability report; (3) well-coordinated supervisory colleges and regulatory authorities; and (4) reliable regional financial safety nets. All these being backed up by a sound and reliable regional network of payment systems and securities exchanges.

Finally, Jonathan Ostry argued that the need for international policy coordination depends on the strength of spillovers and on economic logic and less on empirical evidence. He also noted key multilateral issues of concern: (1) capital controls, and policies mimicking their effects, may be imposed to avoid warranted external adjustment; (2) capital controls may deflect flows to other recipient countries or even back to source countries; (3) source country policies (monetary policy and prudential regulation) may exacerbate recipient-country inflow problem.

On the unimportance of empirical evidence and the importance of logic to guide policy, Ostry observed that unilateral evidence of the effectiveness of capital controls is mixed. If controls are ineffective, then there's no multilateral impact, and no multilateral reason to proscribe them. However, stronger evidence of policy spillovers from source country policies (especially monetary policies) to recipient countries makes a stronger case for cross-border policy coordination. Thus, the need for the latter is predicated on the strength of spillovers.

Jonathan drew four analytical implications for policy advice: (1) capital controls should not substitute for warranted external adjustment—inflow controls should invite scrutiny when exchange rate is undervalued; (2) capital controls should not be used to exploit market power; (3) capital controls imposed for genuine domestic externalities may require coordination among borrowers to prevent capital control wars; and (4) capital controls imposed to offset genuine domestic externalities may require coordination between source and recipient countries - source countries should take into account impact of their policies on others, and may benefit source countries even if at first blush such coordination looks costly for them.

Ostry concluded with the following takeaways: (1) valid macro and financial stability reasons to impose capital controls; (2) controls may give rise to spillovers but these do not *per se* give rise to case for coordination; (3) coordination, however, may be desirable to discourage (i) use of controls with the intention of thwarting warranted external adjustment; (ii) terms-of-trade manipulation; (iii) capital control wars across recipient countries; and (iv) excessive or excessively risky outflows from source countries.

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OPENING ADDRESSES





OPENING ADDRESS

**DR. PERRY WARJIYO
DEPUTY GOVERNOR
BANK INDONESIA**



OPENING REMARKS

By

Dr. Perry Warjiyo
Deputy Governor of Bank Indonesia
Bali, 7 November 2013

Introduction

Let me start by welcoming all of you to SEACEN High Level Seminar on “Integrating Monetary Policies with Macroprudential Framework”, at this beautiful island Bali. I am very delighted to be here. The topic of the seminar is essential, because we need to rethink the current framework for monetary policy to include macroprudential in order to achieve both price stability as well as financial stability.

In this seminar, I believe the participants will be able to discuss macroprudential framework in harmony with macroeconomic policies in the SEACEN context, and assess potential cross-border collaboration and coordination in implementing monetary and macroprudential policies. At the end of the seminar, I hope that participants will be able to propose macroprudential tools to mitigate systemic risk and pro-cyclicality compatible with monetary policies.

Assessment of Current Economy

In 2013, Indonesia’s economy faces multiple challenges. Our latest assessment shows that the global economy is still not conducive, indicated by world economic growth that fell short of earlier forecasts, commodity prices that continue to slide, and uncertainty on global financial markets that continue to escalate. The lingering sluggishness of the global economy continues to bear down Indonesia’s economic growth, both through trading and financial channels.

The domestic economy in Q3-2013 is displaying some signs of an ongoing downward trend to 5.6% (yoy), so that for the whole 2013 is forecasted to be within the range of 5.8%-6.2%. Indonesia’s balance of payments is predicted to improve during the third quarter of 2013, supported by narrowing CA deficit and expanding capital and financial account surplus. Depreciatory pressures plagued the rupiah exchange rate during the third quarter of the current year in line with economic fundamentals.

Inflationary pressures eased in September 2013 with a 0.35% (mtm) rate of deflation recorded, or 8.40% (yoy), triggered by a deep correction in food prices, dwindling impact of fuel price hikes and price corrections after the holy fasting month of Ramadan. The rate of inflation in 2013 is projected in the range of 9.0% - 9.8%.

The Tale of Two Fallacies

These complex economic challenges need a new approach of macroeconomic policy making which well integrated and coordinated for securing stability and at the same time promoting sustainable and equitable growth. But I must admit that the conventional thinking and practice of macroeconomic policies may not always be suitable to Asian countries, specifically South East Asia. Let me cite just the following two fallacies.

First, market mechanism does not always work efficiently in developing countries like East Asia. The invisible hand of Adam Smith may not always be prevailed. Thus, financing public expenditures through bond issuance would not always be the same with by increasing taxes as the Ricardian equivalence predicted. Inflation may be caused by non-monetary factors such as production, distribution, or market structure, and thus would not be effectively responded by increasing interest rate. Likewise, financial imperfections often inhibit the flexibility of interest rate and exchange rate in transmitting monetary policy to the economy. Under such circumstances, we could not only rely on standard fiscal, monetary or banking policy for a stable, sustainable and equitable growth. In a number of cases, some forms of intervention policy may be needed when market failure exists.

Second, we also need to put stability-growth-equity nexus as objectives of macroeconomic policies into a new prospective. We need to think of stability and growth nexus not in static sense, i.e. year by year, but in a more dynamic and forward looking sense. We need to put this issue along with the need to extend our economic cycle, or we risk that maintaining the stability could have detrimental effects to growth. Thus, we need to address fiscal and debt sustainability not merely by limiting fiscal deficit, but also taking into account how boom and burst cycle in our economy would influence our capacity to raise taxes, increase public expenditure, and issue government bond and borrowings. We need to design a countercyclical fiscal policy to balance stability with growth. Likewise, in the financial sector, bank lending often exhibit procyclicality along with the boom and bursts in the economic cycle. Macroprudential policy for securing financial system stability must also be able to manage these procyclicality nature and allocative distribution of bank lending among sectors so as to help manage (and not accelerate) the boom and bursts cycle in the economy.

The Need for Macroeconomic Policies Mix

The preceding discussion leads to the need for formulating macroeconomic policy mix to balance the stability with sustainable and equitable economic growth. Fiscal policy need not be geared only toward maintaining fiscal and debt sustainability, but also find a way to act as a counter cyclical policy to sustain the economic growth. Monetary policy to achieve price stability must also take into account non-monetary factors of inflation and the impact of financial imperfections to monetary transmission mechanism. Likewise, macroprudential policy needs to balance the objective of maintaining financial system stability with the promotion of a sustainable intermediation function and efficiency of the financial sectors for stimulating the economic growth.

The question is then how to formulate and coordinate fiscal-monetary policy-macroprudential policy mix in this new approach of macroeconomic policy making. Let me share with you our experience in Indonesia. On national level, we have a close coordination between fiscal policy of Ministry of Finance with monetary policy of Bank Indonesia. In formulating government budget, for example, the central bank provides its views to the parliament on macroeconomic projections and its monetary policy direction. For Indonesia, the issue in fiscal and monetary policy coordination center on their capability to maintain macroeconomic stability while at the same time promoting sustainable and equitable economic growth. In this regard, I must say that with the heavy burden of subsidy has severely limited the capacity of fiscal policy to stimulate and acts as counter-cyclical measures in the economy. Conversely, through a monetary and macroprudential policy mix which I will talk shortly, the central bank has been able to maintain the monetary and financial system stability while at the same time help in promoting sustainable and equitable growth in Indonesia.

Monetary and Macroprudential Policy Mix

Let me share with you Bank Indonesia experience in formulating and implementing monetary and macroprudential policy. Faced with more complex problems above, Bank Indonesia no longer just rely on one instrument, particularly, the interest rate policy in controlling inflation and promoting sustainable economic growth. Since mid of 2010, Bank Indonesia took a new approach through monetary and macroprudential policy mix, implemented through the following five instruments. First, the policy interest rate is always directed to ensure that future inflation remained under control and within the range of Bank Indonesia target. Under current condition, the policy interest rate (BI Rate) has been maintained at 7.25% as it deems consistent with our latest assessment on the economy.

Second, Bank Indonesia continues to maintain exchange rate stability is maintained in accordance with economic fundamentals. Thus, maintaining the path and stability of exchange rate is an integral part of the efforts to achieve the inflation target based on the forward looking macroeconomic projection exercise. Double intervention through foreign exchange supply and tradable government securities (SBN) purchase in the secondary market will be continued in a measurable fashion.

Third, Bank Indonesia has pursued a number of measures to manage demand of foreign exchange and capital flows. Auctions of overnight (o/n) foreign exchange term deposits has been conducted, in addition to the previous tenors of 7, 14 and 30 days, to boost foreign exchange supply. Moreover, an increased VOSTRO account from divestments of direct investment and buyers of Indonesian shares and/or corporate bonds as well as SBN are exempted from the short-term foreign loan requirements for banks totaling a maximum of 30% of capital without undermining prudential aspects of banks engaged in foreign loans. In addition, BI reduced month-holding-period for Bank Indonesia Certificates (SBI) from 6 months to 1 month to manage capital flows.

To bolster monetary operations, banking liquidity management, as well as follow-up measures for the financial market deepening, the availability of hedging instruments for the banks and business community has been improved through providing regular auctions for FX Swap along with bilateral transactions. Banks can freely pass-on FX Swap transactions to the customers of other banks or Bank Indonesia. BI also introduced Bank Indonesia Deposit Certificates (SDBI) auction with 1-month and 3-months tenor. To reinforce bank liquidity risk management, Bank Indonesia has improved the LDR reserve requirements and secondary reserve requirements, among other things, by taking into account Bank Indonesia Deposit Certificates (SDBI) as a component of Secondary Statutory Reserve. In addition, BI also has term-repo instruments with underlying SBI and SBN at its disposal to mitigate the risk of liquidity pressures in the financial market for the banking industries.

Fourth, Bank Indonesia also introduced a number of macroprudential policies to manage the allocation of bank credit to various sectors to be more balanced and support the economy. The measures are also geared toward dampening the procyclicality nature of bank lending in the economy. In this regard, Bank Indonesia has amended the LTV/FTV regulation due to excessive credit growth in the property sector, particularly for houses and high-rises (flats and apartments) subsequent to the introduction of the LTV/FTV regulation in the middle of 2012. The new LTV/FTV regulation controls: (1) the treatment of married borrowers; (2) the handling of top-up credit facilities and new financing based on the property used as collateral from the previous loan; and (3) restrictions on banks providing top-up credit/financing facilities to meet down payments on

mortgage loans and/or property-backed consumer loans/financing. Furthermore, prudential principles are also regulated in terms of providing property credit/financing facilities if the property to be used as collateral is not fully available, namely that it is only permitted on the first loan.

On the other hand, accommodative macroprudential measures are deployed to stimulate lending to a number of sectors which are supporting sustainable and equitable economic growth. For example, Bank Indonesia has issued a policy requiring lending to MSMEs by each bank a minimum of 20% of their total lending within the next five years. Bank Indonesia is also considering macroprudential policies to encourage lending to the agricultural sector, particularly in support of food security.

Fifth, Bank Indonesia continues to strengthen policy coordination with the Government at central and local levels to curb inflation pressures especially from volatile foods prices because of production, distribution and market structure. In addition to Inflation Control Team (ICT) at the national, we have established as many as 109 ICTs throughout the country, i.e. in all of the 33 provinces and 76 cities/counties. An instruction has been issued by the central government for the establishment of the ICT in every cities and counties. The Team has played key role in identifying and solving problems of production and distribution that often give rise to pressures on volatile food prices.

Our experience over the past three years shows that this new framework has been effective. The policy mix, however, is not always easy to design and implement, and it needs to be appropriately and continuously calibrated according to the evolving dynamics of the global and domestic economic environment. Communicating the policy mix is also a challenge. We need to be clear at all times which instrument is directed to which specific objective, and we must also avoid substituting the interest rate policy for other instruments in the mix. Even when we are successful in these aims, there is always a risk that the market may perceive matters differently, given that the monetary policy response is generally (and often only) associated with interest rate adjustments.

Closing Remark

In closing, once again, I am delighted that we are here today. I hope the next two-day seminar provides ample opportunities for all of us to enrich our understanding and able to give inputs to improve the integration of monetary policies and macroprudential framework that in line with promoting sustainable and equitable growth.

Thank You.



WELCOME REMARKS

**MR. HOOKYU RHU
EXECUTIVE DIRECTOR
THE SEACEN CENTRE
KEYNOTE ADDRESS**



WELCOME REMARKS

By

Mr. Hookyu Rhu
Executive Director, The SEACEN Centre
Bali, 7 November 2013

Dr. Perry Warjiyo
Deputy Governor
Bank Indonesia,

Distinguished Resource Speakers,

Seminar Participants,

Ladies and Gentlemen,

Good Morning.

I am delighted to extend a warm welcome to all of you to the SEACEN High Level Seminar on Integrating Monetary Policies with Macro-Prudential Framework, held in the beautiful island of Bali.

First of all, on behalf of the SEACEN Centre, I would like to take this opportunity to express our heart-felt appreciation to our host bank, Bank Indonesia for their help and support in organising this Seminar and to Dr. Perry Warjiyo, Deputy Governor of Bank Indonesia, for taking time away from his busy schedule to officiate this Opening Ceremony.

In recent months, The SEACEN Centre has been liaising closely with Bank Indonesia to prepare for this Seminar. We are indeed very grateful to the Organising Committee, headed by Mr. Doni P Joewono, Director of Human Capital Development Centre, for their tremendous effort in ensuring the success of this Seminar. I am sure all of us here agree that the arrangements have been excellent, and the hospitality has been warm.

Let me also express my deep appreciation and gratitude to all our distinguished resource speakers as well as the delegates for joining us today.

Ladies and Gentlemen,

The 2008 global financial crisis illustrated a very important fact: the increased interconnectedness of the real with the financial sectors, that is the macro-financial linkages. In addition, there are feedback loops between the two sectors. In particular, during a crisis period, the occurrences of a few rounds of adverse feedbacks between the macroeconomic environment and financial condition are common.

The escalating prominence of macro-financial linkages elucidates three important issues. Firstly, price stability does not guarantee financial stability. Secondly, there is now a widespread recognition of the need to focus on procyclicality, systemic risk, and internal and external shocks to the overall economy. Thirdly, while price stability remains the main focus of central banks, increasingly they are also given the dual mandate to promote financial stability.

In executing the central bank's mandate agenda, the macro-financial links imply that we, as central bankers need to view the real and financial sectors holistically. I cannot emphasise enough that one needs an explicit understanding of systemic risks and the procyclicality nature of financial activities and their close connectivity with the real sector.

The Financial Stability Board, the IMF and the BIS in its update to G20 Finance Ministers and Central Bank Governors on Macro-prudential policy tools and framework in February 2011 defined macro-prudential policy as 'a policy that used primarily prudential tools to limit systemic or systemic-wide financial risk, thereby limiting the incidence of disruptions in the provision of key financial services that can have serious consequences for the real economy by:

1. Dampening the build-up of financial imbalances and building defences and,
2. Identifying and addressing common exposures, risk concentrations, linkages and interdependencies that are source of contagion and spill over risks that may jeopardise the functioning of the system as a whole.

Under the present global financial landscape, macro-prudential regulations are indeed a key option for consideration to maintain financial stability. We have just held two Conferences last month. Our 30th Anniversary Conference with the theme *Greater Financial Integration and Financial Stability* and the SEACEN-CEMLA high level conference on *New Paradigm in Central*

Banking. In both conferences, central banking and the new normal were discussed in detail, calling the need to rethink conventional central banking. One particular area is the need for a coherent framework of monetary and macro-prudential policies. That is, monetary and macro-prudential policies may be most successfully implemented in the presence of an overall policy framework that fosters their complementary management as lack of coordination between monetary policies and macro-prudential tools can lead to sub-optimal solutions. We can no longer look at policy implementation in isolation. There is an explicit need for monetary and regulatory policies to be complemented by macro-prudential measures to realize both price and financial stability. In other words, more than ever, we critically examine synergies and trade-off between them. Central bank's analytical models, policy frameworks, tools and instruments need to be properly account for linkages between price stability and financial stability and the repercussions of their policy choices to the regional and global economy. Only through a holistic view and global perspective, central bankers can find and apply new practical and effective solutions.

We look at specific interesting issues of interest to be discussed in this High Level Seminar. These are:

1. To examine the rationale for implementing macro-prudential policies by examining the key sources of market failures that can justify macro-prudential regulations;
2. To assess the implications and challenges of acknowledging the need for coordination between monetary policies and macro-prudential regulation;
3. To propose macro-prudential tools to mitigate systemic risk and pro-cyclicality compatible with monetary policies;
4. To choose and implement macro-prudential instruments in a given situation; and
5. To assess potential cross-border collaboration and coordination in implementing monetary and macro-prudential policies.

Ladies and Gentlemen,

As such, we are indeed privileged to have with us today, experienced resource persons to share with us their vast expertise on the subject, they are:

- Dr. Otaviano Canuto
Senior Adviser on BRICS Economies
Development Economics Department
World Bank

- Dr. Jonathan D. Ostry
Deputy Director
Research Department
International Monetary Fund (IMF)
- Dr. Delano Villanueva
Distinguished Visiting Professor of Economics
De La Salle University and Former Adviser, IMF
- Mr. Dennis Lapid
Deputy Director
Department of Economic Research
Bangko Sentral ng Pilipinas

I would also like to thank panelists from member banks namely:

- Dr. Mulya E. Siregar
Assistant Governor
Bank Indonesia
- Dr. Barendra Kumar Bhoi
Adviser
Monetary Policy Department
Reserve Bank of India
- Mr. C.A. Abeysinghe
Deputy Director
Economic Research Department
Central Bank of Sri Lanka
- Mrs. Suthasinee Nimitkul
Director
Foreign Exchange Administration and Policy Department
Bank of Thailand

Last but not least, we also like to thank staff of The SEACEN Centre namely Mr. Michael Zamorski, Adviser for Financial Stability and Dr. Dongkoo Chang, Director of Research and Learning Contents for sharing their expertise.

Finally, allow me to conclude by wishing everyone here a productive and rewarding Seminar. If you require any assistance during your stay here, please do not hesitate to contact anyone of our secretariat members. To all delegates, I also hope that you will be able to find the time to enjoy the beautiful island of Bali.

Thank you / Terima Kasih.



SESSION 1

MARRYING MONETARY POLICY AND MACROPRUDENTIAL REGULATION





KEYNOTE ADDRESS

**DR. OTAVIANO CANUTO
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DEVELOPMENT ECONOMICS DEPARTMENT
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MONETARY POLICY AND PRUDENTIAL REGULATION

By

Otaviano Canuto¹

Global financial integration and the linkages between the financial and the real sides of economies are sources of huge policy challenges. This is now beyond doubt, after what we saw in the run-up to and the unfolding of the 2008 global financial crisis. As a consequence, the established wisdom regarding monetary policies and prudential regulation has been subject to a deep critical review, including a demise of the belief that they should be maintained as fully independent functions.

The issue is particularly relevant in the case of emerging markets (EMs), where those policy challenges associated with macro-financial linkages are even greater than in advanced economies (ACs). At the same time, the circumstances of the post-2008 global financial setting have forced emerging markets to navigate through uncharted territories, by combining monetary policies and prudential regulation in ways about which there is still a gap of missing knowledge and cumulative experiences.*

Asset Price Dynamics Matters, Especially for Emerging Markets

Asset prices and leverage by financial institutions are at the center of the interaction between finance and the real economy, and the main conduit through which booms and busts are generated or amplified. Banks and other financial intermediaries can easily extend their balance sheets when asset prices are rising, further fueling asset price booms, with a corresponding feedback loop on those balance sheets. Banks resort to funding with non-core liabilities -- different from those on which banks draw during normal times, such as retail deposits by households -- increasing exposure to balance-sheet weaknesses or mismatches on liquidity, maturity, and/or foreign exchange ([Hyun Song Shin](#)).

Systemic risks are also cross-sectional, arising from the growing interconnectedness of financial institutions and markets during booms ([Viral V. Acharya](#)). Financial innovation, growth of non-regulated "shadow banking" activities, and complex chains of financial intermediation

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facilitate the build-up of an increasingly vulnerable pyramid of assets-liabilities. This can potentially drag down the real-side economy once that pyramid starts to crumble.

One may think that these challenges are the domain of advanced economies and their sophisticated financial systems. After all, that is where the recent global financial boom-bust originated. Think twice. As shown by [Claessens and Ghosh](#), emerging market economies (EMs) have to cope with even greater challenges when it comes to managing the implications of macro-financial linkages, particularly due to their propensity to heighten booms and busts.

This is due to two reasons. First, EMs are more likely to suffer shocks, such as commodity-price and terms-of-trade shocks, as well as surges and sudden stops in capital flows. It is not only a matter of frequency, but also of magnitude relative to domestic economies and the size and depth of their financial markets. As [Swati and I](#) remark:

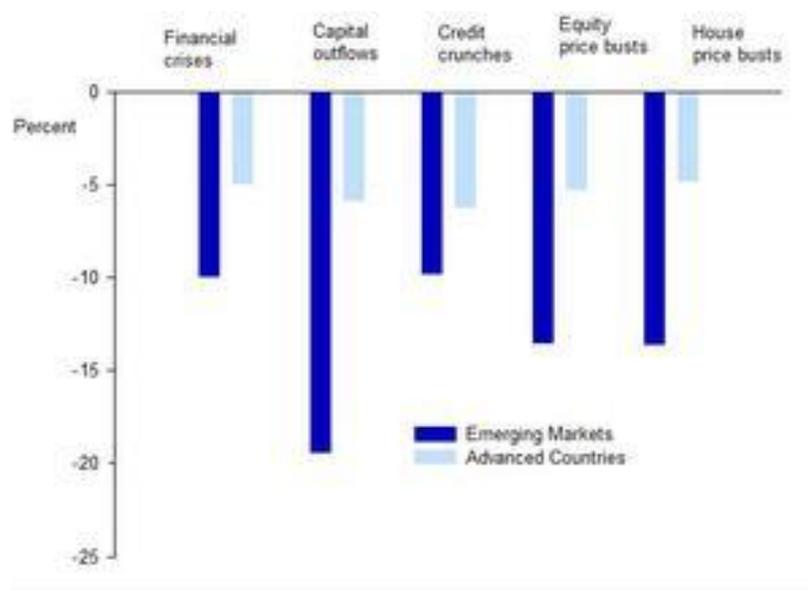
“On average, total net private capital flows relative to M2 [a measure of the quantity of money in an economy] over 2000-10 has been some factor 100 times that for advanced countries (ACs). As a share of local capital markets, financial flows in EMs are thus much larger than in ACs, and certainly more volatile. Also foreign bank presence is greater -- more than double -- in EMs than in ACs. Unsurprisingly, therefore, shocks to capital flows and foreign banks' operations can have significant impacts on EMs' domestic financial and real sectors. Perhaps more importantly, the amplification of shocks tends to be larger in EMs.”

Second, structural and institutional features typical of most EMs tend to amplify and propagate shocks. Despite substantial progress since the 1990s, the overall quality of regulatory institutions, the strength and enforceability of legal regimes, market discipline upon financial institutions, levels of information disclosure and transparency, corporate governance arrangements, the width of investor bases, the availability of hedging instruments, and other financial-sector supporting factors still have room to grow. In such a context, investor confidence is prone to fluctuate more violently before and after shocks.

[Claessens and Ghosh](#) identify capital inflows and their potential for sudden stops as main sources of risk and shock for emerging markets. They also empirically show that the interaction of real and financial cycles tends to be sharper in EMs than in advanced economies, with both recessions and recoveries more often overlapping with financial events. Furthermore, the real-side impact is much larger. From 1960 to 2012, cumulative GDP losses associated with different adverse financial events were typically higher in EMs (Chart 1). Even when asset price-led cycles are not generated within EMs, they tend to be affected the most due to capital flows.



Chart 1
Cumulative Output Losses Associated with Different Adverse Financial Events



Source: [Canuto and Ghosh](#), upon [Claessens and Ghosh](#)

Should Monetary Policy React to Asset Prices?

Before the crisis, the policy paradigm used to look like this: central banks around the world would focus on inflation-targeting and on setting interest rates, while financial regulation would be left to specialized, ad hoc agencies. Central banks' primary role would be enough to maintain price stability and economic growth. On their side, financial regulators, through prudential rules, would ensure the soundness of financial institutions and protect depositors.

Asset price cycles had been a concern for many years but were seen as a separate issue that was not a monetary policy concern. Even when the frequent appearance of asset price bubbles started to be acknowledged, the belief was – “the Greenspan-Bernanke approach” (Greenspan (2002) and Bernanke (2002)) – that attempts to detect and prick them at an early stage would be impossible and potentially harmful. If necessary, mopping up after the burst of a bubble through interest rate cuts to help economic recovery would be safer.

Low and stable inflation was considered to be a necessary and sufficient condition for stable growth with moderate unemployment. It could be pursued, inter alia, through an inflation targeting framework, using interest rates and clear communication rules to achieve a pre-defined inflation objective, as the single focus for monetary authorities. Stable inflation would also result in low risk premiums, which together with competition and prudential rules in financial markets would help to achieve financial stability. The “Great Moderation” in developed economies, with relatively low inflation rates and small output fluctuations from the mid-80s onward, seemed to vindicate that confidence.

As we now know, this world of presumed stable monetary and financial conditions was severely shaken by the global financial crisis. With the benefit of hindsight it is easy to draw lessons. Asset price booms and busts were acknowledged to be both pervasive and harmful: real estate and stock-market booms contributed to excess US household debt and to fragile asset-liability structures; the interconnectedness of financial firms’ balance sheets, and the danger of too-big-to-fail institutions. The rapid global transmission of an asset price bust pushed the world economy to the edge of quasi-collapse (Canuto, 2009). Definitely, monetary policy makers can no longer neglect – or belittle - the dynamics of asset prices.

But was it lax monetary policy that led to the creation of such bubbles and then to financial instability? Some say yes (Taylor, (2009)); others say no. For Svensson (2010), for example, the financial crisis was caused by factors other than monetary policy; monetary policy and financial-stability policy are distinct—it was the latter that failed.

But if financial stability is indeed a legitimate concern for a central bank, then should we integrate a “financial variable” (e.g., an asset price indicator) into the monetary policy framework? More specifically, should policymakers incorporate indicators of financial stability into the central bank’s reaction function? Should they react automatically to variations in asset prices – or some associated variable, such as credit expansion - as they do under inflation targeting regimes in the case of variations in output gaps and inflation?

The emerging consensus seems to be that credit-fueled bubbles (e.g., real estate) should be differentiated from equity-type bubbles. While the former frequently carry with them the seeds of systemic crises, the latter often undergo a more bounded process of correction and price adjustment. Blinder (2010), for instance, argues that “*a distinction should be drawn between credit-fueled bubbles (such as the house price bubble) and equity-type bubbles in which credit plays only a minor role (such as the tech stock bubble).*” In this view, the “mop-up-afterwards” approach is still appropriate for equity bubbles not fueled by borrowing, but the central bank

should try to limit credit-based bubbles—though probably more with regulatory instruments than with interest rates. This attitude may eventually become the new consensus on how to deal with asset-price bubbles; indeed, Bernanke (2010) comes close to endorsing it.

On the other hand, in any case it is often recommended not to treat asset prices on the same footing as the other components of monetary-policy decision rules, like output gaps and expected inflation of goods and services. After all, “(...) *even the best leading indicators of asset price busts are imperfect – in the process of trying to reduce the probability of a dangerous bust, central banks may raise costly false alarms. Also, rigid reactions to indicators and inflexible use of policy tools will likely lead to policy mistakes. Discretion is required (our emphasis)*” (IMF, 2009:116).

How to Implement Monetary Policy and Prudential Regulation in a Complementary Way?

Neglect of asset prices by monetary-policy makers was not the only established practice to be over-ruled. Prior to the global financial crisis, financial stability was taken for granted provided that individual financial institutions adopted sound prudential rules, maintaining adequate levels of capital commensurate with types and levels of risks they faced. In that context, the responsibility for such prudential regulation was left independent and isolated from monetary policy making.

The crisis has shattered this view. Prudential tools concerned with ensuring the soundness of individual institutions and the protection of depositors have not sufficed for financial stability and the avoidance of financial crises. Sound risk management of individual financial institutions is not enough to guarantee sound management of system-wide risk.

Why? Despite well-designed prudential rules at the level of individual institutions, there might be spillovers and externalities across institutions that affect the financial system as a whole (e.g., bank panics, fire-sale of assets and credit crunches). Either because of inter-linkages among balance sheets of financial institutions and/or of contagion in terms of confidence, risks taken by single financial institutions may end up affecting the entire financial system.

That might come, for example, from the system’s characteristics: a financial system composed of large, interconnected firms is likely to produce moral hazard in the face of the (now) standard too-big-to-fail dilemma for policy-makers. Even if all firms are soundly regulated, the possibility of one failure in this inter-connected system creates contagion and negative externalities to the whole system. But this can also happen in a very different context, say in a system composed of small, and independent, perfectly regulated and unconnected financial firms.

It suffices that all firms use the same identical risk-assessment model that might be flawed by not considering a specific tail event. If this event materializes, the whole system could collapse, regardless of its apparent robustness and lack of connectedness.

Other examples of why institution-level prudential tools are insufficient can be found in the mortgage industry. Despite a number of consumer protection rules to limit over-borrowing and guidelines for the industry to scrutinize a borrower's willingness and ability to pay, the extension of mass lending for real estate has been an almost universal feature of credit booms in all countries.

Asset-price cycles — and the corresponding likelihood of full-blown financial crises — may well establish a feedback loop with pro-cyclical risk assessments present in traditional prudential rules. Suppose, for example, that there is a widespread increase in house prices, due to a demand shock. The rise in the value of real estate as collateral tends to raise the repayment probability for housing loans, which reduces the lending rate charged by credit suppliers. Additionally, if financial institutions follow their own assessment of risks when estimating appropriate ratios between capital and risk-weighted assets to be held, capital costs associated with such credits decline. Reduced borrowing costs stimulate borrowing for investment purposes in the economy at large, most likely leading to further bouts of house price hikes. If house price bubbles develop, there will be a whole network of larger interlinked balance sheets, dependent on overvalued collateral, although individually balance sheets (including those of individual home owners) may look sound.

Therefore, there is a need for a **macroprudential regulation** (concerned with ensuring the stability of the financial system as a whole and the mitigation of risks to the real economy). Macroprudential regulation aims to make the overall incentive structure for financial firms coherent and consistent so that the above mentioned externalities are internalized by the system. The idea is to design a set of principles and rules that can reduce each institution's contribution to systemic risk and that smooth the financial cycle (i.e., reducing the systemic risk that inherently builds up in booms and has damaging consequences in slumps since leverage, risk-taking, credit and asset prices are pro-cyclical and crises typically follow booms).

In fact, prudential regulation and monetary policy are now seen as complementary. Neither one can replace the other on its own. The combined use of both tends to be more effective than a standalone implementation of either. After all, financial risks are now seen as important enough for macroeconomic management to deserve a stronger regulation going beyond that of specialized agencies. If an economy is to pursue macroeconomic and financial stability, monetary

policy makers should at least coordinate with financial supervisors to ensure financial regulation and monetary policies are consistent, and implemented in an articulated way.

Reflecting the two distinctive types of macrofinancial risks illustrated above, macroprudential instruments can either assume a time series or a cross-section dimension. When systemic behavior over time is considered, the key issue is how risks can be amplified by interactions within the financial system and between the financial system and the real economy. On the other hand, the cross-section dimension relates to the common exposure of institutions at each point in time. Correlated assets, or even counterparty interrelations, create such a link among financial institutions.

In the time series dimension of macroprudential issues, monetary policy and macroprudential tools can clearly be complementary in reducing pro-cyclicality. However, the scope for joint calibration may be less obvious in the case of cross-sectional macroprudential regulation, in which the calibration must be conducted using a top down approach.

A rule of thumb for integrating monetary policy and macroprudential regulation may be to retain some division of labor, even if a more direct combination is considered the best way to go. Fine-tuning via monetary policy should be favored when stability issues are of a homogeneous and reversible nature. Moreover, macroprudential instruments tend to be more demanding in terms of implementation lags and transaction costs to financial institutions, whereas movements in short-term interest rates are faster, simpler to carry out and easier to communicate to the general public.

Emerging markets and other capital-receiving economies face an additional challenge: compared to purely domestic asset price cycles, do cross-border capital flows and the potential transmission of asset price booms and busts impose additional layers of complexity? The answer is yes based on overwhelming evidence. Not by chance, as already mentioned, capital inflows and their potential for sudden stops are clearly main sources of risk and shock for emerging markets.

Capital flow management policies can be an item for regulators to use in their toolkit when looking to address macroeconomic and financial instability risks. This is particularly the case in economies subject to significant spillovers from asset price cycles and policies from abroad, and in which the macroprudential and monetary policies are insufficient to ring-fence the economy. However, given the short life and usually low effectiveness of capital controls, more conventional policies should be explored first before considering this remedy.

Brazil, Korea: Two Tales of a Macroprudential Regulation

Let's summarize up to here. The pervasiveness and relevance of asset price booms and busts in modern economies has now been fully acknowledged. The case for combining prudential regulation and monetary policy in a complementary pursuit of financial and macroeconomic stability, rather than their use in isolation, is now firmly grounded. This is a key issue particularly for policy makers in emerging markets, where the interaction of real and financial cycles tends to be sharper than in advanced economies, with both recessions and recoveries more often overlapping with financial events and much larger real-side impacts.

The devil is in the details, however. As we illustrated in the previous items, there are still serious questions on how to proceed with the complementary use of prudential regulation and monetary policy. While there are already lessons from emerging markets' use of the macroprudential toolkit, more experience and analysis, particularly on its interaction with monetary policy is needed.

To this point, recent experiences of [Brazil](#) and [Korea](#), as reported in two chapters of a newly released book - [Canuto and Ghosh \(2013\)](#) - help fill that gap. They offer complementary examples of the learning-as-you-go process, by which the various components of macroprudential regulation are put in place. This contrasts with the advanced stage of policymaking and blueprints that have been attained on the monetary-policy front.

Furthermore, those country experiences also illustrate how both time-series and cross-section dimensions of macrofinancial risks must be on the radar of policy makers. Brazil and Korea present seemingly opposite but complementary examples of the relevance of taking both dimensions into account.

Consider that after the 2008 global financial crisis, Brazilian policy makers deployed macroprudential policies in articulation with monetary policy when jointly pursuing anti-inflation and financial stability objectives. The economy had over-rebounded and started to exhibit signs of overheating in 2010 as a result of fiscal and monetary policies implemented after the global shock. Global liquidity, high commodity prices and strong capital inflows further fueled aggregate demand expansion through domestic credit - which had been rising already at high rates since 2005. It was clearly an opportunity when monetary and prudential instruments could appropriately be combined in unidirectional retrenching, avoiding simultaneous build-up of both inflation and financial fragility. After all, any use of either monetary or prudential policies on their own under those circumstances might have led to contradictory and self-defeating impacts on those two objectives: simply hiking interest rates would attract more capital inflows; and restraining credit supply with no policy interest rate increase would lead to channeling demand for credit to other intermediation vehicles.

Instead there was a combination of policy interest rate hikes and an announced fiscal tightening along with several macroprudential policies. These included: higher bank reserve requirements to curb the transmission of excessive global liquidity to domestic credit markets; stronger terms for specific segments of the credit market to stem the deterioration in the quality of loan origination; reserve requirements on banks' short spot foreign exchange positions; and taxes applied to specific types of capital inflows to correct imbalances in the foreign exchange market and to dampen intensified, volatile inflows of capital.

Those measures succeeded in slowing the growth of household credit to a more sustainable pace. Nevertheless, partly as a consequence of a second dip of the global financial crisis associated with political and policy stalemates in the US and the Euro zone – [Canuto \(2013\)](#) - and partly because of domestic developments, Brazilian policy-makers were pushed to not only suddenly reverse its monetary-policy stance in 2011, but also felt the need to rapidly fine-tune its macroprudential toolkit, given the unevenness of results. Reflecting on this time, [Pereira da Silva and Harris \(2013\)](#) note that:

“Most of the macro prudential measures applied in Brazil since 2010 related to the time dimension of systemic risk, in other words to “leaning against the wind” and dealing with the cyclicity of the financial system. However, experience gained from the 2008 crisis has illustrated that, as the financial system becomes more complex and sophisticated, risks can arise not only in a single sector but also as an interlinked, system-wide issue. In fact, the Brazilian financial system is characterized by a high degree of conglomeration and concentration. (...) Therefore, another challenge is to develop effective indicators and to monitor cross sectional risks related to the interconnectedness of the financial system and the real economy.”

Korea in turn, had acquired some experience with several macroprudential policy instruments much prior to the 2008 global financial crisis. Liquidity ratio regulations had long been in place in response to the 1997 financial crisis. Furthermore, as signals of euphoria in the housing market became clear in the 2000s, loan-to-value and debt-to-income control ratios were also enacted. But unlike Brazil, Korea lacked specific measures aimed at the time-series risk dimension. This left loopholes for banks to raise excessive leverage through funding with “non-core liabilities” - i.e. instruments banks would not draw on during normal times, such as retail deposits by households – leading to a round of crisis-like events in 2008. As [Jong Kyu Lee \(2013\)](#) points out regarding the focus of Korea's regulation on ratios:

“(...) a liquidity ratio is unable to fully and flexibly reflect all aspects of structural changes in the related financial markets, and cannot prevent accumulation of financial imbalance. Reliance on a few ratios, (...) even though applied from the [macroprudential policy] perspective is not sufficient for securing financial stability.”

Let me highlight three of many lessons stemming from Brazil's and Korea's recent experiences.

First, while some division of labor between monetary policy and macroprudential regulation may be maintained in their combined application as suggested in the previous item, policy-makers need to make sure that prudential policies are mutually consistent and comprehensive enough to avoid regulatory arbitrage and exploration of loopholes. Second, a balance must be struck between the need for policies to be ahead of the curve, and the fact that learning-as-you-go is unavoidable.

Finally, communication by policy makers becomes trickier as they move from the clarity of rule-based monetary policy to its combination with macroprudential regulation. In the case of Brazil, for example, markets required an extraordinary effort from the Central Bank to clarify that macroprudential regulations were being implemented as a complement – rather than a substitute – to monetary policy.

Uncharted Territory

The global financial crisis has obliged policy-makers to leave the comfort zone previously established, one in which monetary policy making and prudential regulation tended to be seen as purely rule-based and isolated. Now not only a higher degree of discretion is acknowledged as inevitable, but also a complex articulation of the two sides is seen as necessary. Furthermore, given the dearth of available benchmarks and empirical references, a learning-as-you-go groping process cannot be avoided. What an unconventional territory for policy makers to cross, as compared to the pre-crisis orthodoxy...

* This article delves substantially on [Canuto and Ghosh \(2013\)](#), [Canuto and Cavallari \(2013a\)](#) and [Canuto \(2011\)](#).



SESSION 2

MONETARY POLICY AND MACROPRUDENTIAL POLICIES: THE NEED FOR A COHERENT FRAMEWORK





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**MONETARY AND MACRO-PRUDENTIAL POLICIES AND THE NEED FOR A
COHERENT FRAMEWORK: THE CASE OF THE PHILIPPINES**

By

Dennis Lapid¹

The Need for a Coherent Framework

The practice of central banking underwent a rethinking in the post-global financial crisis period. As Hahm et al. (2012) observe, the inability of price and output stability to ensure financial stability was a key lesson for central banks from the crisis. Policymakers have also learned that keeping individual financial institutions sound is not sufficient to prevent the buildup of system-wide risks. A broader approach was needed to safeguard the financial system as a whole, via a dedicated set of macroprudential policies that would help specifically to manage risks to financial stability, and be used in parallel with monetary policy. The post-crisis paradigm thus emphasized the use of both monetary policy and macroprudential policies for countercyclical management, with monetary policy aimed primarily at promoting price stability, and macroprudential policies aimed at financial stability.

At the same time, the feasibility of having a central bank looking after price stability separately from a regulatory agency focused on financial stability was reexamined, as some jurisdictions with separate monetary and supervisory agencies sought to recombine the two. However, even in instances where both functions are housed within the same institution, policymakers still needed to think about coordinating monetary and macroprudential policy. This brief note attempts to outline some of the recent thinking on combining the two policies, including some institutional aspects. A description of institutional arrangements in the Philippines is also included as an example.

Functions and Objectives

It has been suggested, via analytical DSGE-type models that examine the interaction between macroprudential and monetary policy, that in the presence of macroprudential instruments that can perfectly target threats to financial stability, in response to a financial shock

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leading to financial stability concerns, policymakers should mainly use macroprudential policies and monetary policy should remain primarily focused on price and output stability. This is based on the notion that the macroprudential instrument is more targeted at the specific financial sector distortion and monetary policy is likely to be overly blunt (since it affects other macro variables) as a response against the financial shock.

However, in practice, macroprudential policies cannot be targeted perfectly and may not fully offset financial shocks or distortions. Institutions also tend to be imperfect, and time inconsistency as well as political economy constraints in some cases can arise. Should these issues prove important, monetary policy may choose to take a greater role in preserving financial stability by responding to financial conditions and accepting the resulting tradeoff. Woodford (2012) suggests that in models where macroprudential policy is absent or time-invariant, and financial sector distortions are present, it may be optimal for monetary policy to consider financial shocks under an inflation targeting framework. Likewise, Kannan et al. (2009) find that a policy regime that includes a credit term in the monetary policy reaction function and a macroprudential rule can improve macroeconomic stability in the face of a financial shock.²

Similarly, where monetary policy is constrained, as can be the case in emerging economies, there can be greater demands on macroprudential policies. Nonetheless, macroprudential policies to offset any shortcomings in weakly conducted monetary policy may not be optimal (IMF, 2012).

However, the conduct of both policies will still need to take into account the effects they have on each other's main objectives. The relationship between monetary and macroprudential policies hinges on what "side effects" one policy will have on the objectives of the other and how perfectly each is able to operate in the pursuit of its own primary goal.

In principle, when price rigidities are the only distortion in the economy, the use of monetary policy focused on price stability is seen to be generally equivalent to or supportive of maximizing welfare. However, when financial distortions are present, price stability alone may not be sufficient for welfare maximization, and financial stability may need to be added as an intermediate goal for policy. The task of preserving financial stability will involve mitigating financial distortions and the risks associated with those distortions, with intermediate targets linked to the aggregate implications of such distortions (for example, on leverage in the banking

² The results may crucially depend on the type of shocks to the economy. Angelini et al. (2011) find that "the benefits of introducing macroprudential policy (relative to a 'monetary-policy-only world') are modest when the economic cycle is driven by supply shocks but sizeable when financial or housing market shocks are important drivers of the macroeconomy."

or household sectors, capital and liquidity positions of financial intermediaries, foreign exchange composition of assets and liabilities).

Coordination Between Monetary and Macroprudential Policy

In essence, monetary and macroprudential policy are not substitutes but rather complements that need to be employed alongside each other. Indeed, there are reasons to think that monetary policy may not be best suited to maintaining financial stability and vice versa.

Monetary policy alone cannot achieve financial stability in part because the causes of financial instability are not always related to the amount of liquidity in the system, which monetary policy can address. Moreover, when financial distortions are more present in some sectors of the economy than in others, monetary policy may be too blunt as a tool for addressing sector-specific risks. At the same time, while monetary policy can affect risk-taking incentives and financial market conditions, mitigating the effects of financial distortions or pricking an asset price bubble can sometimes also require large changes in the policy rate (Bean et al., 2010). In these circumstances, price and output stability may come into conflict with financial stability, and having additional separate tools for the financial stability goal can serve to improve welfare.

Meanwhile, macroprudential policies are often aimed at financial stability and are relatively less well suited to managing aggregate demand. The use of macroprudential policies for managing aggregate demand may in fact create additional distortions by imposing constraints on behavior beyond those areas where financial distortions originate. This would apply to cases where the imposition of macro constraints on lending activity pose the risk of cutting off credit to the growing sectors of the economy (or the financial deepening process as a whole).

When other countercyclical tools (notably monetary and fiscal policies) are available and effective, it is probably desirable to keep macroprudential policies focused on financial stability concerns. Moreover, while financial distortions can lead to economic imbalances (such as an inefficient level or composition of output), it remains unclear whether such imbalances are best addressed through macroprudential policies (IMF, 2012). Policymakers should strive not to overburden macroprudential policies as a tool or overestimate what they can achieve.

On the other hand, in cases where the monetary stance gives rise to incentives for risk-taking, macroprudential policies can also help address the potential adverse side effects on financial stability. Well-targeted macroprudential policies can help to mitigate and contain the side effects of monetary policy. For example, when accommodative monetary policy drives up asset prices, macroprudential measures such as prescribed limits on LTV ratios, can help to contain a

real estate buildup. This can be invaluable in instances of rising asset prices where a benign inflation environment may preclude monetary action. At the same time, relying too much on monetary policy to deal with financial stability ex ante can also create potential confusion for the public with regard to monetary policy objectives. Keeping monetary policy focused on its primary objective can create stronger commitment and reduce public concerns that the monetary action will be unduly influenced by other objectives.

Institutional Considerations

An equally important concern for policymakers is how to organize the conduct of monetary and macroprudential policy in institutional terms. A survey by the IMF (2011) suggests that in a majority of jurisdictions, the macroprudential policy mandate tends to be shared among several government agencies, including the central bank.³ The conduct of macroprudential policy is based on consensus and any policy disagreement is resolved through discussion and negotiation among the various agencies involved.

The need for good policy coordination (and avoidance of policy disagreements) supports the case for assigning the implementation of both monetary and macroprudential policy to a single institution, i.e. the central bank. Nevertheless, the presence of multiple and at times conflicting objectives can potentially muddle the central bank's mandate, complicate accountability, and reduce credibility. Safeguards may thus be needed to prevent mixed messages to the public and preserve policy credibility. These can take the form of separate structures for decision-making, accountability, and communication for both monetary and macroprudential policy.

Is the central bank equipped to handle both monetary stability and financial stability? The answer for a particular country will depend in part on the specific legal mandate given to the central bank. It may be argued that having a dual mandate of price and financial stability would provide central banks with policy instruments to pursue both objectives. The table below provides some examples of central banks that have dual objectives alongside those with price stability mandates only.

³ The macroprudential policy mandate is usually shared between the central bank and at least one other agency such as the financial regulator or the Ministry of Finance (up to five agencies in some jurisdictions).

CBs with price stability & financial stability objectives (examples)	CBs with price stability mandate only (examples)
Autoriti Monetari Brunei Darussalam	European Central Bank
Bank Negara Malaysia	Bank of the Lao PDR
Bank of Thailand	Bank of Korea
Nepal Rastra Bank	National Bank of Cambodia
Reserve Bank of Fiji	

Source: Central Bank Websites.

Dual institutional mandates were previously seen to have a negative influence on central bank performance. Copelovitch and Singer (2008) argue that, central banks that are also responsible for bank regulation may be more sensitive to the profitability and stability of the banking sector and therefore less likely to alter interest rates solely on the basis of price stability objectives. When bank regulation is assigned to a separate agency, the central bank is more likely to enact tighter monetary policies geared solely toward maintaining price stability. This was the original motivation for the transfer of the Bank of England’s bank regulatory authority to a separate agency in 1998 by the Blair government, which wanted to remove the bank stability bias from monetary policymaking.⁴

Since the crisis, however, the common wisdom has shifted toward enlarged mandates that encompass financial stability, including notably for the Bank of England, which has been accorded macroprudential responsibility for oversight of the financial system and day-to-day prudential supervision of financial services firms by the Financial Services Act of 2012, which amended the Bank of England Act of 1998. Central banks have also put more emphasis on financial stability in their communications (Carré et al., 2013).

In the case of the BSP, while its primary mandate is to promote price stability, it is also given the authority to provide policy directions in the areas of money, banking, and credit. The BSP is also given the power to supervise the operations of banks and exercise such regulatory powers under its Charter.

⁴ Copelovitch and Singer (2008) show econometric analysis of inflation in 23 industrial countries from 1975 to 1999 suggesting that inflation is significantly higher in those countries with central banks that are vested with bank regulatory responsibility—although this effect is also conditional on the choice of exchange rate regime and the relative size of the banking sector.

The BSP can attest to the operational advantages of combining the two mandates in one institution, primarily in terms of facilitating the sharing of relevant information and coordination on policy matters. This arrangement has endured and continues to underpin the implementation of monetary and supervisory policy in the Philippines, as can be seen below.

Integrating Monetary Policy and Financial Stability: The Philippine Case

This section discusses the Philippine experience in ensuring effectiveness of monetary policy amid the challenges associated with volatile capital flows as well as with implementing macroprudential policies.

Challenges from Volatile Capital Flows

The BSP adopted a broad and consistent policy approach to effectively manage foreign exchange flows. The enhanced toolkit for managing the inflationary and financial stability pressures resulting from strong capital flows included allowing greater exchange rate flexibility, alongside the buildup of international reserves, while partially sterilizing intervention to contain inflationary pressures. The BSP also calibrated its foreign exchange regulatory environment to broaden access to amounts of legitimate foreign currency requirements, and encourage outward FX flows.

The response also included the implementation of various macroprudential measures. These included measures to stem volatility in the foreign exchange market, such as (1) the imposition of a higher capital charge on non-deliverable forward (NDFs) transactions to balance the risks involved in such transactions; (2) the setting of a cap on NDF transactions. At the same time, the BSP also disallowed foreign funds in the special deposit account (SDA) facility, as part of its operational fine-tuning to discourage the use of BSP instruments as a vehicle for carry trade. In response to concerns on the channeling of funds to the real estate sector, the BSP revised regulations to have broader coverage and reporting of real estate exposures of banks as well as approved reference standards for real estate activities of banks in order to help maintain good credit underwriting standards.

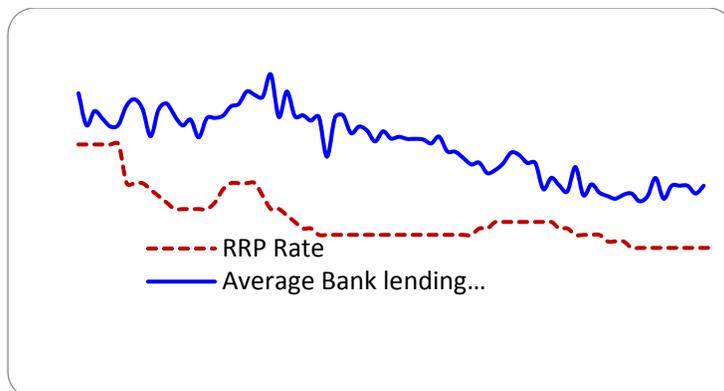
A further challenge involved the impact of inflows on domestic liquidity conditions and market interest rates. The post-crisis surge in capital flows to emerging economies appears to have moderated the impact of monetary policy on market interest rates, as suggested by the divergence between the BSP policy rate and T-bill rates in the primary market. Likewise, the

BSP's policy rate has remained consistently higher compared to secondary market yields of short-term government debt instruments.

RRP Rate and Average Bank Lending Rate

(in percent)

Jan 2007– Aug 2013



More importantly, while policy rate changes continue to have an influence on the short end of the yield curve, the pass-through impact appears to have moderated during the period of strong capital flows.

The weaker pass-through has implications for the monetary transmission process, particularly given that the secondary market rate of 91-day T-bills is used to price loans and other financial transactions.⁵ In the case of bank lending rates, a relatively weaker pass-through has also been observed during monetary tightening. In 2011, the BSP tightened monetary policy early in the year to help forestall inflation pressures as unfavorable weather conditions and protracted tensions in the Middle East and North Africa (MENA) region contributed to mounting pressures on food and oil prices. The BSP also raised reserve requirements by two percentage points as a preemptive move to help manage liquidity given prospects of sustained foreign exchange inflows. Nevertheless, interest rates declined significantly across all tenors in the primary market during the year, reflecting ample liquidity in the system and strong demand for government papers owing to the country's generally strong macroeconomic fundamentals amid a highly uncertain external environment. Bank lending and time deposit rates also fell during the year. Analysis by the BSP showed that the policy interest rate remained a significant driver of the short-term Treasury bill

⁵ With the decline of both primary and secondary market interest rates of government securities to historic lows, banks have also turned to other interest rates, including the BSP RRP and SDA rates, for pricing loans and other debt contracts.

rate, although the presence of capital flows appears to have moderated the pass-through effect from policy rate to short and long-term interest rates (BSP 2011). In particular, higher policy rates caused short-term interest rates to rise, but long-term Treasury bond rates to decline (due to expectations of lower inflation due to the tighter policy stance), resulting in a flattening of the yield curve, when the share of capital account to nominal GDP is incorporated in the estimation.

Constraints on the monetary transmission channel argue for the use of macroprudential measures, particularly in response to financial stability concerns stemming from stronger credit growth to specific sectors such as real estate. On 23 August 2012, the Monetary Board (MB) approved a set of measures aimed at enhancing the BSP's manner of monitoring exposures of the banking industry to the real estate market. The new guidelines were intended to provide a more comprehensive measure of a bank's real estate exposure, which would now include, in addition to real estate loans, investments in debt and equity securities whose proceeds are used to finance real estate activities.

Working Arrangements at the BSP

Consistent with its combined mandate of price stability and financial stability, the implementation of monetary and supervisory policy at the BSP allows for collaborative policy efforts across departments related to the two mandates, but with some degree of demarcation in terms of discussions and staff recommendations to the Monetary Board, the BSP's main decision-making body.

Delineation is achieved through separate internal technical committees for monetary and macroprudential policy. The Advisory Committee is mainly focused on monetary policy but draws on the expertise of departments under its members (which include the Governor as Chairman and senior bank officials responsible for monetary policy, banking supervision and monetary operations). The committee's main mandate is to recommend policy action to the Monetary Board but allows the discussion of financial stability concerns during monetary policy meetings.

Similarly, the BSP Financial Stability Committee (FSC) was established to take deliberate stock of potential system-wide risks to the banking sector. Members consist of senior officials for monetary policy and supervision who meet regularly to monitor, assess and recommend macroprudential and regulatory measures to the Monetary Board. Collaboration takes the form of inter-departmental workstreams dedicated to specific financial stability issues such as shadow banking and financial market infrastructure.

The BSP is also part of larger regulatory efforts via inter-agency groupings focused on information-sharing and collaboration on key issues. The Financial Sector Forum (FSF) was formed in July 2004 by four agencies, namely the BSP, the Philippine Deposit Insurance Corporation, the Securities and Exchange Commission, and the Insurance Commission to strengthen coordination among the four institutions in the supervision and regulation of the financial system. The FSF was focused on coordination and harmonization of the micro-prudential regulations of the four agencies. In February 2014, the Financial Stability Coordination Council (FSCC) was launched to foster a strong and resilient financial system that supports market innovation and mitigates any build-up of systemic risks. The members of the FSCC are the BSP, Insurance Commission, the Department of Finance, the Securities and Exchange Commission, and the Philippine Deposit and Insurance Corporation. The purpose of the Council is to establish a system wherein the members, given their respective strategic functions and responsibilities, will be able to identify, manage, and address external and internal risks to financial stability to protect financial consumers and our economy.

Further Expanding the Policy Toolkit

The BSP also hopes to expand its toolkit for both monetary and macroprudential policy through amendments to its charter, known as the New Central Bank Act (Republic Act No. 7653). Proposed BSP Charter amendments aimed at strengthening the BSP's monetary and financial stability functions include, among other things, formal recognition of financial stability in the BSP's legal mandate, expansion of supervisory authority to include additional categories of financial institutions, as well as explicit oversight of the payment and settlement system.⁶ This expansion of the mandate not only accords with the emerging international consensus on central bank mandates but also formalizes the existing institutional arrangements in the Philippine setting.

The supervision of additional types of financial institutions, such as credit card companies, money changers, e-money issuers, remittance agents and payment and settlement system operators, will allow the BSP to carry out powers subsumed within the meaning of "supervision" as defined in the General Banking Law of 2000 (Republic Act No. 8791) and assign the oversight of these institutions to a regulatory agency.

⁶ Other proposed changes include the lifting of the laws on deposit secrecy with respect to BSP examination, and the imposition of sanctions on transfers and acquisitions of substantial shares of banks and quasi-banks without BSP approval.

With respect to the strengthening of the monetary stability function, the proposed changes to the law include the restoration of the BSP's ability to issue its own debt securities as part of normal monetary operations (to ensure greater flexibility) and the restoration of the authority to obtain data from any private person/entity in recognition of the increasingly data-intensive nature of monetary policymaking.⁷

Concluding Remarks

The BSP considers macroprudential measures as one of the key instruments in dealing with financial stability risks, with a view to moderating risk-taking behavior in specific types of activities and containing the potential build-up of systemic risks. Various macroprudential policies are in place to help rein in the risk-taking behavior of financial intermediaries.

The BSP is also mindful of the complementarities between monetary policy and macroprudential policy, and strives to make use of the complementary relationship between the two policies because it is both the monetary and supervisory authority. This is evident in the institutional arrangements which bring together Bank staff involved in monetary policy and banking supervision.

Nevertheless, policymakers must also traverse the fine line between safeguarding financial stability and clamping down on financial deepening. This is a fine line especially in economies like the Philippines where financial deepening is relatively low by international standards (with credit-GDP ratio currently at around 60 percent). At the same time, financial inclusion remains very much a challenge, as there continues to be a large underserved population in terms of access to financial services. Policymakers therefore should take care not to throw out the baby with the bathwater.

⁷ The BSP Charter includes the proviso that the issuance of certificates of indebtedness should only be made in cases of extraordinary movements in price levels. The BSP is also seeking the deletion of references in the Charter to monetary aggregates and credit as guiding principles in monetary administration.

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SESSION 3

MITIGATING SYSTEMIC RISKS





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MITIGATING SYSTEMIC RISK: EXTERNALITIES AND MACRO-PRUDENTIAL POLICY¹

By

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The purpose of this session was to generate an interactive discussion among the seminar participants as to how coordinated macroprudential policies can be used to contain vulnerabilities in the financial system and control systemic risk. Also, there was discussion of how externalities associated with the activity of financial intermediaries can lead to systemic risk, and thus require specific policies to mitigate such risk. Most of the seminar participants were subject matter experts on the session topic.

The speaker provided extemporaneous remarks accompanied by a slide presentation. The session focused on the history, tools, limitations and challenges of macroprudential policy implementation, and countries' implementation experiences. A high-level summation of the Session's main points of discussion, including participants' interventions, follows:

1. The concept of financial stability has many dimensions. It includes a sound banking system where problems are manageable. While there may be individual problem banks and bank failures, they are not large or systemic. Further, there is not a material build-up of correlated risk that could adversely affect multiple market participants and potentially pose systemic risk. Banks and other regulated financial intermediaries are willing and able to meet sound credit needs.
2. A 2009 IMF/BIS/FSB Report to the G20 Finance Ministers and Governors³ defines "systemic risk" as "...a disruption to financial services that is (1) caused by an impairment of all or parts of the financial system and (ii) has the potential to have serious negative consequences for the real economy." Further, "Fundamental to this definition, is the notion of negative externalities from a disruption or failure in a financial institution, market or instrument."

¹ Presented as Seminar Session 3 on 7 November 2013 for the SEACEN High-level Seminar on "Integrating Monetary Policies with Macroprudential Framework".

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³ "Report to the G20 Finance Ministers and Governors, 'Guidance to Assess the Systemic Importance of Financial Institutions, Markets and Instruments: Initial Considerations,'" IMF/BIS/FSB: 2009.

3. Macroprudential tools have been used for some time (e.g., minimum capital ratios, loan-to-value limitations). Compared to some other regions, Asia-Pacific countries have a long experience in implementing a variety of macroprudential measures to prevent or address asset price bubbles or other threats to financial stability. This experience is derived from dealing with previous threats to financial stability, especially arising from volatile capital flows.
4. The Global Financial Crisis of 2007-9 (“GFC”) underscored the urgent need for relevant national authorities, primarily central banks, to improve surveillance systems to detect, at their incipient stages, the build-up of macroeconomic risks, vulnerabilities or threats that could jeopardize financial system stability. Timely macroprudential policy measures can then be taken, alone or in concert with other policy actions, to avert, dampen or mitigate periods of instability or crisis.
5. Pre-crisis, many countries most directly and substantially affected by the GFC had developed what were reputed to be sophisticated monitoring systems to track financial system stability. Yet, those systems and attendant analytical methods almost universally failed to predict the onset, severity and spillover effects of the GFC. Many financial stability assessments published by those jurisdictions reflected no material systemic risk concerns prior to crisis onset.
6. Post-crisis analyses by the IMF, the Financial Stability Board (“FSB”) and standard-setters sponsored by the Bank for International Settlements (“BIS”), such as the Basel Committee on Banking Supervision (“BCBS”), have cited various causal factors for shortcomings in pre-GFC surveillance methods, including:
 - Failure to adequately monitor and control macroprudential risks. Banking system stability monitoring focused on the risks in individual institutions fails to consider that a build-up of macroeconomic risks and vulnerabilities could adversely impact a number of institutions simultaneously, posing systemic risk.
 - Financial institutions that appear sound may be adversely impacted by common behavior and mutual interaction.
 - Failure to consider risks in the shadow banking industry or cross-sectoral risks, such as those posed by the insurance industry.⁴
 - Insufficient attention to concentrations of risk and interdependencies, including cross-border risks.

⁴ While the insurance industry is not usually associated with systemic risk, the possibility is illustrated by the AIG case. That insurance conglomerate encountered difficulties during the GFC, requiring extraordinary intervention to prevent collapse and potentially destabilizing cross-border contagion effects.

7. Asia-Pacific countries experienced mostly second order effects from the GFC. The region has avoided a significant cross-border financial crisis since 1997-98. Nevertheless, developing, enhancing and implementing effective macroprudential policy approaches are important to promoting and achieving ongoing financial system stability, particularly with increasing regional financial integration.
8. Operationalizing macroprudential policies is a challenge given that it is largely a judgmental process, though informed by comprehensive empirical analyses.
9. Even if macroprudential policy measures appear to achieve desired policy objectives, there may be no provable causal links to attribute the efficacy of policy actions.
10. Responsibility for implementing various macroprudential measures may reside in different national authorities, and not necessarily be a central bank mandate.
11. Policy actions necessitate close cooperation and coordination among domestic authorities to ensure they do not have contradictory goals or offset each other. Monetary, fiscal and tax policies can also influence systemic risk.
12. Macroprudential policy actions may benefit from cross-border coordination to minimize opportunities for regulatory arbitrage, though it is recognized that this may be difficult to achieve in practice.
13. Effective surveillance capability is essential to detecting elevated risk in individual financial institutions (microprudential supervision), as well as identifying macroeconomic risk build-ups (macroprudential risk), such as real estate market and other asset bubbles, which could adversely affect financial system stability. Data collection will likely need to be significantly enhanced to achieve sufficiently granular information to conduct the greatly expanded analyses envisioned.
14. The BCBS emphasized (September 2012) that “The recent crisis highlighted the interface between, and the complementary nature of, the macroprudential and microprudential elements of effective supervision.” Macroprudential approaches and methods do not supplant microprudential activities, especially the need to conduct on-site examinations at reasonable intervals that employ an appropriate level of transaction testing. Also, there is a need for off-site surveillance systems that allow ongoing monitoring of identify industry trends and identification of outliers through peer group comparisons and other analytical methods.

15. Macroprudential risk assessment methods and policy tools continue to evolve. Important recent studies that provide useful insights include:

- BIS Working Paper No 421, “Evaluating early warning indicators of banking crises: Satisfying Policy Requirements” (August 2013)
- The BIS-sponsored Committee on the Global Financial System’s Paper No 48 “Operationalizing the selection and application of macroprudential instruments” (December 2012)
- BCBS Working Paper No. 21, “Models and tools for macroprudential analysis” (Revised May 2012)

16. Shadow banking system risks vary among jurisdictions, though they have generally not been a major concern in most of the Asia-Pacific region. The FSB and BCBS are concerned with these risks as a potential source of systemic risk and regulatory arbitrage, among other reasons. Countries will need to define the “regulatory perimeter” appropriate to their context: What nonbank financial intermediaries and other providers of financial services should be regulated and supervised? What is the appropriate “intensity” of supervision?



SESSION 4

SHARING EXPERIENCES: THE INTERACTION BETWEEN MONETARY AND MACROPRUDENTIAL POLICIES





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MACRO-PRUDENTIAL POLICY AND MONETARY POLICY: AN INDIAN EXPERIENCE

By

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Traditionally, soundness of individual financial institutions was considered sufficient to ensure financial stability. During the recent global financial crisis, it was found that micro-prudential policy, which addresses idiosyncratic risks, may not be adequate to ensure stability of the financial system as a whole. Systemic vulnerability arising out of excess pro-cyclicality and interconnectedness cannot be efficiently handled through micro-prudential policy alone. A new set of policy, popularly known as ‘macro-prudential policy’, received attention of the policy makers in the post-crisis period to address systemic vulnerability. Although some forms of macro-prudential policy were existing before the crisis, the international understanding on such a critical policy has evolved as an adjunct to Basel III capital adequacy norms. G-20, the Bank for International Settlements (BIS), the Global Financial Stability Board and the IMF have been espousing the implementation of macro-prudential policy around the world as a supplement to micro-prudential policy as well as monetary policy.

An attempt has been made in Section I to highlight the elements of macro-prudential policy pursued by the Reserve Bank of India (RBI) before the recent financial crisis. Section II evaluates the post-crisis arrangements made in India to implement the globally defined macro-prudential policy. Section III critically examines the interface between macro-prudential policy and monetary policy in India. Section IV provides concluding observations.

1. Pre-crisis Macro-prudential Policy in India

India’s financial system continues to be bank dominated although non-bank segment is growing steadily since 1980s. Besides being the monetary authority of the country, the RBI is the regulator and supervisor of banks, non-bank financial companies (NBFCs) as well as major financial markets. Hence, the primary responsibility of ensuring financial stability lies with the RBI. The RBI has been reasonably successful in ensuring financial stability in India in coordination with other regulators such as the Securities and Exchange Board of India (SEBI), Insurance Regulatory and Development Authority (IRDA), Pension Fund Regulatory

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and Development Authority (PFRDA), and the Government of India. It would be interesting to know how RBI has supplemented various shades of macro-prudential policy with monetary policy to achieve monetary policy objectives, including financial stability. The contribution of micro-prudential policy to achieve financial stability in India is no less important. Micro-prudential regulations are presumed to be pursued as suggested by the BIS; but remain outside the domain of this paper.

Macro-prudential policy tools, as understood today, could be broadly categorized under three heads: (a) counter-cyclical capital buffers and provisions; (b) sectoral tools such as loan-to-value-ratio (LTV), debt-to-income ratio, capital surcharge on systemically important financial institutions contributing to systemic vulnerability; and (c) liquidity tools such as leverage ratio, liquidity coverage ratio (LCR) and net stable funding ratio (NSFR). The elements of macro-prudential policy pursued by the RBI before the global financial crisis were not as neat as these are perceived today. Nevertheless, many of the measures pursued in India can be interpreted as close substitutes of the macro-prudential policy recently prescribed by the BIS. Notable among them are: (a) variable sector-specific provisioning requirements for standard assets; (b) LTV ratio and risk-weights to control credit to the sensitive sectors like housing, real estate, capital market, retail, etc; (c) exposure limits to sensitive markets/sectors to contain the problem of spill over/contagion arising out of interconnectedness; and (d) statutory liquidity ratio (SLR) which served as a natural substitute for liquidity coverage ratio.

India has a history of selective credit control. Hence, there has been a monitoring mechanism in place as regards sectoral deployment of bank credit. Systemic risks were identified from credit growth to the sensitive sectors. Accordingly, both risk weights and provisioning requirements on standard assets were modulated in a countercyclical manner well before the global financial crisis. Both risk weights and provisioning were revised upwards for credit extended to the sensitive sectors in India such as housing, real estate, retail etc. (Table 1). As the overheating situation receded in the post-crisis period, provisioning as well as risk weights on standard assets were broadly normalized/restored. Within the sensitive sectors, exposures to capital market and systemically important non-bank financial companies received similar treatment.

Table 1
Sector-Specific Risk Weights and Provisioning Requirements

(Per cent)

Month	Housing & Commercial Real Estate				Capital Market, Retail & NBFC			
	Housing		Commercial Real Estate		Capital Market & Retail		NBFCs	
	Risk Weight	Provisions	Risk Weight	Provisions	Risk Weight	Provisions	Risk Weight	Provisions
Dec-04	75	0.25	100	0.25	100**	0.25	100	0.25
Jul-05	75	0.25	125	0.25	125	0.25	100	0.25
Nov-05	75	0.4	125	0.4	125	0.4	100	0.4
May-06	75	1	150	1	125	1	100	0.4
Jan-07	75	1	150	2	125	2	125	2
May-07	50-75	1	150	2	125	2	125	2
May-08	50-100	1	150	2	125	2	125	2
Nov-08	50-100	0.4	100	0.4	125	0.4	100	0.4
Nov-09	50-100	0.4	100	1	125	0.4	100	0.4
Dec-10	50-125*	0.4-2.0#	100	1	125	0.4	100	0.4
Jun-13	50-75*	0.4-2.0#	100	1	125	0.4	100	0.4

Provisioning requirement for housing loans with teaser interest rates was increased to 2% in December 2010. It will remain at 2% till one year after reset of interest rate to higher rate and thereafter it will be 0.4%. For other housing loans the provisioning will remain at 0.4%.

* The risk weight for housing loans varies according to loan amount and the loan-to-value ratio.

** Risk weight was 125 for retail segment.

Housing sector was at the centre of attention as the recent global financial crisis originated from sub-prime mortgage lending. In India too, housing sector was handled delicately. The house price adjustment in India was not as pervasive as in the western countries. Moreover, individual housing loans were needed to meet the ever-growing housing requirements of the rising population. Therefore, the LTV ratio was high for small individual housing loans (Table 2). With the increase in the size of individual housing loans, the LTV ratio was reduced while risk weights were set at higher level to restrict the unusually large flow of credit to this sector. The risk weight and provisioning requirements for the commercial real estate sector were the highest.

Table 2
Current LTV Ratio for Housing Sector

Loan Category	LTV Ratio (%)	Risk Weight (%)	Standard Asset Provisioning (%)
I. Individual Housing Loans			
Up to Rs.2 million	90	50	0.40
Rs.2-7.5 million	80	50	0.40
Above Rs.7.5 million	75	75	0.40
II. Commercial Real Estate – Residential Housing (CRE – RH)	NA (Not Applicable)	75	0.75
III. Commercial Real Estate (CRE)	NA	100	1.00

India pursued the policy of higher minimum capital requirement linked to the risk weighted assets compared to the minimum prescribed by the Basel I and II regimes. However, the RBI did not prescribe countercyclical capital buffers before the crisis. Similarly, the RBI did not prescribe debt-to-income ratio although commercial banks followed this principle as decided by their Boards as a part of due diligence while sanctioning housing/consumer loans to individuals. Other than LTV ratio prescribed for the housing sector, the spillover risks arising out of interconnectedness was addressed through exposure limits to various markets/sectors. These include, *inter alia*, banks' exposure limit to uncollateralized inter-bank market, capital market, NBFCs, Mutual Funds, inter-group transactions in case of financial conglomerates, and derivative markets. Some of the limits were micro-prudential while the rest were macro-prudential in nature. As macro-prudential policy was not fully developed at that time, it would be difficult to segregate the exposure limits that are macro-prudential from the micro-prudential ones. The extent to which both micro and macro-prudential exposure limits used to mitigate the risks arising out of interconnectedness is presented in Tables 3-5 so as to give a comprehensive picture.

Table 3
Exposure to Overnight Call Money Market: Current Prudential Limits

Participants	Borrowing Limit		Lending Limit	
	Average	Daily	Average	Daily
Scheduled Commercial Banks (% of Total Capital)	100	125	25	50
Co-operative Banks (% of Aggregate Deposits)	Not prescribed	2	No limit	No limit
Primary Dealers (% of Net Owned Funds)	225	Not prescribed	25	Not prescribed

Following development of the money market in India, participants have been pushed to the collateralized segments so that systemic vulnerability is reduced. Participation in the uncollateralised overnight call money market is now restricted to banks and primary dealers. Moreover, exposure to the overnight call money market by the eligible participants is regulated (Table 3). Particularly, lending by scheduled commercial banks in this segment is tightly regulated so that in case of default, the entire capital of scheduled commercial banks (SCBs) shall not be wiped out. The same logic is applicable as regards exposure limits to the capital market as well as to large NBFCs. The prudential limits in such cases vary and do not exceed 40 per cent of the net worth of each bank (Tables 4 and 5) except in case of lending to infrastructure projects, where liberal exposure up to 50 per cent is permitted.

Table 4
Current Capital Market Exposure Norms for Commercial Banks

Exposure to	Limit
Banks holding of shares in any company	30% of paid up capital of the company or 30% paid up capital of the bank whichever is less
Banks aggregate exposure to capital market (solo basis)	40% of its net-worth
Banks aggregate exposure to capital market (group basis)	40% of its consolidated net-worth
Bank's direct exposure to capital market (solo basis)	20% of its net-worth
Bank's direct exposure to capital market (group basis)	20% of its consolidated net-worth
Cross-holding limit of capital among banks/financial institutions	10 % of capital funds (Not more than 5% of bank's equity)

Table 5
Other Exposure Norms for Commercial Banks

Exposure to	Limit
Single Borrower	15% of capital fund (Additional 5-10% on infrastructure as decided by the Board)
Group Borrower	40% of capital fund (Additional 5-15% on infrastructure as decided by the Board)
NBFC	10 % of capital fund*
NBFC –Asset Financing Companies	15% of capital fund*
Infrastructure Financing Companies	15% of capital fund*
Indian Joint Venture /Wholly owned subsidiaries abroad/ Overseas step down subsidiaries of Indian Corporates	20% of capital fund

* Additional 5% exposure is permitted provided the excess exposure is on account of on lending to infrastructure sector by these companies.

India has followed a system of statutory prescription for the scheduled commercial banks to invest in unencumbered and government approved securities, popularly known as statutory liquidity ratio (SLR). The SLR, which was 25 per cent of the net demand and time liabilities of each bank, has been recently reduced to 23 per cent. This statutory pre-emption of resources works as a natural substitute for the liquidity coverage ratio (LCR), currently included in the macro-prudential policy. India would get the benefit of smoothly switching over to the new regime of LCR by appropriately adjusting SLR.

2. Implementation of BIS-prescribed Macro-prudential Policy

Macro-prudential policy, as prescribed by the BIS, is being implemented in India in a phased manner. The arrangements for the implementation of countercyclical capital buffer, dynamic provisioning, liquidity coverage ratio and leverage ratio are serially analyzed in this section.

The RBI is committed to implement Basel III capital adequacy norms including countercyclical capital buffer (CCB). The minimum capital requirement (including CCB) has been prescribed at 11.5 per cent of the risk-weighted assets, which is 100 basis points higher in India than 10.5 per cent stipulated by the BIS. Historically, India has always set higher target of capital requirements than prescribed by the BIS, viz., 9 per cent under the Basel I and II regimes as against BIS stipulation of 8 per cent. The Basel III capital requirement has to be achieved by the end of March 2018 in India, 9 months before the BIS timeline of January 2019 (Table 6). The phase-in arrangement of all deductions from common equity Tier 1 capital shall also be advanced by nine months.

Table 6
Phase-in Arrangements of Basel III Capital Requirement

(% of Risk Weighted Assets)

Indicators	2013	2014	2015	2016	2017	2018	2019
Min Common Equity Tier 1 Capital (CET 1)	4.5 (3.5)	5.0 (4.0)	5.5 (4.5)	5.5 (4.5)	5.5 (4.5)	5.5 (4.5)	- (4.5)
Counter-Cyclical Capital Buffer (CCB)	- (-)	- (-)	0.625 (-)	1.25 (0.625)	1.875 (1.25)	2.5 (1.875)	- (2.50)
Min CET 1 + CCB	4.5 (3.5)	5.0 (4.0)	6.125 (4.5)	6.75 (5.125)	7.375 (5.75)	8.0 (6.375)	- (7.0)
Min Tier 1 Capital	6 (4.5)	6.5 (5.5)	7.0 (6.0)	7.0 (6.0)	7.0 (6.0)	7.0 (6.0)	- (6.0)
Min Total Capital	9.0 (8.0)	9.0 (8.0)	9.0 (8.0)	9.0 (8.0)	9.0 (8.0)	9.0 (8.0)	- (8.0)
Min Total Capital + CCB	9.0 (8.0)	9.0 (8.0)	9.625 (8.0)	10.25 (8.625)	10.875 (9.25)	11.5 (9.875)	- (10.5)
Phase-in of all deductions from CET 1 (%)	20 (-)	40 (20)	60 (40)	80 (60)	100 (80)	100 (100)	- (100)

*: Time line suggested by BIS begins with January each year. In India, it was aligned to the fiscal year beginning from first April each year.

Note: Figures given in parentheses relate to BIS prescription corresponding for January each year.

The current provisioning requirements relate to: (a) general provisions for standard assets; (b) specific provisions for non-performing assets (NPAs); (c) floating provisions to achieve a particular level of provision to total NPAs; (d) provisions against the diminution in the fair value of a restructured asset. These are mostly elements of micro-prudential regulations. A Discussion Paper on dynamic provisioning was issued on March 30, 2012. Broadly, the current provisioning norms referred to above would help transit to dynamic provisioning without much difficulty. According to the Discussion Paper, total provisioning requirements shall consist of dynamic provisioning (DP) and specific provisioning. Based on the Discussion Paper, the regulatory provisioning coverage ratio prescribed by the RBI shall not be less than 70 per cent of NPAs. The dynamic provisioning shall be about 1.37 per cent of total credit minus change in specific provisioning. This may vary across the sectors as indicated in Table 7. Other than specific provisions currently maintained by banks, the remaining provisions shall be merged to achieve the target for dynamic provisioning for the standard assets.

Table 7
Proposed Dynamic Provisioning in India

Specific Provisions (SP)	As per regulatory guidelines Provisioning Coverage Ratio not less than 70% of the NPAs (Since Sept. 2010)				
Dynamic Provisions (DP)	$\alpha Ct - \Delta SP$ (Ct = total credit)				
	Corporate Loans	Retail Loans	Housing Loans	Other Loans	Total Loans
Value of Alpha (α)	0.62%	2.67%	0.27%	2.26%	1.37%

The banks are expected to have adequate specific provisions to cover their NPAs. Positive value of dynamic provisioning in a year will increase the credit balance in DP account. Negative value in a year will represent a drawdown from the DP account.

As regards liquidity coverage ratio (LCR), draft guidelines have been issued on February 21, 2012. The prescribed LCR shall be effective from April 1, 2015 while the net stable funding ratio (NSFR) would come into effect from April 1, 2018. The liquidity risk monitoring returns have been put in place since June 2012 (Table 8). According to the guidelines, LCR-Level 1 shall consist of cash including cash reserves in excess of required cash reserve ratio (CRR); government securities in excess of SLR; SLR securities within mandatory requirement to the extent allowed by the RBI; and marketable securities issued or guaranteed by foreign sovereigns satisfying certain conditions. The stock of high quality liquid assets should be equal to net cash outflows over the next 30 days. LCR-Level 2 shall comprise marketable securities guaranteed by sovereigns, public sector enterprises (PSEs), multilateral development bankers (risk weights 20 per cent and not issued by banks, financial institutions (FIs) and NBFCs or any other affiliates) and corporate bonds (not issued by banks, FIs and NBFCs or any of their affiliates and rated at least AA-). LCR-Level 2 shall be not more than 40 per cent of the overall stocks after haircuts (15 per cent minimum).

Table 8
Liquidity Coverage Ratio

Basel III Liquidity Return (BLR)	Periodicity	Deadline for Submission
Liquidity Coverage Ratio – BLR 1	Monthly	Within 15 days
Net Stable Funding Ratio – BLR 2	Quarterly	Within a month
Funding Concentration – BLR 3	Monthly	Within 15 days
Unencumbered Assets – BLR 4	Quarterly	Within a month
LCR by Significant Currency – BLR 5	Monthly	Within a month
Other Information on Liquidity – BLR 6	Monthly	Within 15 days

The NSFR shall consist of Tier 1 and Tier 2 capital after deductions, preference share capital with remaining maturity of one year and above; liabilities with effective maturity above one year and portion of demand deposit/term deposit/wholesale funding with maturity less than one year, but expected to remain with banks.

Indian banking system is currently moderately leveraged on an aggregate basis (around 22 times of Tier 1 capital). Accordingly, a higher leverage ratio (capital to total un-weighted assets) of 4.5 per cent has been prescribed in India from the point of view of supervisory comfort as against Basel III norm of 3 per cent.

3. Interface with Monetary Policy

The primary objective of monetary policy in India is to achieve price stability and promote economic growth. This is difficult to achieve unless financial stability is ensured on a continuous basis. Therefore, financial stability has emerged as one of the objectives of monetary policy in India in the recent years. This objective is generally pursued by leaning against overheating conditions of the economy. Similarly, the primary objective of macro-prudential policy is to address systemic vulnerability and thereby complement the endeavour of the monetary authority to achieve its objective of price stability or stimulating growth. Both monetary policy and macro-prudential policy may be combined in a manner so as to reap the synergy of achieving primary objectives assigned to both. The interface between the two sets of policy may depend on circumstances. Such an interaction between monetary and macro-prudential policies was observed in India before the financial crisis (Table 9).

Table 9
Monetary Measures and Prudential Norms

(Basis Points)

Measures	Tightening Phase (Sept. 2004 to Aug. 2008)	Easing Phase (Oct. 2008 to Apr. 2009)	Tightening Phase (Nov. 2009 to Oct. 2011)	Easing Phase (Oct. 2011 to July 15, 2013)
I. Monetary Measures				
Repo Rate	300	-425	375	-100
Reverse Repo Rate	125	-275	425	-100
CRR	450	-400	100	-200
II. Provisioning Norms				
Capital Market Exposures	175	-160	0	0
Housing	75	-60	160	0
Other Retail	175	-160	0	0
Commercial Real Estate	175	-160	60	0
NBFC-ND-SI	175	-160	0	0
III. Risk Weights				
Capital Market Exposures	25	0	0	0
Housing	-25 to 25	0	0 to 25	0 to -50
Other Retail	25	0	0	0
Commercial Real Estate	50	-50	0	0
NBFC-ND-SI	25	-25	0	0

NBFC-ND-SI: Systemically important non-deposit taking NBFCs.

It can be seen from Table 9 that tightening of monetary policy during 2004 to 2008 was combined with hike in provisioning requirement as well as risk weight of standard assets relating to sensitive sectors. The economy was growing at a high rate of over 9 per cent while the credit growth to the sensitive sector was much above the trend rate. Net capital inflow was much above the current account deficit. Accumulation of foreign exchange reserves led to unusual reserve money expansion. Although sterilization partly offset reserve money expansion, credit growth was as high as 30 per cent. Credit flows to the sensitive sectors were much higher than the overall credit growth. Monetary policy alone was not sufficient to curb excessive credit flows to these sectors. Using monetary policy alone to control credit would have harmed the remaining sectors where the credit growth was relatively less robust. Both provisioning norms and risk weights served as useful supplement to monetary policy to curb aggregate demand in the economy and simultaneously prevented bubbles building up in the sensitive sectors. Following the global financial crisis, monetary policy eased during 2008-09 significantly. Both provisioning norms and risk weights were also reduced as credit growth slowed down. During the next tightening phase from 2009 to 2011, the use of prudential norms

was rather negligible mainly due to the fact that credit growth to the sensitive sectors was not as high as it was in the previous tightening phase. In other words, monetary authority had to take a close call to supplement monetary policy with prudential policy only when financial stability is jeopardized. This was well established during the next easing phase from October 2011 to July 2013 followed by tightening to handle exchange market pressure during the recent period. Unless financial stability is threatened, it may not be wise to use macro-prudential policy for monetary policy purpose. This does not mean that macro-prudential policy has no role to play under normal circumstances. Keeping these measures at appropriate levels shall provide comfort to the monetary authority by ensuring financial stability on a sustained basis so that monetary policy would be more effective.

4. Concluding Observations

Some forms of macro-prudential policy were applied in India before the financial crisis although these were not as precise as perceived in the post-crisis period. Prudential policies supplemented monetary policy to a significant extent and thereby restricted credit flows to the sensitive sectors in the pre-crisis period. The RBI did not combine prudential policy with monetary policy in the more recent period as credit growth was not disproportionately high. The phase-in arrangement of macro-prudential policy has been done in a manner that India can achieve the timeline smoothly, at least nine months before the stipulated deadline prescribed by the BIS. The transition to a more sophisticated regulatory arrangement on macro-prudential policy is expected to be non-disruptive in India.



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SESSION 5

MACROPRUDENTIAL AND MONETARY POLICIES AND CAPITAL FLOW MANAGEMENT





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MANAGING CAPITAL FLOWS: WHAT TOOLS TO USE?

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Multilateral Aspects of Managing the Capital Account

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Multilateral Aspects of Managing the Capital Account¹

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EXECUTIVE SUMMARY

The financial crisis has again brought home the profound financial linkages across countries, often manifest in highly volatile capital flows. This volatility has prompted interest in multilateral principles to guide policies in both source and recipient countries. This note discusses the analytical underpinnings of such principles, and attempts to draw implications from the analytics for the desirability of multilateral coordination of country policies.

While a series of IMF policy notes and Board papers have discussed how an individual country, acting in isolation, should respond to a surge of capital inflows, less attention has been paid to the multilateral consequences, and the desirability of international cooperation to achieve globally efficient outcomes. Three issues are of potential concern. First is the possibility that capital controls may have the effect of vitiating external adjustment, for example when inflow controls are used to sustain an undervalued currency. Second, as each capital-receiving country that faces excessive capital flows seeks to reduce its own inflows in support of domestic financial stability, it deflects some capital towards other recipient countries, exacerbating their inflow problem. Third, policies in source countries (including monetary policy and prudential regulation), to the degree they increase the volume or riskiness of capital flows, may exacerbate problems faced by capital-receiving countries. Some of these considerations have been taken up by us in earlier papers; this note takes the analytics further, adding to the existing foundation for policy advice. This note is not meant to prejudge the outcome of the IMF's ongoing work to articulate a potential institutional view on capital flows, nor to guide the conduct of bilateral or multilateral IMF surveillance.

We argue that the global welfare implications of capital account regulations, or policies that mimic their effects, are threefold. First, spillovers from such policies do not necessarily have normative implications: if policies are justified from a national standpoint (in terms of reducing domestic distortions), under a range of conditions they should be pursued even if they give rise to cross-border spillovers. Second, however, if policies in one country exacerbate existing distortions in other countries, and it is costly for other countries to respond, then multilateral coordination of unilateral policies is likely to be beneficial. Third, coordination may require borrowers to reduce inflow controls or, much thornier, agreement by lenders to partially internalize the risks from excessively large or risky outflows.

It is very difficult to fully spell out the implications of these considerations in the form of multilateral rules, and this paper refrains from doing so. Policy advice might nevertheless carefully consider situations where capital account regulations seem unjustified from a macroeconomic or financial-stability standpoint, but geared instead to gaining unfair competitive advantage. Advice might also raise red flags in situations where policies deflect flows excessively across countries or transmit risk from source to recipient countries. These considerations point in the direction of using inflow controls less intensively once spillovers are internalized, and toward source-country supervisory policies that internalize the risks wrought on recipient countries as a result of actions by domestic financial institutions.

I. INTRODUCTION

The financial crisis has again brought home the profound financial linkages across countries, often manifest in highly volatile capital flows. During the 2008 global financial crisis, capital flows to emerging market economies (EMEs), which had peaked at \$665 billion in 2007, plummeted to less than \$170 billion in 2008, only to surge again in 2010 as the global recovery got underway. Following the US sovereign downgrade, capital flows to EMEs again dried up, then resumed, and have been bouncing around quite a bit ever since. This volatility, as well as the policy responses of EMEs attempting to cope with the macroeconomic and financial-stability challenges wrought by swings in capital flows, has prompted interest in a set of principles that could guide policy in both capital-source and capital-recipient countries. This note discusses the analytical underpinnings, and possible contours, of such principles.

A first question is how an individual country, acting in isolation, should respond to a surge of capital inflows. This question has been the subject of several recent papers by the Fund, including on the use of monetary, exchange rate, and intervention policies; capital controls; and prudential regulation of domestic banks (Ostry et al., 2010, 2011, and 2012; and IMF, 2011a and b). The underlying premise is that there exists some distortion in the domestic economy (such as excessive foreign borrowing (see Korinek, 2010, 2011), or a learning-by-doing externality in the production of exportables) that is exacerbated by the capital inflow. While the ultimate goal may be to improve the economy's resilience to financial-stability risks, the short-term response may call for restricting the volume of inflows or mitigating the risks associated with them, the precise instrument depending on specific circumstances.

This note provides further analysis of the possible multilateral consequences of country policies, and of the desirability of multilateral coordination to secure globally efficient outcomes. Three issues are of concern. First is the possibility that capital controls may have the effect of vitiating or preventing external adjustment, for example when inflow controls are used to sustain an undervalued currency. Second, as each capital-receiving country that faces excessive capital flows seeks to reduce its own inflows in support of domestic financial stability, it may deflect some capital flows towards other recipient countries, exacerbating their inflow problem. Third, policies in source countries, to the degree they increase the volume of capital flows, may aggravate problems faced by capital-receiving countries.

Empirical evidence on deflection between capital-receiving countries is scant, with most studies finding either no, quantitatively small, or even ambiguous effects. More compelling is the evidence on source country policies, with studies finding that a key determinant of capital flows to EMEs—and especially of inflow surges—is advanced-economy interest rates. There is also evidence that pervasive capital account regulations may help to sustain undervalued exchange rates over long periods of time, which raises a range of multilateral issues.

Do the possible spillovers from capital account policies give rise to a need for multilateral coordination on the use of such policies? When capital controls are used to frustrate the

external adjustment process, the answer is plainly yes (in the same spirit that trade policies that give unfair competitive advantage are proscribed). What this means in practice is not always clear-cut to be sure—inflow controls that support an excessive external surplus are likely to raise red flags in most cases, but when there is a genuine learning-by-doing externality in the export sector that, as a practical matter, can only be internalized by an undervalued currency, the basis for controls may be sounder and of less multilateral concern.²

Beyond this, there are three implications. First, although capital controls may deflect inflows from one country to another, this does not mean that the first country should refrain from acting: rather, all countries that are concerned about excessive (or excessively risky) inflows should take appropriate measures to safeguard stability. Indeed, spillover-effects are natural parts of how the market system adjusts to capital controls, and do not necessarily indicate inefficiency. Second, however, if recipient-country policy responses do not take account of possible deflection and the response of other countries, the outcome of uncoordinated policies may be inefficient in the sense that countries may end up imposing controls that are excessively restrictive from their own point of view. Third, globally efficient outcomes may also require coordination between recipient and source countries, although such coordination is less obviously in the interest of source countries, and thus more difficult to bring about.

So, is multilateral coordination of country-level policies desirable? The foregoing discussion suggests that such coordination may be warranted to prevent controls being used to underpin beggar-thy neighbor external sector strategies or terms of trade manipulation, to avoid potentially costly “wars” across recipient countries, and to induce source countries to take into account the impact of their policies on the level and riskiness of outflows. It is important to recognize that coordination might not involve capital account regulations as such, but instead monetary and prudential policies that affect the level and riskiness of flows.

But designing coordination in practice is much more difficult than recognizing its desirability in theory. The appropriate choice of policy intervention—and its calibration—depends crucially on specific circumstances, and it is impossible to fully spell out the nature of desirable coordination or multilateral rules *ex ante*. As such, any rules are likely to be “soft” rather than “hard” and to involve the application of judgment. Nevertheless, when deploying tools available to manage the level and composition of flows, countries should be guided by multilateral principles to ensure that their policies are in line with the global interest.

What might this mean in practice? Monetary and prudential policies in source countries would need to give an appropriate weight to spillovers on global flows and the

²Countries have an obligation under the IMF’s Articles of Agreement to avoid manipulating exchange rates or the international monetary system in order to prevent effective balance of payments adjustment or to gain unfair competitive advantage. The “learning-by-doing” externalities discussed in this note are not meant to cover exchange rate policies that would violate this obligation.

macroeconomic and financial-stability risks facing recipient countries. Capital account regulations that deflect flows and amplify risks in other countries would similarly need to internalize their external effects. Multilateral coordination would seek to encourage the adoption of policies that partially internalize spillovers. Inflow controls might thus be used less intensively when there are generalized surges to multiple countries, and policies in surplus countries that restrict inflows might likewise be adjusted at the margin. Supervisory policies in source countries would take account of risks imposed on foreign countries by financial institutions in the source countries. Policies undertaken to gain unfair competitive advantage, with no prudential benefit or genuine learning-by-doing externality, would raise red flags, even if identification of such policies is difficult in practice.

This note is organized as follows. Section II delves into the pure theory of capital controls (further analytic results are available in Korinek, 2012). Section III surveys the relevant empirical literature. Section IV discusses implications of the theory. Section V concludes.

II. THE PURE THEORY OF CAPITAL CONTROLS

Before introducing the (many) real world complications, it is useful to consider first a highly stylized setup in which departures from the neoclassical paradigm are introduced one at a time in order to identify spillovers, externalities, and welfare implications of policy interventions. Accordingly, we consider a world free of any distortions. Countries may be large (able to influence world interest rates) or price-takers in world capital markets.

The interventions contemplated in this note may influence the volume of capital flows or the interest rate at which parties transact, regardless of the purpose of the intervention. These include capital controls and also prudential regulations (the former discriminate on the basis of residency, while the latter do not). The measures may be either temporary (e.g., cyclically-varying) or of a more structural nature (for example, the closure of the capital account to certain types of flow). Less obviously, monetary and fiscal policies may also have significant effects on cross-border flows and, to the extent they do, are included in the discussion here.

Terms of trade manipulation with market power

In a world without distortions, would there be any reason to interfere with the free movement of capital across borders? The answer is yes, for the same reason that countries large enough to exert market power may want to impose export taxes or import tariffs. Specifically, creditors may benefit from restricting the supply of capital, driving up the world interest rate and shifting the terms of trade in their favor.³ For any individual creditor, the best outcome is one in which other creditors restrict their supply so that he can benefit from the better terms

³In contrast to the optimal tariff argument for goods trade, here creditors suffer a capital loss (depending on the duration of assets) but gain in flow terms when interest rates rise. In what follows, we ignore the first effect.

of trade on the same—or an even higher—volume of flows. By the same token, debtors benefit from restricting the demand for capital, thereby improving their terms of trade.

While a theoretical possibility, it may seem far-fetched to view large creditors or debtors as deliberately seeking to reduce supply or demand for capital in order to manipulate the world interest rate. But if one considers a broader array of policy interventions (rather than, say, just capital controls) that could influence the volume or price of capital flows (for example, monetary policy), the argument may have an aura of plausibility. To the degree that it does, the case parallels that of the goods market monopolist/monopsonist. Moreover, if both creditors and debtors try to manipulate the terms of trade, then neither succeeds, the world interest rate remains the same, and both lose by the lower volume of cross-border asset trade.

Capital controls to address domestic distortions

Leaving aside incentives for non-competitive behavior, the modern theory of capital controls stresses distortions in the domestic economy that result in excessive foreign borrowing as a rationale for imposing capital controls that can reduce the volume of risky inflows. The externalities may be various. The most obvious are financial-stability risks (Korinek, 2011). In particular, individual domestic borrowers may fail to take account of the externality of their borrowing on the economy's collateral constraint, which binds in the event of a crisis. As a result, the competitive equilibrium entails excessive—and excessively risky (short-term, FX-denominated)—foreign borrowing. The national welfare perspective may therefore call for some form of tax on foreign borrowing, particularly on the more risky instruments.

While distortions emanating from the financial sector are an obvious example where foreign inflows might exacerbate existing externalities, it is not the only example. Another possibility is learning-by-doing externalities in the production of exportables. A country with such an externality might engage in sterilized FX intervention to achieve an undervalued currency, and inflow controls might be essential to maintain the exchange rate at the right level given the production externality (however, this would not be the first-best response, which would be a production subsidy, see Box 1). The capital inflow controls would increase the current account surplus and reduce capital inflows; it is easy to see, moreover, that there exists a “reserve-accumulation-equivalent” to the capital control, as shown in Box 2.

Multilateral implications of inflow controls

What would be the ramifications of such a policy intervention? Begin with the case where there are no distortions in any other country. The capital control (or other policy intervention) by the borrower with the domestic distortion reduces inflows to that country (or increases its current account surplus), thereby reducing world demand for capital and depressing world interest rates (by how much depends on the size of the country in world capital markets). Borrowers gain and creditors lose. But this is just a pecuniary externality, inherent to free markets and, from a global perspective, economically efficient (Box 3).

Box 1. Learning-By-Doing Externalities in Exportable Production

We consider a two-period, traded/non-traded good economy that can borrow or lend internationally at a rate $(1+r)$. An externality in the production of traded goods means that a higher level of production, perhaps because of learning-by-doing, leads to greater productivity in the tradable goods sector in the future. With labor the only factor of production, output in the traded goods sector is given by: $y_1^T = f(l_1)$; and $y_2^T = A(y_1^T)f(l_2)$ where $f'(\cdot) > 0, f''(\cdot) < 0$ is a standard neoclassical production function and the productivity parameter A obeys $A \geq 1; A'(\cdot) > 0$. Output in the non-traded goods sector is not subject to the production externality: $y_1^N = g(1-l_1); y_2^N = g(1-l_2); g' > 0, g'' < 0$.

Decentralized Economy, Planner's Optimum, and Optimal Government Intervention

Since the learning-by-doing is external to (i.e., cannot be captured by) the firm, the competitive equilibrium entails too little production of the traded good. Specifically, in the first period, the competitive equilibrium sets the marginal rate of transformation between traded and non-traded goods equal to the real exchange rate (the relative price of non-traded goods) taking as given the externality:

$$f'(l_1) / g'(1-l_1) = p_1 \quad (1)$$

whereas the national social planner, who takes account of the positive externality, would allocate a larger share of the labor force to the production of traded goods:

$$[1 + A'(y_1^{T*})f(l_2^*) / (1+r)]f'(l_1^*) / g'(1-l_1^*) = p_1 \quad (2)$$

The government can reproduce the national social planner's optimum by offering a subsidy that encourages the production of traded-goods, where the optimal subsidy would be:

$$s^* = A'(y_1^{T*})f(l_2^*) / (1+r) > 0 \quad (3)$$

Since this subsidy reproduces the national social planner's equilibrium, it is the optimal intervention; in particular, producers face the more depreciated real exchange rate (given by p_1^* / s^*) while consumers face p_1 .

Capital Controls

Although a production subsidy to the traded goods sector is the optimal intervention, it requires budgetary sources to implement, and a tax on nontraded production could be difficult to implement if that sector is largely informal. Ghosh and Kim (2008) consider several alternative strategies (export subsidy/import tariff; consumption tax; undervaluation), none of which is first best because they distort the producer and consumer's decision, resulting in too large a current account surplus. Of relevance here is the strategy to impose a control on capital inflows and support an "undervalued" exchange rate through sterilized intervention. The intervention absorbs an amount R of inflows. If i is the domestic interest rate at which households and firms transact, and r is the world interest rate, then the cost of sterilized intervention in an amount R entails a fiscal cost of $(i-r)R$.

This is why the strategy needs some limit on the amount of inflows (such as capital controls), otherwise the sterilization cost would be infinite. To see that controls-cum-intervention can be welfare enhancing, it suffices to note that the representative citizen's indirect utility is increasing in R when starting at $R=0$:

$$U'(R) = [\beta(1+r)u_2' - u_1'] + \beta u_2' A'(y_1^T) f(l_2) \partial y_1^T / \partial R \Rightarrow U'(R)|_{R=0} > 0 \quad (4)$$

At $R=0, i=r$, so the consumer's usual Euler equation ensures that the first term of (4) is zero at $R=0$, while the second term is necessarily positive because the intervention serves to depreciate the real exchange rate, encouraging a re-allocation of labor to the traded goods sector. Although this strategy can achieve the appropriate level of tradables production, it is not the optimal intervention because it also distorts the consumption decision, implying excessive saving and therefore an excessive current account surplus.

More generally, whether the policy involves exchange rate undervaluation or a production subsidy, there are the usual risks of policy intervention—namely that the externality does not really exist but exporters successfully lobby for the intervention, which is socially welfare-reducing, or that the "infant industry" never grows up. From the perspective of other countries, currency undervaluation is worse than a production subsidy because it tends to vitiate their own attempts to promote tradables production through undervaluation. For creditor countries (i.e., the source of capital flows), currency undervaluation may also be worse because it leads to a larger reduction in the recipient country's current account deficit, thus shifting the intertemporal terms of trade against creditors.

Box 2. Equivalence of Capital Controls and Reserve Accumulation

To what extent is use of capital controls equivalent to sterilized foreign exchange intervention? Capital controls reduce the country's net demand for foreign funds and the world interest rate. Likewise, intervention that prevents currency appreciation leads to a larger current account surplus and downward pressure on world interest rates. Take the case of a region that constitutes a fraction m^i of the world economy and that marginally increases its capital control. Applying the implicit function theorem to the equation (1) in Box 2, higher capital controls raise the region's net foreign asset holdings by:

$$b_{\tau}^i = \frac{u_c(c_1)}{-(1-\tau^i)u_{cc}(c_1)/R - \beta Ru_{cc}(c_2)} \approx c^i / 2\sigma > 0 \quad (1)$$

The approximation assumes that capital controls, the net interest rate and the discount rate are sufficiently close to zero and that period 1 and 2 consumption are close to each other. Calibrating the coefficient of relative risk aversion σ to the standard value of 2 implies that a one percentage point increase in capital controls leads to a reduction in capital inflows/GDP (or increase in outflows) of 0.25 percentage points. Or, flipping this around, *reserve accumulation of 1 percent of GDP is equivalent (in terms of the impact on the global capital markets) to imposing a 4 percent capital control.*

The world excess demand for bond holdings is the weighted sum of all bond positions over all regions, $B = \sum m^i b^i$. Using the same approximations as above, its response to a change in the world interest rate is

$$B_R = \frac{\partial \sum m^i b^i}{\partial R} = -\sum_i m^i \frac{(1-\tau^i)u_{cc}(c_1^i)b^i / R^2 - \beta u_c(c_2^i)}{-(1-\tau^i)u_{cc}(c_1^i)b^i / R - \beta Ru_{cc}(c_2^i)} \approx y / 2\sigma > 0 \quad (2)$$

where y is global GDP. Combining (1) and (2), the effect of capital controls in one region i on the world interest rate is given by the weighted share of region i 's consumption in world GDP:

$$R_{\tau}^i = \frac{\partial R}{\partial \tau^i} = \frac{-m^i b_{\tau}^i}{B_R} \approx -m^i c^i / y \quad (3)$$

For example, if a country like Brazil, which produces about 3.3 percent of world GDP, imposes an inflow tax of 1 percent, it reduces the world interest rate by 0.033 percentage points. If a country such as China that produces about 10 percent of world GDP accumulates 1 percent of GDP in foreign reserves or, equivalently, imposes a 4 percentage point capital control, then it pushes down the world interest rate by approximately 0.4 percentage points. In practice, of course, the use of capital controls and reserve accumulation are not necessarily substitutes: capital controls are often used to support a policy of sterilized intervention.

Now suppose, more realistically, that other borrowers likewise face distortions in the form of excessive foreign borrowing. Imposition of capital controls by one country lowers world interest rates and deflects capital, exacerbating other borrowers' inflow problem. But this is not a reason for the country to refrain from acting, because spillovers here are pecuniary externalities. The efficient outcome is rather for all (excessive) borrowers to act. This will imply lower world interest rates, benefiting borrowers and hurting creditors without harming global efficiency (Box 3). The same logic applies to a learning-by-doing production externality as to the financial-stability externality. While action by one country makes it more difficult for others to internalize their externalities (not everyone can run larger surpluses⁴), from an efficiency standpoint, the resulting pecuniary externalities are globally efficient.

⁴If exportables are differentiated products, then all countries can export more. If the learning-by-doing stems from exportables production, then all countries can reap the benefits of a production subsidy. But since not all countries can run larger external surpluses, the controls-cum-undervaluation strategy (which, unilaterally, leads to excessive saving and current account surplus) becomes both unilaterally and multilaterally inefficient.

Box 3. Global Efficiency of Correcting Domestic Externalities

Can capital controls—such as taxes on inflows—help address domestic externalities? And would this be globally efficient? Box 1 considered the specific example of a learning-by-doing externality. This box generalizes the result and discusses whether such policy interventions are globally efficient. Again we consider a two-period, open economy model, where the utility function of the representative agent in country i is:

$$U^i = u(c_1^i) + \beta u(c_2^i) \quad (1)$$

The agent's budget constraints imply $c_1^i = y_1^i - (1 - \tau^i)b^i / R + T^i$ and $c_2^i = y_2^i + b^i$ where c is consumption, y is output, b is foreign bonds (negative if the country is a debtor), τ is the capital control (a tax on foreign borrowing, a subsidy on foreign lending), R is the world interest rate, and T the lump-sum rebate of the capital control revenues. The first-order condition characterizing the representative agent's optimal consumption and foreign borrowing (or lending) decision equates the marginal rate of substitution to the after-tax rate of return:

$$(1 - \tau^i)u_c(c_1^i) = \beta R u_c(c_2^i) \quad (2)$$

Now suppose that there is a negative externality associated with foreign borrowing. Korinek (2012) considers externalities in the financial sector such that atomistic domestic agents, who fail to take account of the externality, engage in excessive (or excessively risky) foreign borrowing; Ghosh and Kim (2008), Rodrik (2008), and Box 1 above consider a learning-by-doing production externality in the tradable goods sector. Regardless of the specific nature of the externality, it can be written (in utility-equivalent terms) as $\xi^i b^i$ so that the representative agent's true welfare function is $W^i = u(c_1^i) + \beta u(c_2^i) + \xi^i b^i$ (though the agent ignores the externality when choosing his optimal consumption and borrowing). The national social planner *does* take account of the externality, yielding the first-order condition:

$$u_c(c_1^i) = \beta R u_c(c_2^i) + \xi^i R \quad (3)$$

Comparing (2) and (3), the government can reproduce the national social planner's optimum by imposing a tax on capital flows equal to

$$\tau^i = \xi^i R / u_c(c_1^i) \quad (4)$$

thus forcing the representative agent to take account of the negative externality (e.g., on financial stability) associated with his foreign borrowing. In a multi-country world, where there are N (not necessarily identical) countries, the world interest rate, R , will adjust to ensure that the capital market clears: $\sum_{j=1}^N b^j = 0$.

The tax on foreign borrowing is optimal from the individual country's perspective. But is it globally efficient? It turns out that it is. This can be shown by considering the optimal allocation that would be chosen by a global social planner who optimizes a weighted sum of national welfares, assigning to country i a weight ϕ^i , subject to each country's budget constraint and the global market clearing condition $\sum_{j=1}^N b^j = 0$, which has a shadow price (Lagrange multiplier), ν . The first-order condition characterizing the global social planner's optimum is:

$$u_c(c_1^i) = \beta R u_c(c_2^i) + \xi^i R + \nu R / \phi^i \quad i = 1, \dots, N \quad (5)$$

At the global social planner's optimum, $\nu = 0$, because the planner does not need any additional bonds to achieve the optimal allocation (so the shadow value on easing the constraint on the global supply of bonds is zero). Setting $\nu = 0$ in (5) and comparing to (3) shows that the national social planners (whose optimal decisions are given in (3)) achieve the same allocation as the global social planner (whose optimal allocation is given in (5)). The intuition for why the Nash equilibrium among national planners is globally efficient is simple: each planner has one target (i.e., to offset the externality) and one instrument (the tax on capital flows)—a general result in the theory of policy coordination is that when countries have as many instruments as targets, there is no need for coordination as the Nash equilibrium will be efficient (see Ghosh and Masson, 1994).

Costly capital controls

The notion that all borrowers that are borrowing excessively should impose capital controls implicitly assumes that such controls are costless. In practice, there are likely to be several types of cost associated with such policies: administrative cost (i.e., paying officials to administer the controls); compliance costs for financial institutions and others affected by the controls; and efficiency costs due to imperfect targeting of excessively-risky forms of inflow. There are also costs from implementing an export-led growth strategy supported by inflow controls (as an answer to a production externality), most notably quasi-fiscal sterilization costs and distortive effects on consumption (controls lead to excess saving). Finally, since imposition of controls may create vested interests, these costs may be long lasting.

While administrative and compliance costs should not be downplayed, it is the economic distortions—collateral damage—caused by imperfect targeting of risky flows that is likely to be especially important. It stands to reason, moreover, that the more intensive the control, the greater the collateral damage. For instance, since a higher tax rate will give greater incentive for circumvention, its breadth of application will rise, and caught in the net will be flows that otherwise would not merit being restricted. As such, the cost function is likely to be convex: not only increasing in the intensity of the control, but increasing at an increasing rate.

Costliness of controls implies that actions by other borrowers or creditors that exacerbate domestic distortions (e.g., by lowering world interest rates and inducing more inflows where there is already over-borrowing) have substantial multilateral welfare implications. Costly spillovers existed above, but they were immaterial because (by assumption) they could be costlessly offset by countries. Even when offsetting policies are not costless, there is no presumption that actions to offset domestic externalities should be proscribed. But it is likely that in such cases, unfettered unilateral actions will no longer be globally efficient (Box 4).⁵

This is perhaps very stark in the case of multiple countries attempting to pursue an export-led growth strategy. Since it is not possible for all countries to run larger surpluses, the futility of unilateral policies is readily apparent. Moreover, the benefit-cost calculus for a capital controls war that stifles goods trade is likely to be much less favorable than when the war is based on deflecting capital flows. The reason is that, in the extreme, when international asset trade falls to zero because of prohibitive capital controls, the resulting stifling of asset trade also means that financial-stability risks from cross border flows (the externality) fall to zero. But when goods trade falls to zero, the resulting stifling of goods trade means not only that gains from trade are extinguished, but also that none of the production externality is captured.

⁵Specifically, regardless of whether costs are linear or convex, there will be a case for coordination among capital-receiving countries. If costs of controls are convex, global efficiency will also necessitate coordination between borrowers and lenders, so that the marginal cost of inflow controls in the recipient country equals the marginal cost of outflow controls in the source country. If costs are instead linear, then the global efficiency criterion does not, itself, determine the optimal split between inflow and outflow controls.

Box 4. Role for Coordination under Costly Capital Controls

As discussed in Box 2, when there are domestic externalities associated with capital flows, governments can induce domestic agents to take account of them by imposing taxes on the flows. Moreover, these (uncoordinated) taxes are globally efficient. But are there circumstances under which they would not be efficient and coordination would be required? The answer is yes, provided the capital controls themselves entail costs. Again we consider a two-period model where the representative agent disregards the externality associated with capital flows. The national planner must choose the optimal tax on capital flows to maximize welfare taking account of the welfare cost of imposing capital controls, given by $\Omega(\tau)$, where the cost function is assumed to be increasing and convex (increasing at an increasing rate) in the tax rate: $\Omega' \geq 0, \Omega'' > 0$:

$$W^i = u(c_1^i) + \beta u(c_2^i) + \xi^i b^i - \Omega(\tau^i) \quad (1)$$

The resulting first-order condition characterizing the national social planner's optimum is:

$$u_c(c_1^i) = \beta R u_c(c_2^i) + \xi^i R - \Omega'(\tau^i)(1 - \tau^i)(\sigma_1^i + R\sigma_2^i) \quad (2)$$

where $\sigma_t^i \equiv u_{cc}(c_t) / u_c(c_t), t = 1, 2$. The terms in (2) trade off the benefits of foreign flows for consumption-smoothing against the domestic externality but also the cost of imposing capital controls. Solving for the national planner's optimal tax rate shows that it will be positive as long as there is an externality, but it will fall short of fully offsetting the externality because of the costs associated with the imposition of the control:

$$0 \leq \tau^i < \xi^i R / u_c(c_1) \quad (3)$$

By contrast, when controls are not costly, the planner fully offsets the externality (see eqn. (4) in Box 2). What tax rates would a *global* planner choose for each country, $i = 1, \dots, N$? It can be shown that they must satisfy:

$$\sum_{j=1}^N (1 - \tau^j) \Omega'(\tau^j) = 0 \quad (4)$$

that is, the global social planner will try to minimize the aggregate global cost of the capital controls by spreading the use of controls across countries (given the convexity of the capital control cost function, it is better to have two countries impose relatively low controls than to have one country impose high controls). More precisely, the weighted average marginal distortion imposed by capital controls must be zero as in (4).

If there are no externalities associated with capital flows ($\xi^i = 0 \forall i$), then the solution to (4) is simply

$\tau^i = 0 \forall i$ —the global planner sets all tax rates equal to zero. This is intuitive, and is the only case where the nationally chosen tax rates (3) coincide with those chosen by the global planner (4). More generally, (3) and (4) will differ, and the uncoordinated equilibrium among national planners will be globally inefficient (intuitively, each planner now has two targets—offsetting the domestic distortion and minimizing capital control costs—but still only one instrument, so the uncoordinated equilibrium is inefficient). Consider the following examples and some for the calibration exercises in Box 5:

Example 1 (Symmetric countries). Consider a world economy of $k \geq 1$ identical countries that impose capital controls to offset domestic externalities, incurring a cost $\Omega(\tau^i) > 0$. Since countries are identical, however, the capital controls simply deflect capital to each other, with no net effect on flows or the externality. Therefore, it is Pareto efficient to set all controls to zero, thus avoiding the cost of controls. Indeed, that is the global social planner's solution (the only solution to equation (4) for symmetric countries is $\Omega(\tau^i) = 0 \forall i \Rightarrow \tau^i = 0 \forall i$).

Example 2 (Two countries with asymmetric externality). Consider a world with countries i (borrower) and j (lender). Country i experiences an externality from excessive inflows $\xi^i > 0$, so its planner imposes an inflow control, $\tau^i > 0$ whereas country j will not impose any controls. This equilibrium is inefficient and the optimality condition (4) is violated. A global planner would lower the tax rate in country i and impose a tax on outflows in country j . Given the convexity of costs, the sum of the deadweight loss from the (lower) inflow control plus the outflow control will be less than the cost of a high inflow control in the borrowing country.

Box 5. Gains from Coordination under Costly Capital Controls

This Box provides a simple calibration of the gains from coordination under costly capital controls. We focus on capital flows between two regions—a borrowing region that exhibits domestic externalities and a lending region that is not subject to externalities. The relative size of the two regions is assumed to be three-to-one, roughly corresponding, for example, to the relative sizes of the US and Latin America. In our example, reported in the first panel of Table 1, the borrowing region imports capital in the amount of 3.1 percent of GDP at a world interest rate of 4.1 percent in the laissez faire equilibrium.

We assume that the externality ξ^i in the borrowing region is 6 percent, and that both regions experience a resource cost of imposing capital controls that takes the functional form $\Omega(\tau) = \alpha\tau^2$. The parameter α is set to 0.05 so that planners in the borrowing region find it optimal to correct only two-thirds of the externality in the absence of coordination, imposing a 4 percent inflow tax. Since there are no externalities among lenders, domestic planners in that region impose no controls on lending. In the resulting equilibrium, reported in the second panel of Table 1, capital flows in the borrowing region decline to 2.3 percent of GDP, corresponding for example to the situation in Brazil in 2010. The world interest rate falls to 3.1 percent per year due to the lower worldwide demand for capital. In the Nash equilibrium among planners, capital controls increase the welfare of borrowers by the equivalent of a 0.048 percent increase in consumption and reduce the welfare of lenders by .009 percent due to the lower interest rate. (If borrowers compensated lenders for their loss, they would still enjoy a welfare gain of 0.020 percent.)

Table 1. General Equilibrium Effects of Capital Controls with and without Coordination

	Laissez Faire		Nash Equilibrium		Full Coordination		Coordination with Restricted Lender	
	Borrower	Lender	Borrower	Lender	Borrower	Lender	Borrower	Lender
$\xi=6\%$								
capital control	0%	0%	4.04%	0%	3.13%	-0.90%	3.72%	set to 0
CA/GDP	-3.09%	1.03%	-2.32%	0.77%	-2.33%	0.78%	-2.38%	0.79%
interest rate	4.12%		3.09%		4.03%		3.17%	
Δ welfare LF	0	0	0.0479%	-.0088%	0.0496%	-.0088%	0.0481%	-.0088%
Δ welfare Nash			0	0	0.0017%	0	0.0002%	0

If all countries in the two regions coordinate their use of capital controls, a more efficient global equilibrium can be achieved. As reported in the third panel of Table 1, the borrowing region reduces its inflow tax from 4 percent to 3.1 percent and the lending region imposes a control of 0.9 percent on outflows. The sum of the two controls is almost unchanged from the Nash equilibrium, but since the cost of imposing capital controls is convex, the two regions reduce the aggregate cost $\Omega(\tau)$ by sharing the burden of regulation.

The net global welfare gain from coordination is equivalent to a .0017 percent increase in consumption of the borrowing country. Observe that this gain is an order of magnitude lower than the gains of going from laissez faire to the uncoordinated Nash equilibrium among national planners. (For ease of interpretation, we assume that in coordinated equilibria, a transfer from lenders to borrowers keeps the welfare of lenders unchanged from the Nash equilibrium.)

Finally, we consider a global planner who internalizes the general equilibrium effects of capital controls on the world interest rate but cannot impose capital controls in the lending region. This situation may reflect for example that this region is an important financial center where the imposition of capital controls would carry prohibitive costs. The resulting equilibrium is reported in the last two panels of Table 1. All countries in the borrowing region now impose capital controls that are smaller than the unilaterally optimal controls in the Nash equilibrium, but larger than in the case of full coordination.

As a result, the world interest rate and welfare marginally increase compared to the Nash equilibrium, but the gains are smaller than in the case of coordination with lenders. The global planner reduces the capital control for borrowers even if lenders cannot adjust their controls because he recognizes that lowering borrowers' controls raises the world interest rate, which also discourages borrowing but without imposing the deadweight loss $\Omega(\tau)$. (For this form of coordination to lead to a Pareto improvement, the global planner again needs to compensate borrowers for the higher interest burden by making a compensatory transfer from lenders.)

Coordination among borrowers

Coordination between borrowing countries imposing controls on capital inflows is necessary because, if they fail to coordinate, each country may end up imposing controls that are too high from its own perspective. This result actually follows directly from the country's cost-benefit calculus in choosing the level of capital controls given its distortive cost. When the country ignores the repercussions on other borrowers of the deflected capital flows and their likely reaction to them, it overestimates the benefit of the controls because it fails to recognize that the equilibrium reduction in inflows will be smaller once other countries react by imposing their own controls. Put differently, at the end of the capital control war, borrowing countries would find that, from their own perspectives, capital controls are too high (and the volume of flows too low): each borrower that imposed controls would be better off if they could jointly agree to lower controls from their uncoordinated equilibrium levels.

Source-country policies

The second inefficiency concerns the role of creditor countries in managing outflows. If the cost of capital controls is convex, then it would be more globally efficient to split that cost between borrowing countries (who would impose controls on inflows) and lending countries (who would impose controls on outflows).⁶ One obstacle to such coordination is that capital-exporting countries do not directly benefit from moving from the uncoordinated equilibrium (where they do not impose controls or adjust other policies—e.g., monetary policy—to take account of the impact on borrowing countries, and therefore do not incur any associated costs) to the coordinated equilibrium (where they incur such costs).

Nevertheless, it may be in the interests of capital-sending countries to impose some restraint on outflows, especially when these are exacerbating global financial-stability risks. First, they may simply want to contribute to global stability, recognizing that it is a public good. Second, inasmuch as crises in recipient countries imply losses for financial institutions in source countries, it may be in the latter's interest to reduce the risk of such crises.⁷ In that case, measures that reduce the volume or riskiness of outflows constitute a form of prudential regulation for banks in creditor countries. Third, creditor countries enjoy a terms of trade

⁶Coase's (1960) theorem on the irrelevance of the assignment of externality-generating rights does not apply here because convex costs imply that technological efficiency requires splitting the burden of capital controls between source and recipient countries.

⁷A voluminous literature documents the impact on source countries of financial crises in borrowing countries: see, e.g., Sachs and Huizinga (1987) on the Latin America debt crisis (which posed a systemic threat to U.S. banks); and Boughton (2012) for discussion of the Asia and Russian crises. If source countries have their own incentive to restrict outflows (perhaps because of negative repercussions of a crisis in the borrowing country), then global efficiency requires the equalization of the marginal cost of inflow controls in the recipient country to the marginal cost of outflow controls in the source country; when these costs are linear (i.e., not convex), the global efficiency criterion does not pin down the optimal split between inflow and outflow controls.

gain on their flow of lending by reducing the supply of capital, so measures that reduce outflows would be in their interest—even if undertaken in order to reduce financial-stability risks in recipient countries. In this case, there is a happy coincidence whereby the (incidental) exercise of monopoly power by source countries helps debtor countries which would otherwise be over-borrowing.

In sum, once we depart from the first-best world of perfect markets there may be valid economic reasons for interventions to address domestic externalities such as those that result in excessive—or excessively risky—foreign borrowing. And, as a matter of logic, in a second best world, policy actions by borrowers or lenders can exacerbate existing externalities such that cross-border spillovers have global welfare implications. In general, this does not mean that countries should refrain from policy interventions—but it does mean that efficient outcomes will likely require coordinated policies. This is a fortiori the case when capital controls are being pursued to support an export-led growth strategy. When naked mercantilism is the basis of policy at the country level, it is clear that the policy is neither unilaterally nor multilaterally efficient. But even when such policy is unilaterally desirable, say because of genuine learning-by-doing externalities in exportables production, the need for multilateral coordination to avoid self-defeating policies is very clear.⁸

III. SURVEY OF EMPIRICS

Any call for policy coordination—both among capital-recipient countries, and between capital-exporting and capital-importing countries—is predicated on the relevant spillovers being quantitatively important. Indeed, if capital controls (and other policies that have similar effects) do not have a significant impact even on the flows to the country imposing them, then the whole discussion is moot. In this section, therefore, we review existing evidence on three questions: do capital controls alter the volume or composition of capital inflows? Does the imposition of controls by one borrower deflect flows to others? And do policies in source countries appreciably affect the volume of cross border flows to capital-recipient countries?

Volume and composition of capital inflows

Most of the evidence on the effectiveness of capital controls suggests that they have little effect on overall flows. This finding relates to countries that have relatively open capital accounts (many of today's emerging market countries, for example); there is little doubt that countries that are less well integrated in global capital markets can influence the magnitude of flows through a range of administrative measures and quantitative limits. In general, the effectiveness of controls in regulating the magnitude of flows depends on how extensive they

⁸Moreover, learning-by-doing externalities seem more relevant for countries behind the technological frontier, not for those at the frontier. So the basis of an undervaluation strategy is likely to be fundamentally asymmetric.

are, whether the country maintains the necessary administrative and institutional infrastructure to enforce controls, and the extent of investors' incentives to circumvent them.

The lack of convincing evidence on the impact of controls on the overall level of capital flows likely reflects a number of factors. For countries with relatively open capital accounts, capital controls have represented marginal changes that have been undertaken alongside a range of other measures which also impact flows, increasing the difficulty of isolating the effects of capital control measures themselves. Measuring the intensity of capital controls has also been a problem plaguing empirical investigations. And perhaps foremost are fundamental econometric identification problems—if countries that are facing large inflows are the ones that impose controls, it is not surprising that econometric studies find no, or even a positive, relationship between controls and the magnitude of inflows.

In light of these identification problems, the existing empirical studies should not lead one to conclude that controls have no traction in managing the level of flows. The empirical evidence that controls have a systematic impact in tilting the composition of flows, moreover, also casts doubt on the notion that the aggregate volume of flows is impervious to the level of controls. This is because, if there are no aggregate volume effects but significant compositional effects, there would need to be full offsets across different types of flow in response to controls. This seems highly implausible, given the different forces that likely drive the individual components of the capital account. If, for example, controls help to curtail inflows of short-term debt, it is much more likely that total inflows would be reduced than that another component of the capital account—e.g., foreign direct investment—would rise dollar-for-dollar with the reduction in short-term debt.

We conclude that the lack of strong evidence in favor of aggregate effects of capital controls reflects more the difficulties of getting the data to speak loudly than a lack of traction of the policies themselves. Literature reviews and meta-studies (including Magud et al. (2011), Habermeier et al. (2011) and Ostry et al. (2010, 2011)) suggest that capital account policies have traction along a number of dimensions—monetary policy independence, the exchange rate path, and compositional effects (see also Klein, 2012, forthcoming). While evidence of an impact on the total volume of flows is thus hard to come by, this may reflect identification problems more than reality.

Diversion and cross-border spillovers

If capital controls impact the aggregate level of flows, there is obviously potential for them to have welfare implications for other countries, e.g., by diverting flows in situations where such diversion would amplify existing distortions. Is there any evidence to confirm this notion? Direct evidence of cross-border effects from capital account policies is mixed, an unsurprising finding in the light of the limited evidence that such policies have sizable effects on capital flows to the country imposing the measure. Forbes et al. (2011) finds small average effects on flows to other countries from the imposition of capital controls by Brazil:

some countries saw increases in inflows as a result of the Brazilian measures, while others saw decreases. IMF (2011) using a slightly different methodology/data comes to a similar conclusion, that capital account policies have on occasion led to increases or decreases in flows to other countries. Both studies suggest different explanations to rationalize the results, including search for yield (which pushes capital to countries with no controls) or amplified risks of the imposition of controls in other countries (deflecting capital toward countries deemed less likely to impose controls), which may lead total outflows from source countries to diminish. The latter result—that capital is deflected away from other countries likely to impose controls—means that a capital control war between capital-receiving countries is unlikely to occur. Inasmuch as countries that are facing excessive inflows are more likely to want to impose controls, it may also mean that the deflection is efficient.

Source-country policies

What are the effects of source country policies on capital flows to emerging economies? There is certainly plenty of evidence along a broader dimension of this question, for example, the spillover effects from monetary policy in source countries through cross-border flows (e.g., Calvo et al., 1993; Taylor and Sarno, 1997; Reinhart and Reinhart, 2008; Ghosh et al., 2012). Indeed, empirical studies typically find that advanced economy interest rates (or other proxies for monetary policy) are among the most important determinants of capital flows to EMEs.⁹ The existence of spillovers from a range of policies (monetary, financial, fiscal, regulatory, and structural) has been documented in the series of spillover reports undertaken by the Fund over the past year: such spillovers can and do operate in part through cross-border financial flows and can have welfare implications when the resulting flows exacerbate pre-existing distortions. Spillovers from macroprudential policies are also evident in cases where, for example, deficiencies in domestic prudential or regulatory policies amplify the extent of risky cross-border capital flows (IMF, 2011).

To sum up, empirical evidence on the impact of capital account policies is mixed, and generally stronger in terms of finding an effect on the composition of flows than on the aggregate level. However, the finding of negligible effects on aggregate flows may reflect econometric identification problems more than reality. Similarly, the finding of small cross-border spillovers may reflect more the small measured unilateral effects than a true absence of spillovers (and possibly also the fact that measures imposed to date have been small in the grand scheme of things). The potential for spillover effects from capital account policies, moreover, would seem to be a salient risk were capital controls to become larger in the future. Whatever stand one takes on the strength of the empirical evidence, the logical arguments presented in Section II, and their implications presented in Section IV below, will remain valid. If the spillovers and distortions are strong, then the case for multilateral

⁹Note that the argument, sometimes made, that quantitative easing produces a wall of liquidity that washes over emerging market countries, should really be recast in terms of the prices of different assets, with the actions by central banks engaged in QE providing incentives to invest in riskier assets, including riskier foreign assets.

coordination of individual actions is correspondingly strong; if the spillovers and distortions are weaker, the case for coordination is still there, but less essential.

IV. IMPLICATIONS

The discussion in Section II points to the potential benefits of greater coordination among capital-receiving countries, between source and recipient countries when the latter are being swamped by inflows that threaten financial-stability, and across the international community more broadly when controls have the effect of vitiating external adjustment. While empirical evidence on the extent of spillovers is mixed, the potential for spillovers—especially if controls were to proliferate—is certainly there; and evidence of spillovers from source-country policies on capital flows is well-documented. These considerations suggest that global welfare may be enhanced by some multilateral coordination of country policies with the goal of internalizing spillovers from macro-economic, prudential, and capital control measures (see also Jeanne et al., 2012). Multilateral institutions such as the IMF could provide a forum for identifying the spillovers and encouraging countries to internalize these external effects. We draw four implications from our analysis, leaving to others the development and subsequent operationalization of actual “rules of the road,” which need to reflect a host of factors other than those considered in the previous sections. Indeed, Fund staff are in the process of crystallizing their views with the intention of proposing an institutional position on these issues, and the present paper in no way prejudices the outcome of this ongoing process.

Implication 1: Capital controls and related measures (including prudential, monetary and fiscal policies as relevant) should not substitute for warranted external adjustment.

The first implication is implicit in the policy frameworks put forward in Ostry et al. (2010) and the subsequent institutional papers by the Fund. It is essentially that capital controls—and policies that mimic their effects—not act as a substitute for external adjustment, essentially because when they do in many cases the result forces unwarranted external adjustments on other countries. This means that discretion on their use is likely to be circumscribed, particularly when the currency is undervalued from a multilateral perspective.

A clear instance of this might be referred to as old-fashioned mercantilism. Country A uses capital controls cum intervention to pursue an undervalued exchange rate, and there is no obvious domestic distortion that justifies this behavior. This is the easiest case and most closely parallels the discussion in Ostry et al. (2010) and the subsequent institutional papers by the Fund. The undervaluation policy is not in the interest of the country itself and is costly for the rest of the world and so the capital controls that enable it should be proscribed.

Should all instances of inflow controls when the currency is undervalued be cause for concern? Not necessarily. For instance, inflow surges may exacerbate financial-stability concerns and measures to safeguard financial stability may be desirable from a prudential standpoint (even if they have an incidental impact on the volume of inflows). In these

circumstances, and if another tool would not get the job done, controls may be considered even though the currency is undervalued, as discussed in Ostry et al. (2011).

Another case is the learning-by-doing externality. But here the bar must be much higher, both because undervaluation is not first-best from the country's own perspective, and because the multilateral implications are worse than under the first best policy (a production subsidy, which addresses the externality without distorting consumption decisions and the current account). As noted above, moreover, if multiple countries attempt to engineer undervaluation because of learning-by-doing externalities, the result is equivalent to an old-fashioned trade war (this is not the case for multiple countries imposing production subsidies which, while increasing production of tradables, has ambiguous effects on trade balances). Finally, multilateral scrutiny in such cases may also be justified because sustained one-way FX market intervention may have distortive effects on the current account that are much larger in practice than those associated with de jure capital controls (as discussed in Box 2).

We conclude that there is a presumption that undervaluation combined with inflow controls should raise red flags in most cases. As such, there would likely be scrutiny attached to situations in which countries adopt or sustain policies that are likely to have a substantial effect on capital inflows when their currencies are undervalued, and particularly when the intent of the controls is to support undervaluation (intention of course is very hard to establish, and is unlikely to be inferable from simple models of equilibrium exchange rates). The important point is that controls not act as a substitute for policies that would foster warranted external adjustment, and that countries act to strengthen their institutional and other policies so as to more safely intermediate foreign inflows.

Implication 2: Countries should not seek to exploit market power.

The second implication would stamp out behavior for strategic gain (e.g., terms of trade manipulation) as opposed to prudential reasons. As mentioned earlier, while it may seem far-fetched that countries would use capital controls to manipulate the terms of trade, other policies—for example monetary policy—may have similar effects. As such, questions could be raised whenever there are spillovers from the policies of large creditor countries that tend to raise world interest rates (e.g., restrictions on outflows or policies that mimic such measures) or of large debtor countries that tend to lower world interest rates (e.g., quantitative easing).¹⁰ The primary purpose of the policies may not be strategic but the existence of spillovers/externalities would warrant some attention being paid to the policies in a multilateral context.

¹⁰Outflow restrictions by current account surplus (i.e., net source) countries keep the exchange rate more appreciated than otherwise, thus reducing the surplus; quantitative easing by current account deficit (i.e., net recipient) countries weakens the exchange rate, narrowing the deficit.

Implication 3: Capital flows should be managed in both source and recipient countries.

The third implication involves coordination between recipient and source countries. While the former would welcome attacking the problem of volatile capital flows at both ends of the transaction, the incentives to coordinate for source countries are more complex. Our sense is that coordination is possible nonetheless for a number of reasons. First, spillovers between source and recipient countries are much larger than those among recipient countries, so a multilateral perspective would concentrate efforts at this margin more than at others. Second, while source countries may forego profits when they forego outflows, they may also reduce risk of incurring losses on their foreign lending as crises in recipient countries are less frequent. Third, to the extent that source countries are international creditors, there is a terms of trade gain associated with curtailing outflows that may offset some of the costs.

Coordination between source and recipient countries would seek to ensure that spillovers from source country policies (monetary, prudential-regulatory, etc.) are internalized by the source countries themselves. This would require monetary policy to give due attention to its international ramifications for capital flows, and regulatory policies to take account of the impact on financial stability in foreign jurisdictions.¹¹ To the extent that there are costs of accommodative monetary policies (risks of inflationary expectations becoming unanchored; difficulties of shrinking central bank balance sheets), it would, in fact, be in the interests of the source country to take into account the cross-border spillovers since, otherwise, monetary policy would, from its own perspective, be excessively expansionary.

Regulation of cross-border activities of financial institutions headquartered in source countries is likely to provide an important element of multilateral oversight in this context. Specifically, while regulatory authorities are naturally responsible for maintaining financial stability at home, their mandate could be extended to cover activities of their financial institutions that contribute to instability elsewhere. Cooperation between regulators in recipient and source countries would be essential here, especially when the recipient country is being swamped by inflows that threaten to overwhelm the domestic regulatory framework. To the extent that a financial crisis in the recipient country inflicts losses on systemically important financial institutions in the source country, moreover, such cooperation would be in the interests of the source country regulators. Problems arise when the flows are too small to pose significant systemic risks in the source country, but large enough to be a major problem for recipient country regulators seeking to maintain financial stability.

¹¹Limiting outflows from source countries may actually enhance the effectiveness of monetary policy on the domestic economy even as financial stability in recipient countries is buttressed.

Implication 4: Coordination may be needed to avoid capital control wars across recipient countries.

The fourth implication would set limits to the use of capital controls (and related policies) when they create negative externalities for other recipient countries. When there are general surges of capital toward emerging market countries, and to the extent these elicit policy responses from multiple countries (because each is concerned about the macroeconomic or financial-stability risks), multilateral efforts could help ensure that countries imposing or intensifying controls calibrate them appropriately—that is, taking account of the possible response of other countries to the deflected flows.¹² In practice, this means less intensive controls than would be the case if the flows were only going to one (or fewer) countries. Policy advice would be geared to helping recipient countries avoid a capital control war of escalating controls in response to deflected flows, recognizing that such a war would not be in their own interests, but also recognizing that multiple countries imposing/intensifying controls simultaneously (or in rapid sequence) is not necessarily indicative of a capital control war—it may simply be the appropriate response of each country to the excessive inflows it is facing. It is only a capital control war when controls escalation is in response to deflected flows.

V. CONCLUSION

The global financial crisis and its aftermath has reminded us that cross-border capital flows are subject to potentially extreme swings that wreak macroeconomic havoc and pose significant risks to financial stability. At the same time, foreign capital can help countries finance productive projects, build much-needed infrastructure, allocate resources efficiently, and expand employment opportunities. Much like motor cars that bring innumerable benefits, but also more than one million traffic-related deaths each year, cross-border capital flows may need some “rules of the road” to ensure smooth functioning and safe operation. Such multilateral coordination—if and when it is defined—will need to encompass a broader set of considerations than those discussed above; nevertheless, our hope is that this note will add to the analytical basis for such coordination in the future.

Building on welfare economics, and taking account of empirically relevant spillovers, our analysis suggests four implications. First, measures that restrict flows should not be allowed to substitute for external adjustment that is necessary from the country’s own or the global perspective. This refers not only to the imposition of more stringent controls in the face of

¹²In a world with both destabilizing and beneficial flows (say “hot money” and FDI) and imperfect targeting of flows by capital controls, measures imposed by one country may actually deflect “good flows” to other countries. Our assumption here is that deflection of good flows—the collateral damage from the measure—is smaller than deflection of bad flows. In such case, coordination would indeed seek to lower the extent of capital controls across countries. If the opposite were true, then the inefficiency in the Nash equilibrium would point in the opposite direction, and coordination would actually seek to raise the level of capital controls.

inflow surges, but also to the removal of structural impediments to inflows by countries with undervalued exchange rates as soon as this can be done without undermining domestic or global financial stability (or as soon as genuine “learning-by-doing” externalities have run their course). Second, measures by systemically important countries that distort the world interest rate merit multilateral scrutiny, and the pros and cons of such measures should be evaluated from a multilateral, not just the country’s, perspective. Third, in imposing capital controls on inflows, recipient countries need to be mindful of possible deflection to other countries and their likely response. When there are general surges of capital to many countries, this means exercising some restraint in the imposition of capital controls. And fourth, greater coordination with systemically important source countries requires that they take account of policy spillovers and assume greater responsibility for ensuring that the financial institutions they supervise do not contribute to financial instability through their cross-border activities.

The foregoing implications are not to be interpreted as hard and fast multilateral “rules of the road,” not least because fully specified norms of international behavior to guide policy advice in this area would need to take into account many factors that have been excluded by the simple models discussed here. This does not mean that multilateral institutions such as the IMF do not have a job to do in identifying spillovers that harm other countries, or in suggesting remedies or policy adjustments that go in the direction of internalizing the effects of such spillovers. The notion that international cooperation can mitigate the severity of boom-bust cycles in capital flows is one that goes back to the IMF’s founding fathers. Both Keynes and White firmly held that rules for managing capital flows would be much more effective if movements of capital “could be controlled at both ends” than if a patchwork of unilateral policies ruled the day. And multilateral cooperation to foster global financial stability lies at the very heart of the purposes of the IMF. Global financial integration has progressed a long way in six decades, but multilateral oversight of both source and recipient countries to assist in the management of capital flow volatility remains a worthy objective, and one likely to be essential to safeguard the stability of the international monetary system.

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SESSION 6

PANEL DISCUSSION: CROSS-BORDER COLLABORATION IN IMPLEMENTING MACROPRUDENTIAL POLICIES CONSISTENT WITH MONETARY POLICIES



**PANEL DISCUSSION: CROSS-BORDER COLLABORATION IN IMPLEMENTING
MACROPRUDENTIAL POLICIES CONSISTENT WITH MONETARY POLICIES**

**OBSTACLES TO INTERNATIONAL POLICY COORDINATION,
AND HOW TO OVERCOME THEM**

By

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IMF STAFF DISCUSSION NOTE

Obstacles to International Policy Coordination, and How to Overcome Them

Jonathan D. Ostry and Atish R. Ghosh

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Obstacles to International Policy Coordination, and How to Overcome Them

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EXECUTIVE SUMMARY

Notwithstanding a handful of exceptions, examples of international macro policy coordination have been few. The most successful cases have been when the world economy seemed on the brink of collapse. In more normal times, despite strong theoretical arguments and evident systemic stresses, policymaking takes a national rather than multilateral perspective.

Why do we not see more policy coordination in practice? This paper argues that the most compelling reasons are asymmetries in country size; disagreement about the economic situation and cross-border transmission effects of policies; and often policymakers' failure to recognize that they face important tradeoffs across various objectives. Coordination works by allowing countries to improve the policy tradeoffs they face under autarky. Like most efficiency arguments, welfare gains will not be huge (they are, in fact, very similar to estimated gains from global trade liberalization) but certainly measurable and worth pursuing.

This leads us to a couple of proposals. Given that uncertainty and disagreements are genuine impediments to coordination, we suggest that a neutral assessor may play a useful role in helping to bridge the divergent views of national policymakers, provided of course that the credibility and neutrality of the assessor is accepted by all parties. The assessor would not necessarily propose policies, but would present analyses of alternative strategies and the resulting tradeoffs. This would enable individual countries or groups of countries to judge reasonable *quid pro quos* that are the essence of coordination.

Our second proposal is intended both to buttress international coordination and to provide safeguards when coordination proves impossible to achieve, by implementing two guideposts to limit negative spillovers through the current account and the capital account, respectively.

Our proposals for a neutral assessor and for guideposts on conduct in the international monetary system build upon existing processes. An essential goal of IMF surveillance is objective analysis and ruthless truth-telling, precisely to overcome the biases that are likely to be inherent in countries' own perspectives. The Integrated Surveillance Decision, recently adopted by the membership, suggests that countries consider policies that engender less adverse outward spillovers while still achieving their domestic objectives; our proposed guideposts, building on the Integrated Surveillance Decision, would press countries to abjure policies with large negative cross-border spillovers even if there was some domestic cost. The logic of such guideposts is clear but the specificities are for the international community to decide.

I. INTRODUCTION

The global financial crisis elicited an unprecedented degree of policy activism centered on monetary and fiscal stimulus as well as policies to stabilize the financial system. While there is broad consensus that these policies helped avert a potentially catastrophic great depression and a seizing up of financial systems, there is also concern they generated spillovers in many dimensions, including output, external balances, capital flows, currency values, and asset prices. Now that major tail risks are largely off the table, the debate has shifted to how best to underpin the postcrisis global recovery. Topics of—at times heated—discussion include when and how to exit from unconventional monetary easing, the balance between short-term fiscal stimulus and medium-run consolidation, and a raft of financial and structural reforms to lay the foundation for medium-run growth, to enhance crisis prevention and resilience, and to address internal and external imbalances. Policies during this recovery phase are just as likely to generate cross-border spillovers, some of which are already in evidence.

The current juncture clearly calls for a cooperative approach to policymaking. Yet—with a handful of notable exceptions, such as the 1978 Bonn Summit, the 1985 Plaza Agreement, and the 1987 Louvre Accord—examples of international macroeconomic policy coordination have been few. The most successful instances have been when the world economy seemed on the brink of collapse: the 1987 stock market crash, when the G-7 coordinated interest rate cuts and liquidity provision, and the 2008 global financial crisis, when the G-20 coordinated fiscal expansions. In more normal times, despite evident stresses on the international monetary system, policymaking seems to take a national rather than multilateral perspective.

In this paper, we examine the reasons why this may be so, with a view to determining whether it should be of concern (that is, are potentially large welfare gains being forgone); whether misconceptions account for the lack of coordination; and whether there may be ways of reducing, if not eliminating, genuine impediments to successful international cooperation.

The case for policy coordination rests on the principles of standard welfare economics. Since all policymaking involves tradeoffs across targets—for instance, monetary stimulus boosts output but at the cost of greater inflation or financial stability risks—efficient global outcomes require that policymakers internalize both domestic and cross-border effects when setting policies. Because there is no global market in such policies, externalities resulting from cross-border effects imply Pareto-inefficient outcomes in the absence of coordination. When these externalities are positive—meaning the instrument has a beneficial effect on the foreign country—then, from the global perspective, there will be too little use of the policy; when negative, too much. The uncoordinated equilibrium is the best that the country can do unilaterally: moving toward cooperative policies yields a first-order welfare gain to the foreign country but a second-order loss to the home country. When both parties move toward the cooperative equilibrium, there will be first-order gains to each that outweigh the second-order losses and, hence, net welfare gains to each party. Coordination, in this sense, does not require policymakers to act against their national interests, but rather to recognize that

alternative policy packages—when pursued by all parties—can allow each to improve national welfare.

So why do we not see more macro policy coordination in practice? Our sense is that the most compelling reasons are three-fold. First, policymakers often do not think in terms of trade-offs across their objectives. All too often, coordination discussions founder on each party refusing to budge from some specific macroeconomic goal, apparently not recognizing that a different tradeoff across objectives may be welfare improving. Like most efficiency arguments, welfare gains will not be huge (in fact, they are very similar to the estimated gains from global trade liberalization), but—like the gains from trade liberalization—certainly measurable and worth pursuing. But there can be no such gains if policymakers fixate on one objective (say, closing the output gap), myopically ignoring others (keep in check financial-stability risks). A key role of country surveillance is thus to point out the various tradeoffs and to underscore consequences of policies that may be beyond policymakers' horizons.

The second obstacle is disagreement about the economic situation and cross-border transmission effects of policies—“model uncertainty” or deliberate “model disagreements.” Such uncertainty, while raising potential gains from coordination, makes it more difficult both to reach cooperative agreements and to sustain them. And the third problem is asymmetries in country size (such that, at the global level, a significant portion of gains from coordination may accrue to countries that are too small to be included in any agreement).

These obstacles lead us to a couple of proposals. Given that uncertainty and disagreements are genuine impediments to coordination, our first suggestion is that a neutral assessor may play a useful role in helping to bridge the divergent views of national policymakers. Beyond technical competence, such an assessor would need to be perceived as being impartial in its assessment. The assessor would not necessarily propose policies, but would present analyses of alternative strategies and the resulting tradeoffs. This would enable individual countries or groups of countries to judge reasonable *quid pro quos* that are the essence of coordination. One advantage the IMF would have in this role is that, through its bilateral surveillance, it may be well placed to underscore to countries that their macroeconomic objectives should not be unidimensional, but rather involve important tradeoffs across a variety of goals. Once that is accepted, it may be easier for countries themselves to identify coordinated policy packages that they would find welfare superior.

Our second proposal is intended both to buttress international coordination and to provide safeguards when it proves impossible to achieve such coordination or to take adequate account of spillovers on “small” countries. This proposal is to establish two guideposts that should limit the most egregious negative spillovers through countries' current account and capital account, respectively.

Both our proposals—for a neutral assessor and for guideposts to conduct in the international monetary system—build upon existing processes. An essential goal of the surveillance undertaken by the Fund is objective analysis and ruthless truth-telling, precisely to overcome

the biases that are likely to be inherent in country perspectives of the domestic and cross-border effects of national policies. The Integrated Surveillance Decision, recently adopted by the IMF's membership, urges countries to consider policies that engender less adverse outward spillovers while still achieving the countries' domestic objectives. Building on the ideas underlying the Integrated Surveillance Decision, the guideposts we propose would press countries to reject policies with large negative cross-border spillovers (through trade or financial flows) even if there was some domestic cost. The logic of such guideposts is clear, while the specifics are for the international community to decide.

Section II of this paper lays out more formally the theory of international policy coordination and gives an overview of the reasons why, in practice, episodes of coordination are rare. Section III surveys the evidence on cross-border spillovers and policy transmission effects. Section IV explains how uncertainty raises both the gains from, and the obstacles to, successful coordination. Section V explores ways of reducing these obstacles. Section VI concludes.

II. WHY DO WE NOT SEE MORE POLICY COORDINATION?

The case for policy coordination is founded on well-established welfare economics. Since all policymaking involves tradeoffs across targets—for example, monetary stimulus boosts output but at the cost of greater financial instability or inflation risks—efficient outcomes require that policymakers internalize both domestic and cross-border effects when choosing what policy to undertake. Since there is no global market in these policies, the externalities resulting from cross-border spillovers will imply Pareto-inefficient outcomes in the absence of coordination (Hamada, 1974, 1976; Canzoneri and Henderson, 1991; Ghosh and Masson, 1994; Subacchi and van den Noord, 2012).² When these spillovers are positive (meaning the policy has a beneficial impact on the foreign country), there will be too little use of that policy from a global perspective; when negative, too much. The essence of coordination is getting policymakers to recognize—and internalize—these spillovers when setting policies.

It is generally assumed that, in the absence of coordination, policies will be at a Nash equilibrium: authorities set policies to maximize their own country's welfare, taking as given policies of other countries and ignoring spillovers. The resulting equilibrium will not be Pareto-efficient in the sense that, starting at the Nash equilibrium, some perturbation of the foreign country's policies will result in a first-order gain to the home country and only a second-order loss abroad (Box 1). Hence, countries can agree to a joint package that is mutually beneficial. The package and associated split of the welfare gains depend upon the

² This is essentially a “revealed preference” argument: since the parties to the cooperative agreement could choose the same policies as they would have chosen in the non-cooperative equilibrium, coordination should not make them worse off, and in general should be welfare enhancing. The only exception to this is when the constraints facing the policymakers change when they coordinate; Rogoff (1985) constructs such an example, where coordination exacerbates policymakers' time consistency problems and therefore reduces welfare. Buiter and Marston (1984) includes several studies of policy coordination in the 1980s; Jeanne (2013) examines possible gains from coordination in the current global conjuncture.

bargaining process, with the stipulation that each country must be better off than it would be under autarky. In trade, the potential gains to the larger country are more limited because the world price is very similar to the autarky price. Likewise, in coordination, the small spillovers on the larger country mean that the tradeoff implied by the combination of domestic and transmission multipliers will be very similar to that implied by domestic multipliers alone. Hence, the potential gains to the larger country will be more limited (though greater bargaining power may allow the larger country to capture a larger share of the gains).

An example helps clarify the analytics. Suppose two countries are undertaking monetary easing to reduce an output gap. While stimulus helps close the output gap, it also risks unanchoring inflationary expectations or fuelling an asset bubble that raises financial stability risks. Monetary stimulus has two effects on the foreign country: a positive effect on the demand for its exports and, through the exchange rate, a negative effect on foreign output. For concreteness, suppose that this negative effect dominates. In the noncooperative equilibrium, policymakers in each country ignore this externality, which leads to excessive stimulus. When the two countries coordinate, they internalize this spillover and ease policy less than when they do not cooperate. While this does result in a larger output gap, the benefit in terms of lower financial stability risks more than it compensates. Moreover, to the extent that excessive global liquidity was raising financial stability risks in third countries, they too may benefit even though they are not party to the cooperative agreement. That gains from coordination may accrue to third parties is not just a theoretical possibility: in the runup to the Latin American debt crisis, Sachs and McKibbin (1985) estimated, monetary policy coordination among the major countries (whose disinflation policies had been excessively tight) would likely have helped highly indebted poor countries. Whether third parties gain or lose will depend on specific circumstances, suggesting that some “rules of the road” may be needed to safeguard the interests of smaller countries (see below).

Although, by construction, each country is better off under coordination, the equilibrium is inherently fragile: provided the other party sticks to the agreed policies, a country that reneges makes a first-order welfare gain. In this example, having agreed to restrain its monetary stimulus in the coordinated equilibrium, the home country can raise its own output by “cheating”—undertaking more stimulus than had been agreed. Since both parties have this same incentive, coordination breaks down. In the absence of international sanctions, the only way the cooperative agreement can be sustained is by the implicit threat that a failure to deliver will result in a refusal (or moratorium) to coordinate again in the future.

While this theory of policy coordination (Hamada, 1974, 1976) is well understood, a number of reasons have been suggested to explain why we don’t see more coordination in practice, except possibly during periods of crisis when the counterfactual to coordination may be a seismic global event (like a great depression).³ In the rest of this section, we consider six

³ This is not to deny that there are various forums (BIS, G-20, etc.) where there may be useful consultations and, perhaps, behind-the-scenes coordination. Moreover, while international macroeconomic policy coordination is relatively rare, international cooperation in other facets of economic policymaking—such as trade (World Trade

Box 1. The Theory of International Policy Coordination

Suppose policymakers in two symmetric countries have an objective function defined over two targets, $v(y_1, y_2)$, that are affected by domestic and foreign policies, m, m^* :

$y_1 = \alpha_1 m + \beta_1 m^*$; $y_2 = \alpha_2 m + \beta_2 m^*$, where α are domestic multipliers, and β are transmission multipliers. In the Nash or noncooperative equilibrium, the home policymaker sets his instrument to maximize utility, taking as given the foreign country's instrument setting:

$$\partial v / \partial m | m^* = 0 \Rightarrow \alpha_1 (\partial v / \partial y_1) + \alpha_2 (\partial v / \partial y_2) = 0 \text{ or } [(\partial v / \partial y_1) / (\partial v / \partial y_2)] = -(\alpha_2 / \alpha_1)$$

In other words, the *marginal rate of substitution* (MRS) between the two targets should be set equal to the *marginal rate of transformation* (MRT) achievable between them by use of the home country's instrument—and likewise for the foreign country. Starting at this Nash equilibrium, suppose there is a perturbation in the foreign country's policy setting (the home country will do likewise):

$$\partial v / \partial m^* = \beta_1 (\partial v / \partial y_1) + \beta_2 (\partial v / \partial y_2) = (1 / \alpha_1) (\partial v / \partial y_2) [\alpha_1 \beta_2 - \beta_1 \alpha_2]$$

This expression will be non-zero except in the degenerate cases where policymakers have as many instruments as targets (here, one, so this would mean $\partial v / \partial y_2 = 0$) or the trade-off across targets achievable by the domestic effects of policies (α_1 / α_2) is identical to that achievable through the transmission effects (β_1 / β_2). Hence, at the Nash equilibrium, there exists a perturbation in the foreign country's policy settings that would raise welfare of the home country, and vice versa. The cooperative equilibrium can be obtained by assuming a global planner maximizes a weighted average of each country's objective function: $v^c = 0.5v + 0.5v^*$. The planner's optimum requires:

$$\partial v^c / \partial m = 0 \Rightarrow 0.5[\partial v / \partial m + \partial v^* / \partial m] = 0 \text{ or } [(\partial v / \partial y_1) / (\partial v / \partial y_2)] = -(\alpha_2 + \beta_2) / (\alpha_1 + \beta_1)$$

Thus, the global planner sets the MRS equal to the MRT *achievable through coordinated policies* (i.e., taking account of the transmission effects, not just the domestic effects). There is thus an analogy to trade theory: the Nash equilibrium is like autarky, where policymakers set the MRS to the MRT implied by domestic multipliers; coordination is akin to free trade, where the MRS is set equal to the MRT implied by domestic and foreign transmission multipliers—just as, under trade, the MRS is set equal to the world price (the MRT achievable through both domestic and foreign production).

As an example, suppose the instrument is monetary policy and the two targets are output and (low) inflation: $y = \alpha_1 m + \beta_1 m^* - \varepsilon$; $\pi = \alpha_2 m$, where $\alpha_1 > 0, \alpha_2 > 0, \beta_1 > (<)0, \varepsilon > 0$ and the objective function is $v = -(1/2)\{y^2 + \omega\pi^2\}$. Nash policies are: $m^N = m^{N*} = \alpha_1 \varepsilon / [\alpha_1(\alpha_1 + \beta_1) + \omega\alpha_2^2]$. Cooperative policies are: $m^C = m^{C*} = (\alpha_1 + \beta_1)\varepsilon / [(\alpha_1 + \beta_1)^2 + \omega\alpha_2^2]$. Therefore, monetary policy will be too expansionary in the noncooperative equilibrium ($m^N > m^C$) if $\beta_1 < 0$ (policy is negatively transmitted) and insufficiently expansionary if $\beta_1 > 0$ (positively transmitted). In the case of negative transmission, the cooperative equilibrium will entail less monetary stimulus and therefore a lower level of output, but the two countries will nevertheless be better off because of the lower inflation/financial stability risk. Likewise, in the case of positive transmission, cooperation entails greater stimulus and greater financial stability risk, but countries gain from the higher output.

Organization), financial regulation (Financial Stability Board), liquidity provision (IMF financing, central bank swap lines)—is more frequent.

possible reasons for why we may not see more than episodic coordination, and delineate which among them merit further scrutiny (issues we take up in the remainder of the paper).

First, policymakers may believe that spillovers are too small to offset the costs of coordination: if in the limit policy spillovers are close to zero, it is clear that there is no scope for policy coordination. But as far back as the 1980s, multi-country econometric models incorporated appreciable cross-border transmission effects of the macro policies of major economies. It is true that across various models these transmission effects differed markedly in size and even sign, so on *average* were quite small, a small average effect (with a large variance of estimates across models) has very different implications for the gains from coordination than does a consensus that the transmission effects are small (Box 2). Moreover, growing trade and financial linkages since the 1980s are likely to have raised transmission multipliers further. This logic, and the discussion in Section III below, suggests that small spillovers are not a plausible reason for the episodic nature of coordination.

Second, since coordination works by allowing policymakers to achieve a better policy tradeoff, they must in fact face such trade-offs. This means each policymaker must have fewer instruments than targets. In the example above, if policymakers cared only about output (and not at all about possible inflation or financial stability risks), there would be no (perceived) welfare gains from coordination since there would be no cost associated with the expansionary monetary policy. Literally, of course, policymakers clearly have more targets than instruments, but in practice they may relegate a number of them to the back burner. Myopia about the nature of policy tradeoffs thus may indeed provide a clue as to why we do not see sustained policy coordination in practice. However, if anything, the cost of such myopia is likely to have increased as a result of the global financial crisis, which has diminished the availability of usable policy instruments (the zero lower bound in the case of monetary policy; high public debt and political paralysis in the case of fiscal policy) and increased the need to focus on more targets (including financial stability).

Third, coordination is generally understood to mean moving from Nash policies—that is, policies that are the best the country can achieve unilaterally—to the cooperative package of policies. Studies (e.g., Becker and others, 1986; Canzoneri and Edison, 1990; Frenkel and others, 1989; and Ishii and others, 1985) that relax the assumption that the initial position is a Nash equilibrium find much larger gains from moving to globally optimal policies. What does this have to do with coordination? Coordination may deliver a quid pro quo that enables domestic policymakers to overcome the constraints that are thwarting the achievement of even the domestic Nash outcome. In our example, if political paralysis results in an inappropriate domestic policy mix (skewed toward monetary easing and fiscal tightening and leading to a deficiency of global demand), coordination that resulted in an expansion in global demand by surplus countries might induce a better global outcome in part by easing domestic constraints (policymakers might be assured that less monetary easing would not compromise domestic

goals). But if policymakers are not convinced that coordination will deliver the foreign policy *quid pro quo*, we will see neither coordination nor a relaxing of domestic constraints.

Fourth, the nature of the shock must be such that the economy is sufficiently off its desired path, policies are able to make an appreciable difference in returning the economy to equilibrium, and there is some form of policy conflict between countries as they try to do so. If the economy is close to equilibrium, then policy has little role and there would be no need for coordination (or indeed any active policy). Alternatively, even if there is a large shock but policy can make little difference, gains from coordination will be necessarily limited. It seems unlikely that, in the wake of the dislocation engendered by the global financial crisis, gains

Box 2. Policy Coordination: What Models Tell Us

A large body of literature on coordination developed in the 1980s. Representative of these studies is Oudiz and Sachs (1984) who consider a disinflation game between two countries following an initial shock (such as the 1979 oil price hike). By appreciating the exchange rate, each country seeks to “export” inflation. But in equilibrium, they cannot both appreciate, and the Nash equilibrium is characterized by overly tight monetary policy and a correspondingly large output gap and unemployment. Under cooperation, they do not engage in this futile game, and inflation is a bit higher but unemployment lower. Applying their analysis to the United States, Japan, and Germany, Oudiz and Sachs conclude that “the gains from coordination are certainly present, but they appear modest ... the utility equivalent of one-half percentage point of GNP in each of the next few years of a more coordinated expansion.”

Why so small? First, the cross-border multipliers in the models employed by Oudiz and Sachs are relatively small. Although Oudiz and Sachs recognize that different models yield different multipliers, they do not take explicit account of model uncertainty. Ghosh and Masson (1988) show that taking account of uncertainty in their setup roughly doubles the estimated gains from coordination. Second, since policymakers’ preferences cannot be observed directly, Oudiz and Sachs reverse-engineer the implied utility functions by assuming that observed policies represent the Nash equilibrium. But during the recession of the early 1980s, unemployment became very high. If this represented the outcome of Nash policies, then policymakers must have implicitly assigned low weight to unemployment. Now it is clear why the coordination—which would have implied somewhat lower unemployment—would not represent a significant welfare gain. (The assumption that countries were at their Nash equilibrium is clearly crucial here in the small estimate of the gains from coordination.) Third, in Oudiz and Sachs’s set up, there is no long-run policy conflict between the countries—once the inflationary shock has passed, there is no need for coordination. Moreover, while the shock lasts, there is not a lot that policy can do about it. The only difference that policy can make is to shift the timing of output losses (Oudiz and Sachs, 1985), which is welfare improving because of the convex cost of the output gap, so smoothing these out is preferable to a short but severe recession.

from policy activism to bring economies closer to their warranted paths could be negligible. As to the gains from coordination itself, estimates suggest that, while not huge (as with most efficiency arguments), they are hardly negligible. Indeed, the estimated gains are similar in magnitude to those resulting from multilateral trade liberalization, and thus, as with the efforts devoted to such liberalization, should be well worth pursuing.⁴

Fifth, most of the welfare gains from coordination may accrue to countries that are small and possibly not even parties to the coordination—and, by the same token, such countries may suffer the most from the lack of coordination. Economically more important countries may be uninterested in coordinating with smaller countries because the latter cannot make an appreciable difference to them, but from a global perspective, the aggregate welfare gain to the smaller countries could be considerable. For instance, Sachs and McKibbin (1985) argue that greater policy coordination among the industrialized countries in the early 1980s would have resulted in lower world interest rates—the main beneficiaries of which would have been the highly indebted developing countries. Likewise, emerging market countries that are now contending with reversals of capital inflows might have benefited from earlier coordination of monetary policies among the advanced economies. The likelihood of asymmetric gains and losses from coordination may suggest the need for rules of the road that could substitute for actual coordination—with such rules proscribing or constraining policies that have appreciable adverse cross-border spillovers, especially to “small” countries.

And sixth, there may be too much uncertainty about the state of the economy or the effects of policies to make coordination worthwhile in practice. In fact, uncertainty about the cross-border effects of policies *raises* rather than reduces the welfare gains from coordination. The intuition, elaborated upon in Section V, is that the volatility associated with uncertainty about the effects of policy is itself a negative spillover, and since the gains from coordination are increasing in the size of spillovers, uncertainty makes them correspondingly greater. But while such uncertainty raises the gains from coordination, it makes it more difficult to negotiate and sustain cooperative agreements. Like any other form of trade, how the gains are split among parties depends on the agreement they negotiate. Governments can use disagreements over the model as a negotiation tool to skew gains in their favor. In the monetary policy game considered here, each party would have the incentive to claim its output gap is larger—and the effects of its own policy smaller—than it truly believes, in order to justify a more expansionary stance for its own monetary policy. Such disagreements can make it impossible to arrive at cooperative agreements—or to sustain them once reached.

Our sense is that disagreement about the size (or even the sign) of spillovers and transmission multipliers remain central to current debates on the desirability of policy coordination—these

⁴ Oudiz and Sachs (1984) estimate the welfare gains from coordination at some 0.5 to 1.0 percent of GNP—the same order of magnitude as the gains estimated to have accrued from the Uruguay Round (McKibbin, 1997) or to potentially accrue from a completed Doha Round (IMF, 2011). Gains that incorporate dynamic effects may be larger. Likewise, of course, gains from coordination are assessed to be larger in turbulent times than in quiet times; in the current postcrisis period, gains are likely to be somewhere in between.

issues are taken up further in the next two sections of this paper. Exclusive focus on a very limited number of macroeconomic goals—in effect, ignoring policy tradeoffs—is also likely to be a key impediment to coordination in practice. The role of IMF surveillance in identifying such tradeoffs, together with possible guideposts to limit adverse outward spillovers especially from large to small countries, is taken up in Section V.

III. CROSS-BORDER SPILLOVERS

Fundamental to the case for coordination is the existence of cross border transmission effects of macroeconomic policies, which are often the subject of dispute. Not surprisingly, when spillovers are negative, the source country has the incentive to claim the effects are small, while the recipient country has the incentive to argue the opposite. While there are difficult issues of econometric identification, existing evidence suggests that there are transmission effects between countries through trade and financial linkages (Box 3).

The early literature suggested that fiscal policy was nearly always transmitted positively across borders, while monetary policy had more ambiguous effects. A variety of multi-country models were developed in the 1970s and 1980s to examine these issues. Averaging across models, transmission multipliers were found to be small, around one tenth the size of domestic multipliers. However, this is because in many cases, the transmission effect in one model was positive while it was negative in another model, resulting in an average that was not very different from zero. In absolute value, however, the transmission multipliers were more like one-third to one-half the size of domestic multipliers.

More recent evidence suggests that transmission multipliers have grown in size, reflecting deeper trade and financial integration across countries, and are now about one half the size of domestic multipliers. Transmission effects are larger for large economies, during periods of downturns, and for countries that are closely interconnected. For the United States, recent estimates (IMF, 2013b) suggest fiscal policy transmission multipliers that are as high as 60 percent of domestic multipliers, with larger multipliers for Latin America and Europe, and smaller ones for Asian economies. These results are similar to those found in the recent empirical literature (e.g., Ilzetzki and Jin, 2013; and Romer and Romer, 2010). Monetary policy shocks in major economies are also found to have large transmission multipliers, particularly in the case of countries whose currencies are pegged to the U.S. dollar. Monetary policy transmission multipliers are found to be about 40 percent as large as domestic multipliers, with the largest effects being recorded for Latin American countries. Such variation in the multipliers tends to be related to the strength of trade and financial linkages, with financial linkages explaining about a third of the cross-country variation and trade linkages explains about 10 percent of the variation (or more in the case of fiscal policy shocks).

While rising real and financial integration is acting to increase cross-border policy transmissions over time, there is also evidence that suggests that transmission multipliers may

be larger in crisis periods than in quiet times (this may reflect higher cross-country output co-movements in crisis times). Transmission effects may be both positive and negative: some episodes of U.S. quantitative easing led to generalized reductions in bond yields, rises in equity prices and appreciation of foreign currencies vis-à-vis the dollar, while some event studies suggest that the quantitative and qualitative monetary easing policy of the Bank of Japan led to falls in foreign equity prices (as well as appreciations of currencies against the yen). The behavior of capital flows has also differed through time, with some early episodes of quantitative easing leading to capital outflows from emerging market economies, later episodes leading to inflows to emerging market economies, and talk of tapering again leading to outflows. (This is with the caveat that there is significant cross-regional variation—Asia and Latin America look quite different from Europe in many of these episodes.)

Model simulations suggest that quantitative easing is positively transmitted to the rest of the world (i.e., higher output), reflecting looser financial conditions and higher asset prices globally. Such simulations also suggest that monetary easing worsens external balances abroad, though less so when countries take measures to resist the resulting currency appreciation. But this is not a universal result, with other simulations showing for example that quantitative and qualitative monetary easing tended to be negatively transmitted to foreign output (especially for countries with close trade links to Japan), reflecting the sharp yen depreciation and initial downdraft to equity prices. The evidence also suggests heightened cross-border financial risks from monetary easing through increased capital flow and exchange rate volatility, and rapid credit growth. This has given rise to concerns that delayed exit from ultra-easy monetary policy is exacerbating financial instability risks/spillovers in a number of quarters.

Simulations have therefore sought to address the issue of possible transmission effects from countries exiting from unconventional monetary policy. The news from such simulations is mixed because, like all simulations, the results reflect a combination of the underlying shock and the policy response. When exit occurs against the backdrop of good growth news at home, transmission effects tend to be positive (growth effects dominate tightening of financial conditions effects), especially in cases where trade channels dominate. When the news is less good, for example if tightening occurs mainly because of rising domestic financial risks, the reverse happens, contributing to a sizable downdraft in global growth relative to baseline. Other aspects of the policy agendas of systemically important countries may also be an important source of future spillovers, as documented in the recent spillover reports from the IMF (IMF, 2013a). For example, simulations of a failure to achieve internal rebalancing in China suggest large adverse spillovers, perhaps on the order of 1–2 percent of world GDP, an example of an important “reverse transmission” from emerging market countries back to advanced economies. Global losses could be similar if markets repriced Japan’s sovereign debt and yields rose by 200 basis points or so; losses would be larger were a similarly sized reappraisal to take place with respect to U.S. sovereign debt. Aside from macro policies, simulations also underscore that the failure to close structural reform gaps in various

Box 3. Cross-Border Transmission Effects—Some Evidence

How important are cross-border transmission effects? Much of the literature looks at output correlations on grounds that policies should have effects on the domestic economy, which in turn will be transmitted abroad via demand for other countries' exports. While such correlations ignore possible direct effects (e.g., through capital flows or exchange rate movements), and not all domestic output fluctuations are the result of policy, they nevertheless represent a useful start in looking at possible transmission effects. To this end, Table 1 reports the results of a regression of growth on lagged growth in a country's main advanced and emerging market economy trading partners for 29 advanced economies and 53 emerging markets over 1980–2011.

Table 1. Real GDP Growth and Trading Partner Growth, 1980-2011

	Full sample		Advanced		EMEs	
	(1)	(2)	(3)	(4)	(5)	(6)
Advanced growth (lagged)	0.340** (0.161)	0.264** (0.124)	0.152 (0.172)	0.062 (0.121)	0.492** (0.198)	0.346** (0.157)
EME growth (lagged)	0.761*** (0.198)	0.343*** (0.096)	0.241* (0.130)	0.267*** (0.089)	0.856*** (0.200)	0.367*** (0.132)
Real GDP growth (lagged)		0.442*** (0.047)		0.499*** (0.050)		0.396*** (0.057)
Observations	2,182	2,182	826	826	1,356	1,356
R-squared	0.182	0.343	0.405	0.528	0.183	0.308
No. of countries	82	82	29	29	53	53

Note: Dependent variable is real GDP growth rate (in percent). Advanced and EME growth is export-share weighted avg. of real GDP growth rates of top three advanced and EME export partners, respectively. Constant included in all specifications. Outliers (i.e., growth rates in the bottom and top percentile of the distribution) are excluded from the estimations. Clustered standard errors at the country level reported in parentheses. ***, **, and * indicate statistical significance at the 1, 5 and 10 percent levels, respectively.

The results suggest appreciable cross-border correlations. Across the full sample, output growth is correlated with lagged output growth in both advanced and emerging market economies, even controlling for the country's own lagged output growth. These findings are consistent with the literature which finds significant cross-border correlations, especially when there are strong trade and financial linkages.¹ Kose and others (2008) use a global dynamic factor model to decompose fluctuations into global, country-group (advanced versus emerging market), and country-specific factors. They find convergence in business cycle fluctuations both within advanced economies and emerging market economies, but decoupling between these two groups. One notable exception is Cesa-Bianchi and others (2012), who use a variant of the Global Vector Autoregressive Model (GVAR) to estimate the impact of the international business cycle on Latin America. They find that the impact of Chinese shocks has increased dramatically since the mid-1990s, and has come to dominate that of the United States, with much of the strength of the former coming from indirect effects via third countries.

^{1/} See Heathcote and Perri (2004), Stock and Watson (2003), Kose and others (2008), Bordo and Helbling (2004), Baxter and Kouparitsas (2005), Kose and others (2003) and Kalemli-Ozcan and others (2013)

regions—including Japan, the euro area and elsewhere—would also have palpable spillovers at the global level.

Taken as a whole, the various structural models and econometric studies suggest substantial cross-border spillovers of policies operating through both direct and indirect effects. These may be especially large during times of crisis, but even in more normal times, they are sufficient to justify greater coordination of macroeconomic policies.

IV. COORDINATION UNDER UNCERTAINTY

Beyond political constraints, uncertainty about the state of the economy (e.g., output gaps versus shocks to potential output) and the impact of policies (long and uncertain lags; real-financial linkages) is often considered the most serious impediment to effective policymaking. This is particularly true in the arena of international policy coordination, where the cross-border transmission effects may be varied, uncertain, and subject to dispute. As Martin Feldstein (1983, p. 44), then chairman of the U.S. Council of Economic Advisers, noted:

Economists armed with econometric models of the major countries of the world can, under certain circumstances, identify co-ordinated policies that, quite apart from balance-of-payments constraints, are better than uncoordinated country choices. But in practice, the overwhelming uncertainty about the quantitative behavior of individual economies and their interaction, the great difficulty of articulating policy rules in a changing environment ... all make such international fine tuning unworkable.

In fact, uncertainty about the effects of policies may *raise* rather than reduce the gains from coordination. One view about such uncertainty is that the precise effects of policy depend on a whole host of factors such that, in effect, the multiplier in any particular instance can be considered a random variable.⁵ As a general principle, even within the domestic economy, whenever the effects of a policy instrument are uncertain, use of that instrument should be more conservative because the instrument itself becomes a source of volatility (Brainard, 1967). In the international context, uncertainty about transmission effects itself becomes a (negative) cross-border spillover, since risk-averse policymakers dislike the resulting volatility. By increasing the magnitude of spillovers, such uncertainty raises the gains from international policy coordination (Box 4).

⁵ An alternative view is that there is a unique, constant, true transmission of country policies (but the problem is that this true model is unknown), in which case gains from coordination should be evaluated in terms of actual outcomes rather than ex-ante expected welfare. Frankel and Rockett (1988) argue that, depending on the distance between the true model and the one used to set policy, coordination could actually make things worse. Ghosh and Masson (1991), however, show that for coordination to be welfare deteriorating the model must be very wrong (its predictions about the effects of policy very different from outcomes)—but in that case, it will be easy for policymakers to learn that they have the wrong model and update their views accordingly.

To return to our example, suppose that policymakers in the two countries not only want to raise aggregate demand in the face of negative shocks, but they also want to stabilize output around its full employment level (while also being mindful of the inflationary or financial-stability risks from easing). Suppose further that there is broad consensus that cross-border transmission effects are indeed sufficiently small that they can be ignored. In that case, the coordinated and uncoordinated policies would be similar, and the gains from coordination too modest to be worthwhile. Now suppose that, while on average cross-border effects are expected to be small (due to offsetting effects on exchange rates, capital flows, and the demand for exports), there is a great deal of uncertainty about the effect of the policy—perhaps it is an unconventional instrument that could have a fairly large positive cross-border effect or it could have a large negative effect. In that case, the instrument is causing negative cross-border spillovers by increasing the volatility of output abroad; uncertainty itself is a negative spillover. Even though on average the transmission effect is expected to be small, coordination would involve more conservative use of the instrument—i.e., *less* expansionary monetary policy. Since in the uncoordinated equilibrium policymakers ignore cross-border spillovers, *including on foreign volatility*, the divergence between coordinated and uncoordinated policies may be substantial, and the coordination gains correspondingly large.

But what if there is not just uncertainty, but also *disagreement* between the policymakers of the two countries regarding the true model? Such disagreement does not in itself present particular problems: in designing the coordinated package of policies that maximizes joint welfare, each country's model is used in calculating its expected welfare.⁶

A problem arises, however, when one considers the bargaining needed to reach the coordinated outcome. As with any other form of trade, how the gains from coordination are split between the parties depends on their ability to negotiate the most favorable package from among the set of Pareto-improving policies. This gives rise to an incentive to misrepresent views about the effects of policies. A country that is creating negative spillovers will want to claim that they are small or even positive, while their recipient will want to exaggerate the negative impact. Since beliefs are unobservable, this incentive to misrepresent can pose a formidable obstacle to reaching a cooperative agreement. Indeed, it can be shown that, even though there would be positive gains from coordination under each of the models claimed by the two parties (or some average model), it may nevertheless be impossible to negotiate an agreement on the coordinated package of policies (Ghosh and Masson, 1994).

⁶ The global planner maximizes a geometrically weighted average of each country's gain from coordination: $v^G = (v^C - v^N)^\lambda (v^{C^*} - v^{N^*})^{(1-\lambda)}$; under model uncertainty, the global planner maximizes $v^G = (\sum \pi^i (v^C(y^i) - v^N(y^i)))^\lambda (\sum \pi^{*i} (v^{C^*}(y^{*i}) - v^{N^*}(y^{*i})))^{(1-\lambda)}$ where π^i (π^{*i}) are the home (foreign) country's priors over the models, and y^i (y^{*i}) the values of the policy targets implied by model i .

Box 4. Uncertainty and the Gains from Policy Coordination

It is often claimed that, regardless of any theoretical benefits from cooperation, uncertainty about the state of the economy or the impact of policies on the domestic or foreign economy (“multiplier” or “model” uncertainty) means that there will be few, if any, gains in practice. In fact, uncertainty can actually raise the welfare gains from coordination.

To see how uncertainty can increase the gains from coordination, it is simplest to start with a case where, in the absence of uncertainty, there would be no such gains; to wit, when policymakers in each country have one target, and one instrument to maximize expected welfare:

$$\text{Max} -\frac{1}{2}E(y_1)^2; y_1 = \alpha m + \beta m^* - \varepsilon \quad (1)$$

where ε is a random shock with mean $\bar{\varepsilon}$ and variance σ_ε^2 , and the policy multipliers are also uncertain, with means μ_α, μ_β and variances, $\sigma_\alpha^2, \sigma_\beta^2$. Policymakers here not only want to raise aggregate demand in the face of a negative shock, they also want to *stabilize* output around its full-employment level. The Nash and cooperative policies are:

$$m^N = m^{N*} = \mu_\alpha \bar{\varepsilon} / [\mu_\alpha (\mu_\alpha + \mu_\beta) + \sigma_\alpha^2]; m^C = m^{C*} = (\mu_\alpha + \mu_\beta) \bar{\varepsilon} / [(\mu_\alpha + \mu_\beta)^2 + \sigma_\alpha^2 + \sigma_\beta^2] \quad (2)$$

By inspection of (2), when there is no multiplier uncertainty, $\sigma_\alpha^2 = \sigma_\beta^2 = 0$, the cooperative and noncooperative policies coincide so there are no gains from cooperation. Conversely, starting from a situation in which there are no gains from coordination, multiplier uncertainty (either $\sigma_\alpha^2 > 0$ or $\sigma_\beta^2 > 0$) will itself give rise to gains from coordination (additive uncertainty ($\sigma_\varepsilon^2 > 0$) is irrelevant for the incentive to coordinate). A slightly different case is where there are gains from coordination even in the absence of uncertainty: does model uncertainty then further increase or decrease these gains? That depends on whether the uncertainty is about domestic (α) or transmission (β) multipliers: the former tends to reduce the gains from coordination, the latter to increase them (this is intuitive from (2): as $\sigma_\alpha^2 \Rightarrow \infty, m^C = m^N = 0$, so policies under both cooperation and non-cooperation become more conservative and thus converge, but as $\sigma_\beta^2 \Rightarrow \infty$, they diverge because policymakers in the noncooperative equilibrium ignore the uncertainty spillovers of their policies). Since cross-border transmission effects are usually more uncertain than domestic multipliers, model or multiplier uncertainty will tend to *strengthen* the case for coordination.

Moreover, even if it is possible to reach a cooperative agreement, uncertainty makes sustaining it more difficult. Although both parties benefit from coordination, the equilibrium is inherently fragile: each party has the incentive to renege and revert to the noncooperative policy setting provided the other party is abiding by the agreement. But since both parties have the same incentive to cheat, cooperation would break down immediately if there were no penalty for renegeing. In the absence of international sanctions, the only credible penalty is a refusal to coordinate again—at least for some period of time (the “punishment” period). In a repeated game, it may be possible to sustain the cooperative agreement provided policymakers have a sufficiently long horizon, do not discount the future too heavily, and either expect sufficient gains from coordination even in normal times or expect to face further shocks such that coordination would bring substantial benefit.

What triggers the reversion to noncooperation? Since policies are observable *ex post*, it would seem simple to verify whether countries had abided by their agreed commitments. In reality, however, policies must be set based on policymakers’ estimates of the current and future state of the economy—both of which are unobservable. For instance, in our monetary policy game, the policymaker in one country could appropriate more of the gains from coordination by claiming that the economy is headed into recession and that monetary easing has only a limited effect—thus justifying greater easing than truly necessary. To rule out such cheating, the expected cost of cheating (lower welfare during the punishment period times the probability of triggering punishment) must just balance the expected benefit (the national gain from deviating from the policy warranted by an unbiased forecast). The incentive mechanism must be designed so that, at the margin, the expected cost (due to the increase in probability of triggering the reversionary period) is greater than the benefit of “cheating” by negotiating on the basis of deliberately biased estimates (Box 5).

Even though in equilibrium neither party will cheat (by design of the trigger mechanism), there will be random shocks that nevertheless trigger the punishment period. What is the effect of uncertainty about the state of the economy or the effects of policies? Both make it more difficult to link observed macroeconomic outcomes to possible (and unobserved) biases in each country’s forecasts. Accordingly, to remain incentive compatible, the trigger must be made *tighter* when uncertainty rises (so that even small deviations from the expected outcome triggers the reversionary period). But a tighter trigger will mean that coordination breaks down more often—again, despite neither party having actually cheated. Uncertainty thus leads to coordination endogenously breaking down more often.

In reality, of course, trigger mechanisms cannot be calibrated so precisely as to eliminate the possibility of at least some cheating (each side “talking its book” when estimating spillovers); neither the trigger nor the punishment period is formalized or specified in advance; and policymakers contending with a major shock may discount the future heavily, and not really care whether a period of noncooperation follows. Given that there are always unexpected shocks hitting the world economy, outcomes will differ from expectations, and there will be suspicion that the other parties had not been fully forthright in their estimates of the state of

their economies or the effects of their policies. Anticipating this, countries may choose not to coordinate, especially if the group does not have much experience in working together and especially at times of heightened uncertainty—or, if they do coordinate, the agreement may break down very quickly.

The possibility of deliberate disagreements about the state of the economy or the nature of spillovers may thus provide a compelling explanation for the episodic and sporadic nature of international policy coordination that is typically observed. It is noteworthy, for example, that after the 1979 oil price shock derailed the policy coordination attempted in the London and Bonn summits, almost seven years passed before even the G-7—a close-knit group of politically allied nations that, in various configurations, had cooperated in the international economic arena since Bretton Woods—would again seek to coordinate their policies at the 1985 Plaza Accord. Such disagreement may also provide a powerful rationale for a neutral assessor to bridge different perspectives on transmissions, and to set guidelines for policies when spillovers impact parties that are not included in coordination exercises (e.g., smaller countries). These issues are taken up in Section V below.

V. TOWARD SOME GUIDEPOSTS FOR ENHANCING PROSPECTS FOR COOPERATION

The discussion so far has considered a number of obstacles to coordination, but has zeroed in on a few focal areas that seem to undercut the global economy's ability to reap the gains from coordination on a sustained basis. The first roadblock is simply that policymakers tend to focus excessively on a narrow set of objectives, often failing to recognize unexploited trade-offs that could be welfare-enhancing. The second obstacle arises because different players in the global economy perceive policy transmissions differently—the disagreements seem to be a fundamental obstacle to agreeing a set of coordinated policies. The third issue is that the number/identity of countries that may benefit from coordination of policies greatly exceeds actual or prospective participants in coordination agreements—agreements reached by the “few” are unlikely to internalize the spillovers to the “many” (and this for logical reasons, namely that the spillovers from the many are likely to be individually small).

The first issue arises because at particular moments certain targets seem especially pressing. This is natural: when unemployment is high, policymakers' efforts will be centered on closing the output gap; when the financial system is on the verge of collapse, the priority will be restoring stability. Yet policymakers must also be cognizant of the trade-offs they face over time. Yes, closing the output gap may be the priority, but too much stimulus may risk inflationary expectations becoming unanchored or, more insidiously, risk fuelling asset price bubbles that result in financial crisis down the road. A key element of the Fund's bilateral surveillance is to point out such trade-offs and to warn about consequences of policies that may be beyond policymakers' immediate horizon. Once such trade-offs are recognized, it may be possible to identify different combinations of the macro objectives (closing the output gap more slowly, but at lower risk of asset price bubbles) that are superior from the country's own perspective, and which may be essential for successful policy coordination.

Box 5. Uncertainty and the (Un)Sustainability of Cooperation

An inherent property of the coordinated equilibrium is that as long as one party sticks to the agreement, the other can do even better by reneging on it. In a static context, it may be impossible to sustain coordination without international sanctions. In a dynamic context, however, the “folk theorem” of repeated games suggests that the threat of not cooperating again in the future, or at least some period of time (“punishment period”), can sustain the coordinated equilibrium. Since welfare is lower without coordination, the punishment will be effective in sustaining a cooperative agreement provided the punishment period is long enough, and the parties do not discount the future too heavily.

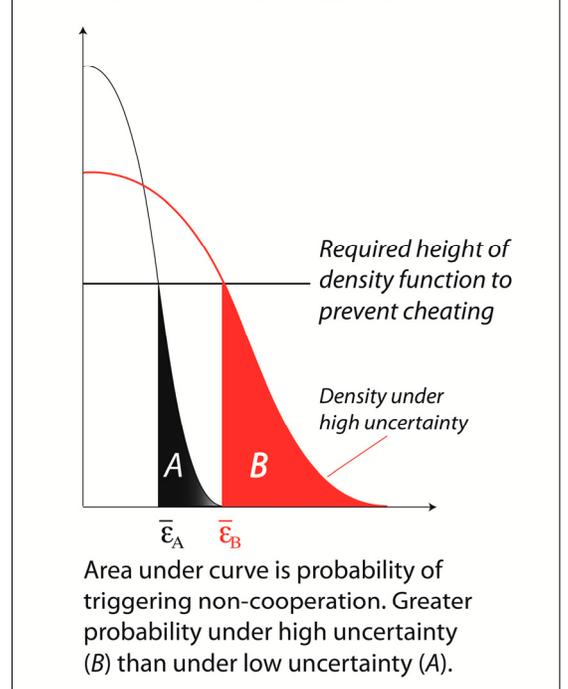
How does uncertainty complicate matters? While policies are generally observable, the information and forecasts on which they are based typically is not.

Therefore, the reversion must be triggered on the basis of macroeconomic outcomes being sufficiently different from what would have been expected had the parties designed policies on their truthful beliefs about the economy. Let z be the macro variable, \hat{z} its forecast, then the punishment is triggered if

$$\varepsilon = |z - \hat{z}| > \bar{\varepsilon}, \text{ where } \bar{\varepsilon} \text{ is the trigger level.}$$

Too tight a trigger, and the punishment is imposed too often; too loose a trigger, and there is scope for cheating. The trick is to calibrate the trigger such that, in weighing the costs and benefits, neither party has the incentive to cheat. In particular, the benefit of cheating needs to be weighed against the increased probability of “getting caught” (i.e., triggering the punishment period). For a given benefit of cheating and cost of being caught, there is a minimum *increase* in likelihood of triggering the punishment period that makes cheating not worthwhile. But the increase in the probability is simply the derivative of the distribution function—that is, the density of ε . Therefore, ensuring incentive compatibility amounts to setting the trigger to achieve a certain minimum height of the density function. With such a trigger, in equilibrium, neither party will cheat. Nevertheless *there will be random realizations of ε such that the punishment period is triggered and cooperation breaks down even though neither party cheated.* The probability of this is given by the area marked *A*. Uncertainty about the effects of policies is equivalent to a larger variance of ε —a flattening of the density function and a larger area under the curve (*B*). Hence, greater uncertainty about the effects of policies leads to a higher likelihood that cooperation will break down. An assessor that provides unbiased assessments about the state of the economy and the effects of policies may reduce this uncertainty, allowing for a less stringent trigger, and therefore fewer instances in which cooperation breaks down due to random shocks.

Uncertainty and Probability of Triggering Non-Cooperation



On the second issue, there seems little doubt that policy spillovers are large, have grown larger as real and financial integration has progressed, and are particularly meaningful during turbulent periods when economic variables are considerably off their desired paths. Yet, it is

also amply clear that different players in the global economy perceive differently the spillovers/transmissions from actual/prospective policies—the divergent perspectives on unconventional monetary policies (both on the way in and more recently on the way out) and on policies to accelerate internal and external rebalancing in the major surplus/deficit countries are prime examples. The spillovers are multidimensional—output transmission, as well as transmissions through financial flows and prices: model uncertainty, as discussed above, gives ample scope for disagreement on the size and even the sign of spillovers. These disagreements seem highly relevant in understanding the episodic nature of coordination.

The third issue is no less salient. Because most countries do not participate in coordination exercises, such exercises will not converge to a global optimum but, rather, in the most positive case, to an optimum that internalizes spillovers among only a subset of countries. The excluded countries individually do not have sufficient mass in goods or financial markets to make a difference to the big players (they cannot offer interesting policy trades to the big countries) even though collectively they constitute a significant part of the global economy. The small countries, moreover, may not see eye to eye on the nature of spillovers: one subgroup might prefer more use of the policy instrument, another subgroup less, and a global planner might not be able to find a Pareto-improving set of policies. The result is either that coordinated policies are some way from the global optimum (they are at an optimum for the big players alone); or that coordination just doesn't occur because average spillovers are small even though bilateral spillovers may be large, if only in one direction.

What steps are desirable to overcome these problems? Our main suggestion as far as the first two issues are concerned focuses on the role of a neutral third party “assessor,” whose purpose would be to scrutinize country assessments of inward and outward spillovers, and assess alternative policy packages or trades that would be acceptable to principals while increasing global welfare. To the degree that there are inherent biases in countries' perspectives, there would be scope for an assessor to bridge differences across countries on the basis of a model that is more objective than those invoked by particular countries.⁷ The assessor would not necessarily propose policy packages: it would assess policy spillovers, identify tradeoffs, and subject its assessments to the scrutiny of all parties. It would use the results of bilateral surveillance—and the policy tradeoffs identified in such surveillance—to highlight the merits of alternative policy packages at the national level, and assess the extent to which mutually beneficial policy trades exist.

Neutrality and credibility of the assessor is not an absolute, but is something that should be considered relative to the biases inherent in individual country perspectives: the assessor may not be perfectly neutral but may be useful in raising global efficiency if it is more neutral than

⁷ The idea of establishing a neutral party that would undertake unbiased analysis is not new: on a more modest scale, the Working Group on Exchange Market Intervention (Jurgensen Report) was commissioned at the 1982 Versailles Economic Summit to examine the effectiveness of sterilized intervention. The notion was that such a working group would provide a more objective take on the issue than would any of the principals in the debate.

any of the individual participants. Credibility, however, is likely to be undercut when the assessments of the assessor themselves give rise to suspicion of bias. This could occur if there were a systematic tendency of the assessor to identify a change in policy (tighter fiscal policy; looser monetary policy; structural reforms) as always yielding welfare gains at *both* the national and global levels. This would breed suspicion because the base case should be that countries do not fail to exploit available welfare gains and that, to the degree that policy settings are found wanting, some constraint faced by the policymaker (and not recognized by the assessor) may be responsible. Of course, national policymakers can fail to maximize the welfare of their citizens, and the assessor should not shy away from calling out suboptimal policy choices in such cases (ruthless truth telling in the parlance of IMF surveillance). But it is implausible that welfare gains at the national and global levels should *always* be positively correlated: the essence of coordination is that there are tradeoffs, and that policy changes may carry a cost that can be offset by policy changes elsewhere. The assessor would be expected to identify situations where a quid pro quo is needed to offset the effect of a domestic policy change that is globally desirable but domestically costly.

A reply to this proposal could be that an assessor has existed in many of the recent attempts at international policy coordination. So what would be different under our proposal? One interpretation is that, indeed, not much in fact is different, that the international community has already been able to avail itself of the services of an assessor, and that this proves that coordination simply cannot work in quiet times, simply because the gains are too small to offset the costs. We cannot rule out this possibility, though as mentioned the gains certainly seem to be real given the weight of the empirical evidence, and not out of line with gains from multilateral trade liberalization which have been actively pursued over the decades.

Our preferred interpretation, however, is that the assessor role has not been performed in the best possible way in the past, and that improvements are possible. Two examples seem relevant. First is the tendency for the assessor to confound policy changes to reach the global optimum with those needed to reach the Nash. Why might this be a problem? If countries do not accept that they are significantly off their Nash but do accept that there is a global problem amenable to correction, they may not really accept the analysis of the assessor. One interpretation of the recent history is that countries (say, the participants of the Multilateral Consultation; see Box 6) accepted that there was a global problem (risky global imbalances) but that the source of the problem lay on someone else's doorstep. By always concluding that policy changes are desirable both to move toward the Nash and the global optimum, the assessor may have undercut rather than enhanced the prospect of achieving the coordinated outcome. The presumption of the assessor may have been that no country will listen if policy changes are identified as being contrary to the national interest. Since the interest of the assessor was to promote coordination, it would be tempting to sell policy changes as being unilaterally in the countries' own interests. This misses the point of course, since typically, policy changes to reach the coordinated outcome *will* be contrary to a single nation's interest (in the absence of a foreign quid pro quo), which is why coordination needs to identify the set of policy *trades* that can move the global economy to the coordinated equilibrium.

A second possible issue with the assessor role in the past is a failure to recognize the pros and cons of policy actions in a consistent way. An example might be the evaluation of monetary policies after the global financial crisis. It is important that the evaluation of such policies consistently include the impact on growth, external and financial stability. Our sense however is that, in order to keep the messaging simple, assessments have at times dwelt excessively on only one aspect (growth), without acknowledging that there were actual or latent risks for external and financial stability in other countries (or indeed in the country undertaking the policy). While the balance across risks changes over time, assessments need to acknowledge the many facets of spillovers at all times. The assessor may, in essence, have suffered from the same kind of myopia as potential participants in coordination exercises—failing to comprehensively assess the multidimensional aspects of policies at all points in time (and thus appearing to be biased to one or other of the participants as the balance of risks shift)—see Box 6.

With respect to the third issue, we do not see any practical way to expand the scope of coordination agreements by including more participants—indeed, if anything, heterogeneity of present larger groupings (like the G-20) probably hampers their effectiveness relative to the smaller groupings of earlier decades. Our proposed solution is instead a substitute for coordination—namely, that the international community agrees to abide by a set of guideposts for each country; see, in this connection, Ostry and others (2012). The purpose would be to limit the most potentially harmful outward spillovers in two key areas: trade flows and financial flows. It is important to realize that limiting harmful outward spillovers of policies will sometimes be costly domestically. For example, it may be in the national interest of one country to lend in its currency to unhedged borrowers in another country; curtailing such lending may reduce the profitability of domestic banks and economic growth even as it reduces financial-stability risks in the recipient country. Likewise, a policy of undervaluation may spur domestic growth and may even be justified if there are production externalities at home; but the policy may nevertheless force undesirable external adjustments in other countries, and curtailing the policy may be costly for the home country. Indeed, there will be situations in which correcting policies that violate the guideposts will involve a cost to the violator (in much the same way that moving to the global optimum may take you away from the domestic Nash position, recognizing the full gamut of domestic constraints).⁸

It is important that any such guideposts not be so stringent that they stand no chance of being adopted. We therefore stick to areas that are already fundamentals of IMF surveillance—

⁸ The Integrated Surveillance Decision envisages that countries will choose among policies that leave it as well off those that have smaller adverse spillovers. Occasionally, however, it may not be possible to achieve a Pareto improvement in the process of mitigating spillovers; the proposals here build upon the ideas underlying the Integrated Surveillance Decision.

Box 6. International Policy Coordination in Historical Perspective

There have been several attempts at international monetary coordination in modern times, dating back to at least the interwar conferences in Brussels in 1920, and in Genoa in 1922. Bretton Woods sought to go beyond episodic cooperation by codifying certain “rules of the road” that would limit the scope for beggar-thy-neighbor policies. During the stagflationary period that followed the first oil price shock, the major industrialized countries tried to coordinate efforts to jump start the world economy during the 1977/78 London and Bonn Summits. The 1985 Plaza Agreement and 1987 Louvre Accord were focused on coordinated foreign exchange intervention. The G-7 central banks coordinated interest rate cuts and liquidity provision after the stock market crash in October 1987 (and the G-20 coordinated fiscal expansion in the aftermath of the global financial crisis).

Two recent episodes illustrate the difficulties of successful international policy coordination. The first is the multilateral consultation on global imbalances, which was established in the mid-2000s as a tool of multilateral surveillance to address the issue of resolving global imbalances while maintaining robust global growth. The aim of the multilateral consultation as to facilitate action-oriented debate and, ultimately, policy actions by participants that would make a contribution to reducing imbalances. While the consultations did identify policy packages to be adopted by each participant, it is fair to say that implementation of the packages fell short of the intentions. One reason may have been that the process, which did not come from the participants themselves, lacked ownership. Rather than being perceived as an opportunity for joint action to result in better outcomes for all, the exercise became more a “blame game” in which each participant preferred to blame others as responsible for global imbalances. Moreover, even though participants recognized the potential risks from ever-growing imbalances in the abstract, they were not seized by the urgency for action. As a result, policies were not materially altered and, in the event, the Great Recession that followed the multilateral consultation reduced the urgency of dealing with global imbalances.

The second episode follows the eruption of the global financial crisis, when the G-20 asked the IMF to undertake a mutual assessment of policies (MAP), under which members would have their policy frameworks scrutinized by fellow members, with the IMF acting as a secretariat. While it is too soon to make a definitive assessment, evidence to date does not suggest that any of the large countries have made significant adjustments to their economic policies in response to peer pressure under the MAP (Faruqee and Srinivasan, 2012). Incentives for collective action, moreover, seem to be waning now given the distance from the darkest days of the crisis, as well as political-economy factors specific to each country/region and the multi-speed global recovery. Certainly, the increasing focus of the MAP on structural reforms—rather than macro policies—reflects a desire to move away from areas that face stronger political resistance and where monitoring by G-20 peers is likely to reflect a lighter touch. While the MAP (as the initiative of the G-20) is likely to be better owned than the multilateral consultation, the absence of an effective broker in the MAP that could help countries to identify mutually beneficial policy trades on the basis of a shared model seems to have been an important element contributing to the failure of this exercise to live up to its potential.

though we recognize existing norms do not constitute international obligations. Clearly, broad acceptance would depend on making progress with existing toolkits for assessing spillovers and the effects of alternative policies in mitigating adverse spillovers.

The first guidepost would seek to prevent currency misalignments—the notion being that policy agendas need to add up to a multilaterally consistent whole with multilaterally desirable external balances and exchange rates. How might this work in practice? One possibility is that Fund surveillance tools—including the External Balance Assessment /External Stability Report—could be used to identify exchange rates and external balances that are consistent with fundamentals and appropriate policy settings. Countries would be urged to address deviations and the policies (monetary policy; foreign exchange market intervention policy; fiscal policy; structural reforms that affect the composition of demand between tradables and nontradables) that might be contributing to deviations would be identified. The international community would back the call for reductions in the most salient policy distortions. We recognize that the devil as always is in the details, but such an approach would effectively put the weight of the international community behind the assessment of Fund staff. It would also build on the current practice of bilateral and multilateral surveillance.

The second guidepost is the mirror of the first, centering on financial flows instead of trade. The guidepost would shine a light on exporting financial-stability risks across borders and the policies that might be contributing to such outward spillovers. Loose monetary policy or lax prudential regulation might be having a salient effect on lending booms and financial stability risks abroad. While divergence of policies from appropriate settings are less clear than in the case of trade and currency values, gauging the financial-stability risks (domestic and cross-border) is a key focal point of IMF surveillance. Tools could and should be developed that build on existing analytical/empirical work assessing the risk of credit/asset bubbles/booms/cycles, how healthy and risky they are, and the contribution of cross-border flows to such cycles. Countries should always of course take steps to prevent crises at home through appropriate prudential/regulatory/capital account management policies; the point here is to create some reciprocal considerations for the source country. Such reciprocity is desirable given the convexity of policy costs (operating at both ends of the transaction is likely to be more efficient than confining oneself to one end only, as Keynes recognized long ago, given that the welfare costs of taxes/regulation increase at an increasing rate). In the capital flows context, source countries might be expected to take measures to raise the cost, and thereby reduce the quantity, of risky carry trade lending, just as recipient countries would be expected to adopt prudential policies and in some circumstances capital inflow controls to reduce the risk of harmful boom-bust cycles.

VI. CONCLUSION

As the global financial crisis unfolded, countries at its epicenter embarked upon a period of unprecedented policy activism, in turn generating cross-border spillovers for output, external balances, capital flows, currency values, and asset prices. As these measures are withdrawn,

and other policies are adopted for the recovery phase, equally widespread spillovers are to be expected. The recent and forthcoming periods are therefore ripe for exploiting the potential benefits from international policy coordination.

This paper has argued that we see less coordination in practice than seems to be optimal in theory for three main reasons. First, policymakers seldom think in terms of trade-offs across their objectives. Rather, they tend to fixate on specific objectives without recognizing the longer-term implications of their policies. Identifying such trade-offs, and different combinations of objectives that are welfare enhancing, is essential to successful coordination. Second, countries do not agree about the nature and size of spillovers and how alternative policy packages could deliver a more favorable set of spillovers and provide a credible basis for trading macroeconomic policies. Third, the global economy is highly asymmetric: winners from coordination may be small and diffuse, and it thus may be very difficult in practice to arrange the policy trades that could form the basis of a cooperative strategy.

To strengthen the odds of successful coordination in the future, we make two suggestions. The first is for the international community to focus on the role that a neutral assessor can play in helping to bridge the divergent views of national policymakers—with the key requirement that the assessor be perceived as impartial in its assessment. The assessor would not necessarily propose policies but would present analyses of alternative policy strategies and the resulting tradeoffs to enable individual countries or groups of countries to judge reasonable *quid pro quos* that are the essence of coordination. Given that coordination is not about “making concessions” as is commonly assumed, but rather about mutually beneficial trades, the assessor would highlight policy packages that would make each party better off. As such, coordination would not require changes in domestic mandates but simply recognition that alternative policy packages could better achieve those domestic mandates.

Will this suffice to induce major countries to coordinate policies? In normal times, when economies are on balanced growth paths and policies can largely be on autopilot, the additional benefits from coordination may be too small to overcome the practical and political hurdles. In crisis times, coordination seems to emerge almost spontaneously. But it is times such as now, clearly neither in crisis nor in normalcy, that there may be worthwhile gains from coordination that are not being realized because of the various obstacles discussed in this paper. It is in such instances that we believe a neutral assessor can play a useful role, tipping countries toward greater cooperation.

Our second proposal is intended both to buttress international coordination and to provide safeguards when it proves impossible to achieve coordination given asymmetries in the global economy. This proposal consists of guideposts that should limit the negative spillovers through the current and capital accounts. The first guidepost seeks to limit policies that give rise to misaligned currency values or external balances; the second seeks to limit policies that give rise to cross-border instability in financial flows and, where necessary, remedial actions

by both source and recipient countries. The logic of such rules is clear: the specifics, would, however, be for the international community to decide.

Both our proposals—for a neutral assessor and for guideposts for conduct in the international monetary system—build upon existing processes. An essential goal of the bilateral and multilateral surveillance undertaken by the Fund is objective analysis and ruthless truth-telling, precisely to overcome the biases that are likely to be inherent in country perspectives of the domestic and cross-border effects of national policies. The Integrated Surveillance Decision, recently adopted by the membership, suggests that countries consider policies that engender less adverse outward spillovers while still achieving their domestic objectives; our proposed guideposts would press countries to abjure policies with large negative cross-border spillovers (through trade or financial flows) even if there were some domestic cost.

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