Rethinking Central Banking

Committee on International Economic Policy and Reform

SEPTEMBER 2011

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Preface

The Committee on International Economic and Policy Reform is a non-partisan, independent group of experts, comprised of academics and former government and central bank officials. Its objective is to analyze global monetary and financial problems, offer systematic analysis, and advance reform ideas. The Committee attempts to identify areas in which the global economic architecture should be strengthened and recommend solutions intended to reconcile national interests with broader global interests. Through its reports, it seeks to foster public understanding of key issues in global economic management and economic governance. Each Committee report will focus on a specific topic which will emphasize longer-term rather than conjunctural policy issues.

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Executive Summary

This report lays out a framework for rethinking central banking in light of lessons learned in the lead-up to and aftermath of the global financial crisis.

By the early 2000s, a growing number of central banks, in advanced countries and emerging markets alike, had converged on a policy framework, flexible inflation targeting, which seemed capable of achieving price stability and delivering macroeconomic stability at the national and international levels. This framework had many practical achievements, including bringing price stability to many emerging markets. Now, however, there is growing recognition that the conventional approach to central banking needs to be rethought. The relationship between price stability and the broader goals of macroeconomic and financial stability clearly needs to be redefined. Moreover, the evolution of monetary and exchange rate regimes has resulted in incompatibilities among the policies of some key countries. Central banks are also being pulled into new roles by the post-crisis environment, which features high levels of public and private debt in advanced economies and concerns about capital inflows and currency appreciation in emerging markets. While some aspects of these roles are not new, they are risky, as central bank actions can inflict collateral damage on domestic financial systems and have the potential of raising new domestic and international tensions.

The report analyzes these issues from academic and practical policy-oriented perspectives. Drawing on this analysis, it recommends changes to the dominant framework guiding central banking practice.

The first recommendation is that central banks should go beyond their traditional emphasis on low inflation to adopt an explicit goal of financial stability. Macroprudential tools should be used alongside monetary policy in pursuit of that objective. Mechanisms should also be developed to encourage large-country central banks to internalize the spillover effects of their policies. Specifically, we call for the creation of an International Monetary Policy Committee composed of representatives of major central banks that will report regularly to world leaders on the aggregate consequences of individual central bank policies.

There is substantial pressure on central banks to acknowledge the importance of still other issues, such as the high costs of public debt management and the level of the exchange rate. Central banks are more likely to safeguard their independence and credibility by acknowledging and explicitly addressing the tensions between inflation targeting and competing objectives than by denying such linkages and proceeding with business as usual. Central banks should make clear that monetary policy is only one part of the policy response and cannot be effective unless other policies—fiscal and structural policies, financial sector regulation—work in tandem.

CHAPTER 1

Introduction

The Golden Age of Inflation Targeting

High inflation in the advanced economies in the 1970s and in emerging economies in the 1980s and 1990s was instrumental in shaping modern thinking about the practice of central banking. The tenets of the resulting framework are familiar and, to a large extent, uncontroversial. First, there is no permanent tradeoff between inflation and unemployment—a sustained higher level of inflation does not lead to higher growth and a sustained lower level of unemployment. Second, high and volatile inflation depresses growth and distorts the allocation of resources. Third, inflation disproportionately harms the poorest segments of society, which lack instruments for protecting themselves from its disruptive effects. For all of these reasons, price stability is the cornerstone of monetary policy.

The actions needed to achieve price stability, such as the maintenance of high interest rates, can be politically unpopular, among other reasons because they slow growth. It follows that the pursuit of price stability can be made more credible and thus more effective by granting independence or at least operational autonomy to the central bank. Otherwise, central banks may be subject to political pressure to attach greater weight to other objectives, making it harder for them to contain inflationary expectations and deliver desirable outcomes.

By the early 2000s, a growing number of central banks, in advanced countries and emerging markets alike, had converged on a policy framework, *flexible inflation targeting,* that seemed capable of achieving these desiderata and delivering macroeconomic stability at the national and international levels. In the conventional view, there are four explanations for this happy outcome:

- Flexible inflation targeting, under which the central bank aims to stabilize inflation around its target but also minimize the output gap, delivers low inflation at the national level, thereby avoiding the need for large nominal exchange-rate adjustments and the kind of overshooting that characterized the 1980s.[1]

- Flexible inflation targeting, by allowing for exchange rate variability, facilitates international adjustment. Countries experiencing demand shocks can cushion them

[1] Although neither the Fed nor the ECB had formally endorsed inflation targeting (IT), both were aiming at price stability, which made their policies similar to those of the central banks on a strict IT regime.

through interest-rate changes and associated movements in exchange rates.

- Flexible inflation targeting makes reserve accumulation unnecessary, since exchange-rate intervention is rare and limited to short-term responses to market disruptions and to a signaling role in cases of serious misalignments.

- The combined policy stance of the countries following this strategy is supposed to ensure an appropriate level of aggregate demand at the global level.

The generalization of inflation targeting *cum* floating exchange rates could thus be regarded as the triumph of the "own house in order" doctrine in the international monetary field. National macroeconomic stability was seen as sufficient for international macroeconomic stability. The domestic and international aspects were essentially regarded as two sides of the same coin.[2]

An added benefit of flexible inflation targeting, according to the emerging orthodoxy, was that it allowed the objectives of price stability and financial stability to be pursued through separate tools —monetary policy for the former and micro-prudential regulatory and supervisory measures for the latter. Tinbergen's separation principle, i.e. the idea that each goal should be pursued with a separate and dedicated instrument, was widely invoked in this context.

In this orthodox view, monetary policy focuses on controlling inflation and works by managing expectations of future policy rates, which by the expectations theory of the yield curve determine the long-term interest rates that influence aggregate demand. Financial stability is attained by microprudential regulation of bank capital that counteracts the moral hazard generated by deposit insurance, together with periodic supervisory assessments and the necessary strictures meant to prevent excessive risk taking and malfeasance. Regardless of whether the microprudential regulator is situated in the central bank or a separate specialized regulatory agency, financial regulation is seen as a separate activity.

Central bankers nowadays often observe that flexible inflation targeting was never as straightforward as this framework suggests and that issues of financial stability and spillovers were always on their minds. Still, it remains accurate to say that the basic theoretical framework sketched above did much to shape their thinking. Its clarity and simplicity enabled it to gain adherents in academia and financial markets as well as in central banks.

Rethinking the Framework

Some of the practical achievements of the flexible inflation targeting framework are indisputable. The adoption of price stability objectives by countries at different levels of economic development was a major step forward after decades of domestically-generated instability. This framework can be credited, at least in part, for the drop in global inflation and the abatement of exchange-rate controversies among the advanced economies.[3]

Now, however, there is growing recognition that the conventional approach to central banking needs to be rethought. Critics reach this conclusion for several related reasons:

- The conventional approach fails to account adequately for financial-sector risk and is therefore too narrowly focused.

- The conventional framework assumes limited or nonexistent cross-border spillovers

[2] Looking ahead, some even regarded this regime as the solution to perennial international monetary controversies (Rose, 2007).
[3] To what extent IT can be credited for the disinflation of the 1990s and the early 2000s is a matter for discussion. Another important factor was the disinflationary pressure coming from the emerging countries' exports. We return to the issue below.

of monetary policies, while in fact spillovers are frequently of first-order importance. They can complicate monetary policy management, accentuate the volatility of real activity and increase financial-sector risk.

- The incompatibility of national monetary policies in the face of spillovers is heightened when countries follow different de facto monetary policy regimes (e.g., inflation targeting and exchange rate targeting).[4]

- Spillovers may be further accentuated when central banks pursue unconventional monetary interventions (e.g., when interest rates are at their floor and constrained by the zero bound). Because of weak domestic demand, as well as distressed banks that are unwilling to lend, the portfolio adjustments prompted by unconventional policies may largely serve to increase capital flows to countries with stronger growth prospects rather than boosting domestic credit as intended.

- High levels of government debt in advanced countries and the slowing growth of traditional export markets for developing countries create new sources of political pressure that central banks will find difficult to ignore.

In this report, we start by considering the validity of these criticisms. We then go on to ask how central banking theory and practice need to be updated in light of this shift in thinking. The report consists of four chapters (after this one) followed by our recommendations.

In Chapter 2, we describe how the global financial crisis has recast the debate over central banking. We focus on the relationship between the traditional emphasis on price stability and the broader goals of macroeconomic and financial stability. We discuss why the traditional separation, in which monetary policy targets price stability and regulatory policies target financial stability, and the two sets of policies operate largely independently of each other, is no longer tenable.

If central banks do in fact embrace the goal of financial stability in addition to price stability, monetary policy-making and policy communication will become more challenging. We therefore consider the practical issues that arise when the central bank is forced to juggle multiple mandates.

We then turn in Chapter 3 to a criticism of the conventional policy framework: it assumes not just that central banks practice flexible inflation targeting but also that they allow the exchange rate to float freely. Under these assumptions, each central bank has the independence necessary to target price stability and full employment.

The problem is that policy independence in theory may exceed policy independence in practice. In other words, the conventional framework fails to take into account that national policies can have powerful cross-border repercussions that the affected partner may not be able to adequately offset with exchange rate movements. In part this is because the existing system is not, in fact, one of fully flexible exchange rates. In practice, some countries effectively target exchange rates (China's tight management of its currency's value relative to the US dollar being a prominent case in point). In part it is because international transmission occurs even under flexible exchange rates, through both trade channels and capital flows. The consequences include the prospective re-emergence of global imbalances as well as the proliferation of trade and capital controls when countries seek further insulation from cross-border spillovers.

[4] Though the choice of regime itself may partly be a reaction to spillovers.

To analyze these issues, in this chapter we provide a global perspective on the evolution of monetary policy and exchange rate regimes. We examine the problems that arise out of the incompatibility of national regimes with similar domestic objectives. We then discuss the challenges that arise in reconciling domestic monetary policies with global macroeconomic stability.

In Chapter 4, we describe how central banks are being pulled into new roles by the post-crisis environment and by the unavailability of alternative, potentially more suitable instruments.While some aspects of these roles are not new, they nonetheless move central banks into risky territory insofar as central bank actions can inflict collateral damage on domestic financial systems and have the potential of raising new domestic and international tensions. We highlight two sets of issues: (a) the consequences of high levels of public and private debt in the advanced economies and the attendant pressures towards financial repression; and (b) the perceived dangers of currency misalignments and overvaluation, and the attendant pressures towards currency intervention and capital controls.

In Chapter 5, we draw on the analysis in previous chapters to recommend changes in the dominant framework guiding central banking practice. In the framework we propose, central banks should go beyond their traditional emphasis on low inflation to adopt an explicit goal of financial stability. Macroprudential tools should be used alongside monetary policy in pursuit of that objective. Mechanisms should also be developed to encourage large-country central banks to internalize the spillover effects of their policies. Specifically, we call for the creation of an *International Monetary Policy Committee* composed of representatives of major central banks that will report regularly to world leaders on the aggregate consequences of individual central bank policies.

While this report suggests more responsibilities for central banks, we also recognize the environment is one where there is substantial pressure on central banks to acknowledge the importance of still other issues, such as the high costs of public debt management and the level of the exchange rate. While these pressures, if internalized, can make central bank objectives hopelessly diffuse, they are not reasons to postpone rethinking the overall policy framework. To the contrary, a framework that is seen as deficient will become an easier political target.

For all these reasons, we believe it is time to rethink the existing paradigm. The rest of the report lays out what this rethinking should entail.

CHAPTER 2

The Scope of Monetary Policy

In this chapter we describe how the global financial crisis has recast the debate over the scope of central banking functions. We focus on the relationship between the traditional narrow goal of monetary policy—price stability—and the broader goals of macroeconomic and financial stability. We explain why the traditional separation, in which monetary policy targets price stability and regulatory policies target financial stability and the two sets of policies operate independently of each other, is no longer tenable. We then review some practical issues that arise in connection with attempts to coordinate the two sets of policies.

Central Banks and Financial Stability

The global financial crisis shook confidence in microprudential tools of regulation as the primary instrument for ensuring financial stability. Yet many central bankers still subscribe to the traditional dichotomy between monetary policy and financial stability, except that *microprudential* tools have given way to an embrace of *macroprudential* tools of financial regulation (countercyclical capital adequacy requirements, for example). These tools or policies, which mitigate risks to the financial system as a whole rather than solely at the level of the individual institution, are to be developed and implemented by specialists in financial stability, not by central bankers responsible for the conduct of monetary policy.

The case for this separation rests on the belief that interest rates are too blunt an instrument for the effective pursuit of financial stability. The question is commonly framed as whether the central bank should raise interest rates in response to asset bubbles. In the 1990s and early 2000s, central bankers discussed at length whether and how to respond to asset market developments.[5] The conclusion of that debate was that central banks had a mandate to react to bursting bubbles but not to target asset prices. Not everyone, however, shared this conclusion. The 'lean vs. clean' debate remained active in the run-up to the crisis.[6]

[5] The early debate was framed by the stock market boom of the late 1990s. Arguments in favor of "leaning against the wind" when it comes to financial developments have been given by Blanchard (2000), Bordo and Jeanne (2002), Borio and Lowe (2002), Borio and White (2003), Cecchetti, Genberg, Lipsky and Wadhwani (2000), Crockett (2003), Dudley (2006) and Goodhart (2000) among others. The argument against is given in Bean (2003), Bernanke and Gertler (1999, 2001), Bernanke (2002), Greenspan (2002), Kohn (2005), Mishkin (2008) and Stark (2008).

[6] A policy school, primarily associated with economists from the Bank for International Settlements and the Bank of Japan, was critical of narrow inflation targeting and maintained that central banks could not forgo their responsibility for financial stability. Bank of Japan economists regretted having allowed the bubble to become too large in the second half of the 1980s. The European Central Bank never fully endorsed the standard formulation of inflation targeting and argued that the growth of monetary aggregates and credit developments were also important indicators of potential risks to price stability over a longer-term horizon.

The case against attempting to prick bubbles rests on the following arguments.

- Identifying bubbles is hard.

- Even if there is a bubble, monetary policy is not the best tool with which to address it. An asset price bubble will not respond to small changes in interest rates; only a sharp increase will suffice to prick a bubble. However, a drastic increase in interest rates can cause more harm than good by depressing output growth and increasing output volatility.

The claim that an asset price bubble will not respond to a small change in interest rates has been made in the context of stock market bubbles, where the proposition is most plausible. When the stock market is rising by 20 percent a year, a small increase in interest rates will not outweigh the effects of rapid asset price increases.

However, the stock market may not be the best context in which to discuss the financial stability role of monetary policy. The housing market, with its more prominent role for leverage and credit, and markets in the derivative securities associated with housing investment may be more pertinent. Monetary policy stands at the heart of the leverage decisions of banks and other financial intermediaries involved in lending for housing-related investments. In this setting, even small changes in funding costs may have an impact on risk-taking and funding conditions. Financial intermediaries, after all, borrow in order to lend. The spread between borrowing and lending rates is therefore a key determinant of the use of leverage and has important implications for the interaction between banking sector loan growth, risk premia, and any ongoing housing boom.[7]

Focusing on risk taking by banks and other financial intermediaries will lead the policy maker to ask additional questions about risks to the stability of economic activity. Rather than waiting for incontrovertible proof of a bubble in housing markets, for example, a policy maker could instead ask whether benign funding conditions could reverse abruptly with adverse consequences for the economy. Even if policy makers are convinced that higher housing prices are broadly justified by secular trends in population, household size, and living standards, policy intervention would still be justified if the policy maker also believed that, if left unchecked, current loose monetary conditions significantly raise the risk of an abrupt reversal in housing prices and of financing conditions, with adverse consequences for the financial system and the economy.

Not responding in this way has led to a dangerously asymmetric response to credit market developments. Central banks have allowed credit growth to run free, fueling booms, and then flooded markets with liquidity after the crash, bailing out financial institutions and bondholders. This asymmetry has contributed to stretched balance sheets, with faster lending growth and leverage in times of low risk premia, more violent deleveraging when risk premia rise, and frequent booms and busts.

For all these reasons, there is a case for central banks to guard against credit market excesses. An inflation-targeting central bank may argue that it does so automatically insofar as higher asset prices boost aggregate demand through wealth effects and create inflationary pressures. However, some additional leaning against credit market developments would be advisable even in the absence of aggregate demand effects once it is determined that funding conditions and reduced risk premia indicate a nascent credit boom. Put differently, inflation-targeting central banks may want to stray below target when conditions are "boom-like"–when rapid asset price growth is accompanied by substantial credit expansion—since policy would otherwise become asymmetric and execerbate macroeconomic volatility.

[7] See Adrian and Shin (2011) for a discussion of these linkages.

Retiring the Separation Principle

A consequence of this doctrine of "leaning against the wind" is that the neat Tinbergen assignment of different tools to different objectives becomes more difficult to implement in practice. Interest rates affect financial stability and, hence, real activity. Equally, macroprudential tools impact credit growth and external imbalances with consequences for macroeconomic and price stability. When consumer credit is growing rapidly and the household debt ratio is high, for example, restraining credit growth by changing guidance on loan-to-value (LTV) or debt service-to-income (DTI) ratios over the business cycle will have important macro-stabilization effects.

Rather than viewing the allocation problem as having a corner solution where one instrument is devoted entirely to one objective, the macro-stabilization exercise must be viewed as a joint optimization problem where monetary and regulatory policies are used in concert in pursuit of both objectives.

Believers in a strict interpretation of Tinbergen separation will fret that blurring the assignment of instruments to targets will jeopardize the central bank's operational autonomy, the central bank's mandate will become fuzzier, and its actions will become more difficult to justify.

These are valid concerns. Central bankers will experience more political pressure than if monetary policy were primarily targeted at price stability. Here, however, it is important to remember that central bank independence is a means to an end rather than an end in itself. Limiting the scope of monetary policy purely for the sake of defending central bank independence risks undermining the institution's legitimacy by giving the impression that the central bank is out of touch and that it is pursuing a narrow and esoteric activity that does not square with its democratic responsibilities.

Ultimately, political reality will thrust responsibility for financial stability on the central bank. As happened in the UK following the failure of Northern Rock, the central bank will be blamed for financial problems whether or not it was formally responsible for supervision and regulation. As lender of last resort, it will be charged with cleaning up the mess. It follows that it would be better off devoting more of its resources and attention to attempting to prevent the crisis, the elegance and analytical appeal of the Tinbergen principle notwithstanding.

Macroprudential Policy Tools

Macroprudential tools are designed to buttress the stability of the financial system as a whole, which is distinct from ensuring the stability of individual institutions. These tools are intended to help mitigate externalities and spillovers at the level of the system as a whole. For example, interlocking claims and obligations create externalities if the failure of one higly leveraged institution threatens the solvency of other institutions and the stability of the entire financial system. Fire sales of assets may magnify an initial shock and lead to vicious circles of falling assets prices and the need to deleverage and sell off assets. Externalities also arise over the course of the cycle if the structure of capital regulation allows an increase in leverage in financial booms while dampening it in busts.

It is useful to distinguish between different macroprudential tools that address these different aspects of financial risk. In particular, different tools should be used address the time- and cross-sectional dimensions of risk.

The Time Dimension in Macroprudential Supervision

In terms of the time dimension, the macroprudential supervisor should develop a range of tools capable of tempering financial procyclicality. Countercyclical capital buffers, as recommended by the Basel Committee, are a case in point, although they are confined to the banking system. A supplement would be to impose a systemic levy for all levered financial institutions—that is, an additional charge levied on the unstable (non-core) portion of a

financial institution's funding, as suggested by the IMF (2010). This levy could be varied over the the life of the cycle.

Restraints on bank lending such as loan-to-value (LTV) or debt service-to-income (DTI) guidelines could usefully complement traditional tools of bank regulation, such as capital requirements. Capital requirements can themselves consist of a core of long-dated equity or equity-like instruments supplemented with an additional buffer of contingent capital instruments.

The interaction between these prudential measures, as well as their cumulative costs, need to be carefully considered while rolling them out, with a view to adjusting measures based on experience. And governments should guard against the temptation to use such levies as just a revenue-generating mechanism rather than a tool to promote financial stability.

Some measures (e.g., capital requirements) are likely to have implications for cross-border competition between financial institutions and therefore may need to be harmonized across countries. This will make it harder to tie them to local economic conditions, for such harmonization will have to be done in an objective and mutually agreeable way across countries. Others like LTV or DTI guidance need not be harmonized across countries and could vary substantially with the domestic cycle. The systemic levy is a form of capital charge, making harmonization important for countries with many cross-border banks, something that will admittedly make it more difficult to tie it to the cycle.

The Cross-sectional Dimension in Macroprudential Supervision

In terms of the cross-sectional dimension, policy should focus on systemically important financial institutions (SIFIs). Better resolution regimes to deal with failing financial institutions could reduce the need for reliance on ex ante buffers such as capital. Following the near collapse of Northern Rock, the United Kingdom was among the first to enact a resolution regime that provides supervisors extensive authority to stabilize a failing institution.[8] Germany enacted a similar law in January 2011 and the United States is in the process of empowering regulatory agencies to deal with future insolvencies of systemically relevant institutions. An important complication is that many systemically relevant institutions are active across geographical and product borders. These new laws have not been coordinated, and they are unlikely to be adequate for dealing with a large cross-border or cross-market failure. The new resolution regimes consequently do not solve the moral hazard problem implicit in "too big to fail" (TBTF). It follows that the implicit public subsidy for TBTF institutions remains intact; hence the need for ex ante measures.

Macroprudential tools could be used to reduce this incentive to become too big to fail. They could include a systemic risk tax as suggested by the IMF (2010). Efforts to quantify systemic risk exposure for the purposes of regulation are now underway, but much else remains to be worked out, including who would impose this tax, on whom, and under what circumstances.

Alternatively, surcharges on capital requirements that vary with the systemic risk they create could be applied to SIFIs. The Swiss government commission on TBTF institutions has shown how this could be done. In addition to increasing capital buffers to nearly double the level of Basel III, the Swiss proposal makes the surcharge sensitive to systemic risk, calculated as a function of the balance sheet size and the market share of the institution.

Proposals have also been mooted to eliminate certain activities of SIFIs (e.g., proprietary trading),

[8] Japan enacted an emergency resolution mechanism in 1998, following the banking crisis of 1997. When the emergency term ended, the government set up a permanent resolution mechanism.

ringfence certain activities (such as retail banking, as discussed in the context of the Vickers Commission in the UK), or even break up SIFIs. There is no consensus among the authors of this report on what approach is most appropriate. But in developing all these proposals, care should be taken that they in fact reduce lower systemic risk and do not just shift risk to entities that are less visible to the regulatory authorities (including to entities less capable of managing that risk). Risk that is shunted out of sight in good times comes back to haunt the system in bad times.

Finally, supervisors need to identify direct and indirect exposures and linkages, cross border as well as national, in order to make supervision more effective. They need to identify institutions and trades where activity is disproportionately concentrated. While collecting the relevant data (on, for example, inter-bank derivative exposures) for their own supervisory needs, they should also disseminate more aggregated information to market participants and the general public. Such dissemination will allow market participants to manage risks better and allow the public in turn to better monitor supervisory behavior. While individual countries now have efforts underway to collect and disseminate data (for example, the Office of Financial Supervision in the United States), we are still some distance from effective cross-border data collection and sharing.

Institutional Responsibility

Who should be responsible for financial stability at the national level?[9] There are two answers to this question. The coordinated approach gives multiple institutions (central bank, systemic risk boards, micro- and macroprudential supervisors) interlocking mandates, their own instruments, and a directive to cooperate. In contrast, the unified approach vests one institution, possibly the central bank, with multiple mandates and instruments.

The coordinated approach dominated prior to the financial crisis and, despite its failures, has largely survived the reform process. In countries like India and the United States, administrative bodies have been set up to coordinate the efforts of multiple supervisory and regulatory bodies, although these bodies tend to lack enforcement power. In Europe, the push for greater regional coordination has been further complicated by the superimposition of an additional layer of supervisory institutions with few powers of their own. Supervisory colleges, which collect relevant home- and host-country supervisors of a large cross-border institution, are one of the tools for coordination among countries. But overall, the problem of incomplete coordination remains.

In particular, the problem that EU-wide banks are still largely supervised by national regulators is yet to be fully solved. A new body, the European Systemic Risk Board (ESRB), has been charged with macroprudential supervision but is endowed with only weak powers and few effective instruments. The ESRB is large and unwieldy, comprising the central bank governors and financial supervisors of every EU country, plus a number of other functionaries. Moreover, the ESRB can only issue recommendations and has no enforcement powers.

While there is little consensus as to the best model, our contention that financial stability should be a core objective of the central bank increases the weight of arguments for giving central banks primary responsibility for regulatory matters. If central banks have a mandate to ensure financial stability and also the powers needed to wield macroprudential corrective instruments, they can optimally choose trade-offs between the use of the interest rate instrument and macroprudential measures. Moreover, the central bank will have, or should have, its finger on the pulse of financial markets through its monetary policy operations. It possesses a staff with macroeconomic expertise. It

[9] Alternatively, at the regional level in places where multiple national economies share a single central bank (e.g., Euroland).

is the one institution with the balance sheet capacity to act as lender of last resort.

There are also compelling arguments against a unified model. One disadvantage is that it makes the central bank more susceptible to political interference. The central bank will have to work hard to establish the legitimacy of its actions in circumstances where the nature of threats to financial stability may be poorly understood and its actions are unpopular. The public and its elected representatives may not be happy, for example, if the central bank curbs credit growth and causes asset prices to fall, and they will pressure the authorities to reverse course.

The unified model may also pose a conflict of interest for the central bank, which may, for example, be tempted to keep interest rates aritificially low in an effort to aid distressed financial institutions, or to treat a bank facing a solvency problem (a matter properly addressed by the fiscal authority or its agents) as if it were facing a liquidity problem.

If, on balance, the decision is to make the central bank the macroprudential supervisor, this approach should go hand in hand with measures to strengthen its independence from political pressure. To this end, it is important for the central bank to participate in the public discussion of how its performance will be evaluated. More regular communication of the rationale for its policies will also become increasingly important.

In sum, there are advantages to both models, and individual countries' institutional characteristics and political settings will determine what works best. Whatever the mechanism, it is clear that effective coordination between monetary and financial regulatory policies will be the lynchpin of financial stability.

Exchange Rates and Monetary Policy

The external dimension of monetary policy is critically important for small open economies with open capital accounts. Capital flows and exchange rate movements are important for price-level developments. They are important for financial stability as well: in open economies, monetary policy may have limited effectiveness in influencing credit developments because, inter alia, financial intermediaries can substitute external funding for domestic funding.

Macroprudential tools that lean against credit developments can give the central bank some measure of monetary policy autonomy, weakening the link between domestic monetary policy and capital inflows. For instance, by leaning against credit expansion, the central bank may be able to reduce the incentive for banks to borrow externally when domestic interest rates are increased.

The tensions between these different facets of economic stabilization become more acute when the currency is strong relative to fundamentals and the government wants to prevent excessive appreciation. This puts the central bank in a corner when domestic demand is also too strong. There is then the need to cool an overheating economy by allowing the appreciation of the currency, on the one hand, but pressure to guard against the erosion of competitiveness from what might prove to be only a temporary appreciation, on the other. Capital controls that moderate financial inflows, especially short-term inflows that are channeled through the domestic banking sector, may alleviate the policy dilemma but their role as a legitimate part of the policy maker's toolbox remains controversial.

Much commentary takes for granted that "capital controls don't work."[10] Commentators making

[10] See, for instance, the following editorial in the Wall Street Journal: Capital-Control Comeback: As Money Flows to Asia, Politicians Play King Canute, 2010, June 17. http://online.wsj.com/article/SB10001424052748704289504575312080651478488.html

such claims typically assume that the objective is either to hold down the exchange rate or to suppress the total volume of inflows. In this approach the emphasis is on the exchange rate's influence on the trade balance and thus also the attempt to hold back currency appreciation by limiting financial inflows, whatever their precise form.

But if capital controls and related macroprudential measures are seen not as instruments of exchange rate management but as part of a package of policies targeted at financial stability, then it is the *composition* of capital flows that takes center stage rather than their volume.[11] Foreign direct investment (FDI) and portfolio equity flows are less likely to reverse direction abruptly. And even when portfolio flows do reverse, the impact on funding may be less damaging than any sudden loss of access by the banking sector. Foreign sellers of stocks in a crisis face the double penalty of lower local currency prices when they sell and a sharply depreciating exchange rate, the implication being that the dollar-equivalent outflow associated with repatriation of portfolio equity sales proceeds tends to be small compared to the pre-crisis marked-to-market value of foreign holdings of equity. And the typical equity investor (such as a pension fund or mutual fund) is not leveraged.

In contrast, when foreign funding of the banking sector evaporates abruptly, the consequences are more damaging. If the local bank is leveraged and debt is denominated in dollars, then outflows can set off the well-known cycle of distress in which belated attempts by banks to hedge their dollar exposure drives down the value of the local currency, making the dollar-denominated debt even larger.[12] If the crisis erupts after a long build-up of such mismatches, the coincidence of the banking crisis with the currency crisis (the "twin crisis") can undermine banking sector solvency, with significant economic costs.

Capital controls are not, of course, the only tool for dealing with inflows. Microprudential tools such as minimum capital ratios should be part of the policy response. Even these tools, however, may not be enough to dampen the upswing of the cycle. Bank capital ratios often look strong during booms when banks are profitable and the measured quality of loans is high. In addition, the application of discretionary measures, such as higher capital requirements, must surmount concerted lobbying by vested interests that benefit from the boom.

Currency appreciation may also help to moderate the size of capital inflows, as foreign investors perceive less of a one way bet. However, when banking sector flows form the bulk of the inflows, merely allowing the currency to appreciate may not suffice. The behavior of banks and other leveraged institutions is additionally influenced by their capital position and their perception of risks. Currency appreciation and strong profitability coupled with tranquil economic conditions can be seen by banks as a cue to expand lending rather than to curtail their activity.

In sum, capital controls can, under some circumstances, be useful for managing maturity and currency mismatches and, in particular, for forestalling dollar shortages in the banking system. Judiciously employed along with other macroprudential policies, they can reduce financial instability as well as boom-bust cycles, thereby serving as a useful complement to conventional monetary policy instruments. As with other instruments, care should be taken that they are used to reduce macro-economic volatility rather than merely to suppress it, only to see it emerge in other, potentially more destructive ways. Moreover, with capital accounts becoming more open and given the increasing fungibility of funds across different forms of capital, even controls limited to specific types of capital flows are becoming an increasingly

[11] For an extensive discussion, see Ostry, Ghosh, Habermeier, Chamon, Qureshi, and Reinhardt (2010).
[12] Figuratively, the attempt to clamber out of the ditch by buying dollars merely drags others into the ditch.

weak substitute for good macroeconomic and prudential policies.

Conclusion

This chapter has made the case for augmenting the traditional narrow price stability focus of monetary policy with the additional goal of financial stability. The conventional separation in which monetary policy targets price stability and microprudential policies target financial stability, and the two sets of policies operate independently of each other, is no longer tenable.

This has a number of implications.

- Policy makers need a new set of policies that are macroprudential in nature, targeting the build up of risks to financial stability. These policies range from countercyclical capital ratios to capital controls.
- The neat Tinbergen separation of two tools for two objectives is no longer feasible. Interest rates affect financial stability and, hence, real activity. Equally, macroprudential tools impact credit growth and external imbalances, which have consequences for macroeconomic and price stability. Central bankers therefore will have to consider tradeoffs as they optimize among their policy tools to achieve their multiple objectives.

We believe that explicit recognition of such tradeoffs will, in some cases, move theory closer to practice. In other cases it will make adopting inflation targeting more attractive insofar as the framework now recognizes issues that some policy makers hitherto thought were missing. And in the case of the few who still adhere to narrow inflation targeting, it might prompt a welcome reconsideration.

CHAPTER 3

Cross-Border Spillovers

In the last chapter we discussed how national monetary policy frameworks should be rethought to better incorporate financial-stability considerations. But there is another equally important reason for rethinking the framework: international spillovers.

If national policies have important cross-border effects, then there is a prima facie case for coordinating them internationally. This observation was of course the main point of the voluminous 1980s literature on spillovers and policy coordination. But it has since been rendered more compelling by changes in the world economy in the last quarter century. The world today is more connected than ever by cross-border financial flows. The policy choices of individual countries, especially those of large, systemically significant countries, can have a substantial impact on their neighbors. When governments and central banks change their macroeconomic policy stance dramatically—as they did in the recent world financial crisis—the spillovers on other nations can be sizeable.

Cross-border spillovers may also have increased as a result of the nature of policy responses to economic shocks and business cycle conditions. A commonly voiced concern is that unconventional monetary policies may have especially large and complex cross-border spillovers. For instance, monetary injections when the nominal interest rate is at its zero bound might result in capital outflows rather than in more domestic activity, if domestic demand is weak and banks are reluctant to lend.[13]

And while concern in the 1980s centered on the interaction of the United States and Europe, two economic blocs with floating exchange rates, spillovers today involve one bloc that floats—the major advanced countries—and one, led by China, with fixed or semi-fixed exchange rates. This asymmetry gives rise to important new issues.

In this chapter we review various channels for international transmission of domestic policies and discuss their implications. We then discuss the tensions that arise in reconciling domestic monetary policies with the larger objective of global macroeconomic and financial stability.

Cracks in the Framework of (Mostly) Flexible Exchange Rates

The international properties of the *de facto* regime of flexible exchange rates were never as desirable as asserted by its champions. To start with, the new regime was not, in fact, universally adopted. It was

[13] This combination of circumstances is not unusual—witness what happened during the recent financial crisis.

not widely adopted in Asia, for example, where de jure or de facto pegging remained the reality and a large volume of foreign exchange reserves was accumulated in the 2000s, contrary to the presumption that reserves would become superfluous with the breakdown of the Bretton Woods system of fixed exchange rates.

Moreover, large current-account surpluses and deficits ('imbalances') persisted over much of the last decade without prompting macroeconomic and exchange-rate responses. Imbalances persisted in countries with very different exchange rate arrangements, including countries that did not maintain dollar pegs, such as Japan and Germany.

Questions also remained about the ability of inflation targeting cum floating exchange rates to cope with the volatility of international capital flows. While stability-oriented monetary policies at the national level could help to limit the magnitude of sudden inflows and reversals, and while strong regulatory and supervisory frameworks could help limit their consequences, it was unclear whether such measures would be sufficient to protect emerging economies from macroeconomic and financial instability.

Nor did the IT-floating framework eliminate the special role of the dollar as the key international currency. The dollar remains the world's most important reserve currency and a leading invoicing currency for international trade. It is also the currency that underpins the global banking system as the funding currency for global banks. This raises important questions about access to dollar liquidity by non-US banking systems in times of stress.[14]

Reconsidering the Conventional Wisdom

In light of the financial crisis and subsequent developments, several reasons have emerged for revisiting the conventional wisdom:

- *Convergence towards the inflation targeting cum flexible exchange-rate framework remains incomplete.* While a large part of the world economy has adopted this model, some fast-growing emerging markets have not. The coexistence of floaters and fixers therefore remains a characteristic of the world economy. It can even be said that the incidence of pegging has risen over time with the export drive of East Asia and, toward the end of the most recent decade, the rise of the relative price of oil.

- *The period in which the IT regime was tested was exceptionally benign.* China's entry into global trade and other emerging markets acted as a strong disinflationary force, making for price stability globally. Commodity prices remained subdued until the late 2000s, and there were few inflation spillovers. Since then the situation has changed. In a new context where commodity prices respond strongly to aggregate demand, a major question is whether central banks take into account spillovers through global commodity prices when making monetary policy decisions.

- *Capital market spillovers between advanced and emerging economies have grown*. While Obstfeld's (2009) characterization of the world economy as comprising a single financial system may not apply to all countries, it is certainly correct for North America, Europe, East Asia, and a number of emerging market countries. Private gross capital flows to and from both the US and Europe grew massively in the course of recent decades. To be sure, this was in large part for reasons independent of monetary policy, including financial liberalization, the unique role of the

[14] For an extensive discussion of these issues see Farhi, Gourinchas, and Rey (2011).

US as supplier of safe financial assets, and the attractiveness of emerging markets as destinations for investment. Still, the resulting financial interpenetration implies that the stock of diversifiable assets and cross-border holdings that respond to changes in monetary conditions have grown enormously.[15] This creates challenges for countries on the receiving end of capital flows. In practice, many of those recipients are emerging market economies that are struggling to prevent the surges in capital inflows from leading to exchange rate misalignment and unsustainable lending booms.

- *Unconventional monetary policies are likely to accentuate international spillovers*. Such policies are typically undertaken when traditional instruments are exhausted and traditional channels have ceased working. In such situations, unconventional policies could result in less domestic demand creation and more demand shifts between countries. Critics argue that purchases by central banks of long-dated bonds and private-sector-issued securities create liquidity that can spill abroad (because domestic channels for credit creation are blocked), causing capital flows to and undesirable relative price changes in other countries.[16] Central banks in countries conducting quantitative easing—the US Federal Reserve and the Bank of England—argue that Quantitative Easing (QE) is no different conceptually from conventional monetary policy but merely its continuation through other means in a situation where interest rates approach the zero bound. Central banks in several emerging market countries, in contrast, claim that QE is a beggar-thy-neighbor strategy.

These observations suggest that convergence towards a common policy template in the 2000s was not general. Moreover, where convergence has take place, it may not last long in view of the challenges currently confronting monetary policy. It is therefore important to assess whether a reformed consensus can and will be formed and to contemplate its implications for the conduct of monetary policy and for the 'own house in order' doctrine in particular.

Challenges to the IT-plus-floating Regime

1. Uneasy coexistence: floaters and fixers

The idealized IT-plus-floating framework has not worked out as anticipated, because countries have not converged to similar monetary and exchange rate arrangements.

In Latin America, a substantial number of countries, some of them large and economically important, resist moving in this direction. While the two largest countries –Brazil and Mexico—and an important set of middle-sized and small nations –Colombia, Peru, Chile, Uruguay—have adopted it, another sizeable group including Venezuela, Argentina, Bolivia, and Ecuador continues to pursue fixed or semi-fixed exchange regimes, sometimes with multiple exchange rates for different current and capital account transactions. Few countries in the Middle East and Africa have converted to IT plus floating, though economically important South Africa has adopted it.

In Asia, several countries have adopted the framework, albeit with different degrees of commitment. Inflation targets are explicit in Thailand, Korea, Indonesia, and the Philippines. In Thailand and Korea, low and stable inflation was achieved in the 2000s. Singapore has achieved low and stable inflation using a basket-based exchange rate

[15] Lane and Milesi-Ferretti (2001) and Kubelec and Sá (2010) provide a quantitative account of financial integration and the participation in it of major emerging economies.
[16] See Portes (2010) for a discussion.

regime, since the economy is small and highly open to financial flows. Usually, however, Asian central banks have multiple objectives: growth, price stability, and exchange rate stability, some of which temper the conventional framework. It is fair to say that many East Asian countries deal with inflation more on the basis of discretion than preset rules. In Cambodia and Vietnam, dollarization and the lack of independence of the central bank is a serious problem in stabilizing inflation. India has a hybrid regime without an explicit inflation objective and with exchange rate management in principle limited to moderating sharp movements in the currency's value.

China is the largest nation with a managed exchange rate. The renminbi was delinked from its US dollar peg in 2005 but remains tightly managed against the dollar. Among the explanations for this choice of exchange rate regime are the government's objective of promoting export-led growth. Another is the desire to self-insure against external shocks by accumulating a large stock of reserves. China's foreign exchange reserves now exceed $3 trillion, dwarfing by a wide margin all evaluations of the reserve buffer necessary to insure against sudden stops of inflows or a surge of capital outflows.

National and regional differences aside, a common feature of policies in these countries is a reluctance to allow exchange rates to move as much as needed to accommodate external disturbances, especially those originating in the capital account. Non-floaters monitor nominal and sometimes also real exchange rates and use not just foreign exchange market intervention but a whole array of instruments to prevent unwanted exchange rate movements.

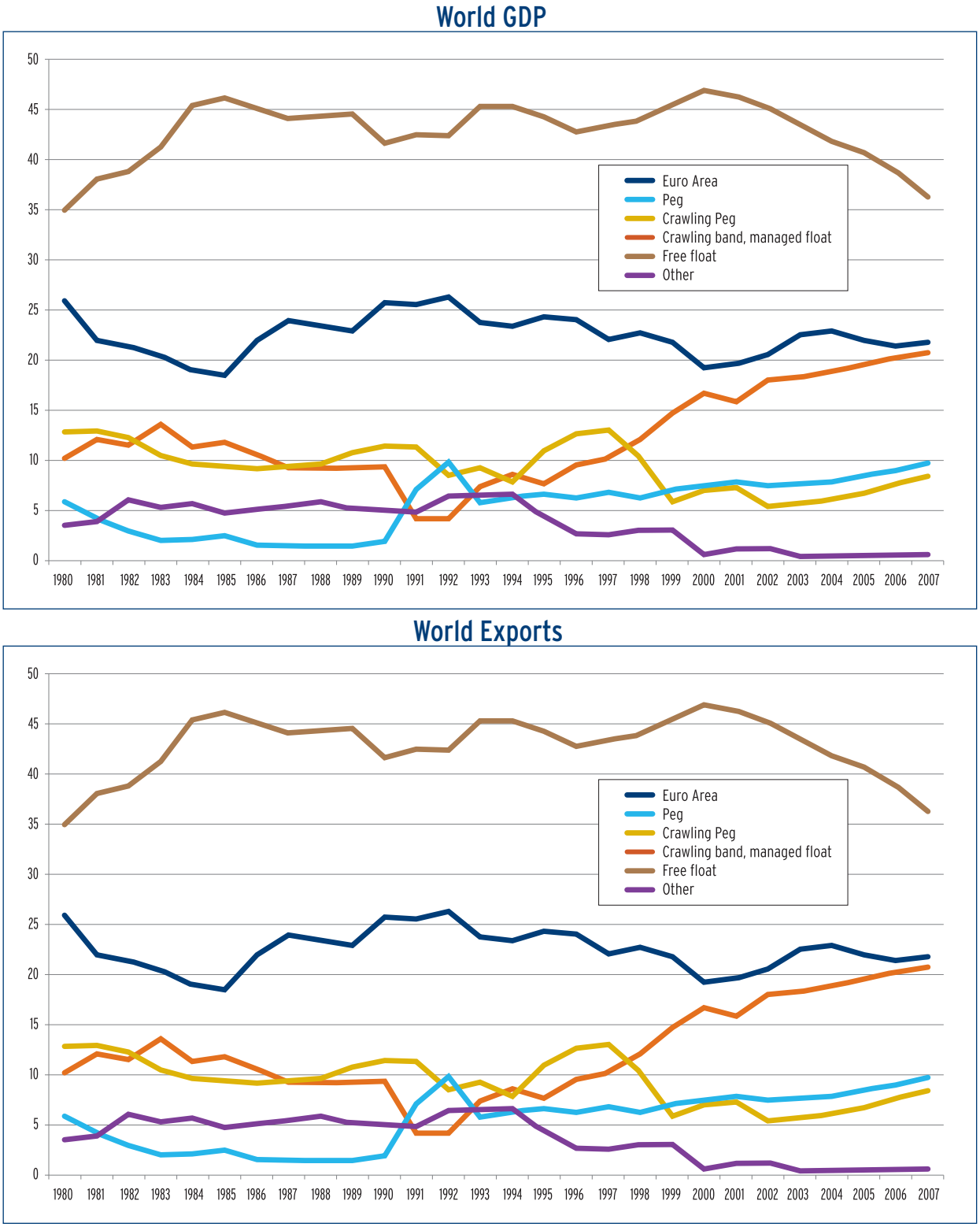
In sum, notwithstanding the perceived success of inflation targeting with flexible exchange rates, countries operating a freely floating exchange-rate regime, whether measured in terms of global GDP or global exports, have not increased over the last two decades. To the contrary, the share of such countries, so measured, has actually declined (Figure 1).

The main consequence is that the adjustment mechanism implied by the standard IT-plus-floating arrangement has not been allowed to operate. This is one explanation for the size and persistence of global imbalances. According to the IMF's *World Economic Outlook,* these imbalances reached 3% of world GDP in 2007, before the advent of the crisis.[17] The subsequent crash then reduced current account deficits in countries such as the US and the UK as their demand for imports dropped sharply. But according to the April 2011 *WEO*, imbalances once again began to grow starting in 2010 and will hover around 2% of world GDP between now and 2016.

A prominent instance of the uneasy coexistence of floaters and fixers is the tug of war between US monetary policy and exchange rate policy in emerging market "fixers" such as China. A highly stimulative US monetary policy is potentially fueling inflation elsewhere, including in emerging markets that have closed their output gaps and are facing inflationary pressures. Of course, emerging market central banks could raise interest rates more rapidly, but they would then attract capital inflows and experience faster exchange rate appreciation. Meanwhile, emerging market resistance to exchange rate appreciation is limiting export and employment growth in industrial countries already experiencing high and persistent unemployment. In normal circumstances, the United States and other advanced economies would adjust by cutting interest rates. But these countries are already at the zero bound. In this context, the exchange rate policy of emerging market "fixers" is imposing a negative demand externality on the advanced economies. In tandem with the inflationary externality imposed by US monetary policy, this has created severe policy complications for

[17] That is the size of the current account surpluses in countries like China, Japan, Germany, Switzerland, and the oil producers, matched (up to errors and omissions) by the corresponding deficits in the US, the UK, Spain and elsewhere.

FIGURE 1: Shares of countries under alternative exchange-rate regimes in world GDP and world exports, 1980-2007



Source: Angeloni et al. (2011). Calculations are based on the Ilzeztki-Reinhart-Rogoff classification. Euro area countries are treated separately throughout in order not to introduce a break in the series.

other countries, especially emerging markets that are floaters.

Collective action problems arise from these asymmetric exchange rate arrangements. Many emerging market countries in East Asia, even those that ostensibly float, explicitly or implicitly monitor their real exchange rates. They are reluctant to see their currencies appreciate excessively, especially relative to other countries in the region. This reluctance hinders nominal exchange-rate adjustment between East Asia and the advanced economies at a time when asymmetries between the two groups urgently call for real exchange-rate adjustment.

Concerns about exchange rate appreciation and overshooting are not limited to the emerging markets, of course. The recent intervention in foreign exchange markets by committed floaters such as Japan and Switzerland highlights the tensions building up in the global economy as public debt levels in the major reserve currency areas—the US and Europe—impose more of a burden on the Federal Reserve and the European Central Bank to maintain lax monetary policy with attendant spillovers to the rest of the world (as discussed in more detail in the next chapter).

Fixing also creates policy dilemmas for countries seeking to fix. These countries are by choice dependent on their partners' monetary policy decisions, especially but not only when they have opened the financial account. Attempting not to import foreign monetary conditions while fixing has required extraordinary measures.

Take China, whose capital account is only partially open. Experiencing large balance of payments surpluses, the People's Bank of China (PBOC) has regularly intervened in the foreign exchange market to limit the appreciation of the renminbi. The resulting increase in China's foreign exchange reserves accounts for almost all the increase in China's monetary base. To sterilize the increase in the money supply created by its intervention in the foreign exchange market, the PBOC has been forced to sell all of its holdings of government securities and to sell central bank bills to state-owned commercial banks. This strategy has been abetted by repressed interest rates, creating distortions in financial markets and in effect taxing households who receive negative real returns on their massive stock of bank deposits.

The financial crisis heightened these tensions. Its size and depth increased the incentive for emerging markets experiencing sharp capital flow reversals to self-insure by accumulating even larger reserves.[18] Moreover, the instability of world demand has caused a number of countries, not all of them in Asia, to place an even greater premium on managing the level of the real exchange rate. This has led them to deploy a broad array of tools, including capital controls, to prevent unwanted appreciation (for a more detailed discussion of this issue, see Chapter 4 below).

There are two possible assessments of these trends. One minimizes the importance of the asymmetry of exchange rate policies on the grounds that what matters for international adjustment is real exchange rates, which governments cannot control in the long run. Thus, recent price and wage inflation in China is causing non-trivial appreciation of the renminbi in real terms vis-à-vis the dollar even while the nominal bilateral exchange rate remains relatively stable.

The alternative view, which we share, is that international adjustment via wage and price inflation is slow and inefficient. The world economy would be better served by a speedier mechanism involving greater exchange rate flexibility. If flexibility is not feasible for domestic political reasons, then incentives need to be put in place to make sure large nations among both groups—fixers but also floaters—internalize the international effects of their actions.

[18] That factor alone suggests that fixed or semi-fixed exchange rate arrangements will be around for some time in emerging markets.

2. Controlling inflation in a less benign environment

For the second time in three years, rising commodity prices are fuelling global inflation. This inflationary pressure is superimposed on the background of still-large output gaps and high unemployment in virtually all advanced countries. This combination is problematic for an inflation-targeting strategy in which central banks focus on the components of inflation that are under their direct control. Indeed, for central banks in commodity-importing countries, a rise in oil or commodity prices is an exogenous supply shock, and the standard model says that the central bank should only respond to the extent that the shock has second-round effects and increases expected future inflation.

Targeting domestically-generated inflation was an appropriate strategy and did not raise concerns about collective action problems in the 1990s and the early 2000s, when an ample supply of commodities and the entry of China and other developing countries into the global labor force helped subdue global inflation. Against the background of a steep global commodity supply curve, however, expansionary monetary policies by major economies—advanced and emerging alike—may create negative externalities that are not adequately internalized in the standard framework.

This shortcoming is especially evident in the strict inflation-targeting framework in which the central bank commits to keeping the forecast rate of inflation (conditional on market expectations for the policy rate) on target. In this setting, the global environment is taken as given and is not affected by domestic monetary policy responses. As a consequence, the global monetary policy stance is likely to be suboptimal.

In small open economies, monetary policy is reasonably geared to domestic objectives. The same, however, does not apply to the large-economy central banks, such as the Fed, the ECB, and the PBOC. These economies are large enough for their policy choices to involve significant externalities. It would therefore be desirable that these central banks, and perhaps a handful of others, include in their policy objective a measure of these effects. Clearly, however, such a move would involve a collective-action dimension, which calls for an explicit dialogue among these central banks about the amendment of their policy frameworks. We return to this later.

3. Financial channels of transmission

In the idealized world in which all central banks pursue IT and allow their exchange rates to float, an individual central bank's monetary policy actions—say, a cut in the interest rate—are transmitted to the rest of the world mainly through two channels:

- The cut in local interest rates stimulates domestic demand, some of which spills over to additional imports. The magnitude of this effect on the rest of the world depends on the country's share of world GDP.

- The country's nominal and real exchange rates depreciate, shifting demand away from the rest of the world. Again, the size of this cross-border effect depends on the size of the country in question.

In this stylized model, capital flows only have an indirect role, with the potential for outflows from the country undertaking an expansionary monetary policy causing movements in the value of its currency. Prices bear the burden of adjustment.

In contrast, recent experience points to the existence of additional channels whose role and impact may well be large and potentially destabilizing. While the fact that the impact of capital movements can dwarf that of the more traditional trade effects has long been understood, the new and novel observation concerns the size of the cross-border capital movements triggered by the supply

of liquidity or small changes in interest rates in advanced countries. This reflects the accumulation of a huge pool of footloose assets responsive to small changes in expected returns.

The composition of these investment portfolios is interest-rate sensitive and likely to respond sharply to differences in expected rates of economic growth in recipient countries. An example is the massive capital flows to emerging markets in 2010 in response to the growth slowdown and record-low interest rates in major advanced countries.

Policy spillovers to the rest of the world can be sizeable in the case of the United States, which hosts branches of some 160 foreign banks whose main function is to raise wholesale dollar funding in capital markets. Foreign bank branches collectively raise over one trillion dollars of funding, of which over 600 billion dollars is channeled to their headquarters outside the United States.[19]

Although the United States is the single largest net debtor, it is a substantial net creditor in the global banking system. In effect, the US borrows long through the issue of treasury and other securities while lending short through the banking sector. This is in contrast to countries like Ireland and Spain that financed their current account deficits through their respective banking sectors, which subsequently faced runs by their wholesale creditors.

Some borrowed dollars will find their way back to the United States. But many will flow to Europe, Asia, and Latin America, where global banks are active local lenders. At the margin, the shadow value of bank funding will be equalized across regions through the portfolio decisions of global banks, making global banks the carriers of dollar liquidity across borders. In this way, permissive US liquidity conditions are transmitted globally, and US monetary policy becomes *global* monetary policy.[20]

An additional channel of transmission is through commodity prices. Low interest rates in the G-3 countries have a tendency to push up primary-commodity prices, both because the associated low borrowing costs mean high consumption and investment demand for these products, including from emerging markets, and because a low interest rate reduces the financial cost of holding stocks of storable commodities, thus making them more attractive as investment vehicles.

From the point of view of a commodity-producing country, lower world interest rates thus improve the terms of trade and increase local wealth and creditworthiness. A rating upgrade may follow. All this makes the country even more attractive for footloose international capital, creating pressures for currency appreciation.

These cross-border effects can be magnified by differences in exchange rate regimes. In recipient countries with freely floating exchange rates, standard theory suggests that the local currency should appreciate in response to a cut in foreign interest rates. It could even appreciate beyond its new steady-state level on impact, before then depreciating until reaching its new equilibrium level.

But if the country in question has a managed float or semi-fixed exchange rate, the required appreciation will not occur on impact. Even so, expectations of appreciation will eventually set in, making it more attractive to shift capital toward the country. This may bring forth additional inflows, in turn creating additional pressure for the exchange rate to strengthen.

The situation is even more complicated if intervention in the foreign exchange market is sterilized. The need to issue local bonds to mop up the liquidity resulting from the purchase of foreign exchange may cause local interest rates to rise, attracting even more

[19] Bank for International Settlements (2010).
[20] See also Cetorelli and Goldberg (Forthcoming).

inward capital flows. And since local interest rates are likely to be higher to begin with (if the recipient country is an emerging market), this sterilization will be expensive. If sustained over a sufficiently long period, sterilized intervention can weaken fiscal accounts, causing expectations of monetization and higher inflation, which in turn will cause local nominal rates to go up. This, in turn, can call forth yet another round of destabilizing capital inflows.

The conventional view of international spillovers has also relied on the assumption of smoothly-adjusting international capital markets, something that seems less than tenable today. The 2007-09 financial crisis serves as a reminder that financial flows can reverse abruptly, placing intense pressure on the functioning and integrity of markets and market participants. This has been pointed out repeatedly after recent capital-account currency crises—Mexico, Asia, Russia, Brazil, and Argentina. What is new in the 2007-09 crisis was that it happened even in some advanced countries—for example, some European economies, such as Ireland.

A nation previously flooded with capital can thus become the subject of a sharp reversal in flows. Margin and borrowing constraints can suddenly become binding, leading to a painful process of deleveraging. If the need to raise cash causes one round of asset sales, the prices of those assets will fall, reducing the value of collateral and calling forth further asset sales and additional price drops. This can cause massive destruction of value, as firms find themselves liquidity-constrained and abandon unfinished potentially profitable investment projects.

Policy makers in countries on the receiving end of these flows face an unappetizing choice. If they allow the currency to appreciate, they expose themselves to accusations of overvaluation, loss of competitiveness, and de-industrialization. But if they fight the appreciation via intervention, they may find themselves on the receiving end of ever-larger inflows. The central bank may end up allowing some appreciation anyway, but not before accumulating a large stock of expensive domestic liabilities and a large stock of international reserves on which it will take a capital loss (in domestic currency terms) if and when the exchange rate adjustment eventually happens.

While the conventional model of IT-plus-floating acknowledged these complications, it did not place them at the center of the analysis. To the extent countries targeted core inflation, spillovers through global commodity prices were left unattended. This was not a serious concern in the1980s and 1990s, the period of the Great Moderation, but is a more serious one in the presence of large global imbalances and the need to accommodate large stocks of internationally mobile capital "looking for yield."

4. Normal versus crisis times

The conventional wisdom was developed in tranquil times. In crises, in contrast, central banks have resorted to an array of non-conventional monetary policies such as quantitative easing (QE)—the printing of money to buy bonds. What do such policies imply for the question of international spillovers of monetary policy?

One view is that unconventional policies are no different from conventional policies in their cross-border implications. If floating exchange rates can adjust to make international coordination of conventional policies unnecessary, then the same must be true of unconventional policies. This was the view of the United States following the adoption of QE2. In response to complaints from emerging market policy makers who feared the wave of liquidity coming their way, Fed officials essentially argued that, "everything will be okay if you just let your currencies appreciate."[21]

[21] As indicated, for example, by the following excerpt from the speech by Fed chairman Ben Bernanke on November 19, 2010 at the ECB Central Banking Conference: "An important driver of the rapid capital inflows to some emerging markets is incomplete adjustment of exchange rates in those economies, which leads investors to anticipate additional returns arising from expected exchange rate appreciation."

The alternative view is that beggar-thy-neighbor impacts are greater when using unconventional instruments. The difficulty arises in evaluating whether the use of such instruments is consistent with the normal policy framework or represents an attempt mainly to weaken the currency and boost exports in the absence of a positive domestic demand response. The same causes that justify recourse to unconventional policies make the inflation-targeting compass lose precision. When inflation significantly undershoots its target and central banks resort to instruments with which they have little experience, it is much harder to say whether a policy stance is in line with the IT framework or whether it represents an attempt at competitive devaluation.

In addition, spillovers may work differently in times of crisis. During a crisis, local credit demand is likely to be weak and banks' willingness to lend domestically will be especially limited. For every additional dollar of liquidity that is created by monetary policy, a larger share will end up abroad in crisis times than in normal times, thereby depreciating the exchange rate at the expense of trade partners. It follows that spillovers are potentially larger during episodes of local financial distress.

The presence of international spillovers suggests that coordination can lead to better global outcomes. In addition, the current situation highlights the need for principles and procedures for deciding when an unconventional monetary policy is beggar-thy-neighbor in its effect. In turn, these principles should form the basis for corrective action.

Conclusion

The cross-border spillovers from monetary policy provide yet another reason for rethinking not just the domestic monetary policy framework but also mechanisms for ensuring compatibility between large-country policies. We will turn to recommendations that follow from this analysis in Chapter Five. But before offering recommendations, we turn to a discussion of some additional policy burdens on central banks in the aftermath of the crisis.

CHAPTER 4

Additional Pressures on Central Banks

In this chapter we describe how central banks are coming under additional pressures in the post-financial-crisis environment. While some of these additional pressures are not entirely new, they threaten to force central banks onto risky terrain.

We highlight two sets of pressures: *(a)* the consequences of high public and private debts; and *(b)* the perceived dangers of currency appreciation and overvaluation.

While manifestations of these pressures are already evident in individual countries, it is important to understand them as part of a broader global picture. We do so in the next two sections, which look at the consequences of high public and private debts in the advanced economies and at worries about currency misalignments and overvaluation in emerging markets, respectively. Following this *positive* analysis (which asks what kinds of new pressures central banks will find themselves subject to), we turn in the concluding section to the *normative* dimension (the question of how central banks should respond).

Central Banks and the Debt Overhang

High levels of public debt are likely to be the most enduring legacy of the 2007-2009 financial crises for the United States and other industrial economies. For many if not most advanced countries, concerns about those debt burdens will shape policy choices for years. Fiscal adjustment is painful in the short run, which makes it politically difficult to deliver. Debt restructuring, for its part, leaves a damaging stigma and is also often associated with deep recessions.

Importantly, debt overhangs are not limited to the public sector, as was the case following World War II, but include a high degree of leverage in the private sector, especially in the financial industry and among households.[22] The surge in domestic bank credit that occurred in most advanced economies in 1997-2007 has barely begun to unwind. The build-up in external leverage was even greater, with Iceland and Ireland recording gross external debt positions in excess of ten times their respective GDPs. The debt overhang and associated problems are common to most advanced economies.

An unsustainable path for the public debt ultimately needs to be addressed. In some countries this will require an extended period of primary budget surpluses. In others it will require debt restructuring. The authorities will of course be reluctant to term their actions restructuring; they will prefer the pretense that they are finding uniquely

[22] See Reinhart and Reinhart (2010).

advanced economy solutions for what are, in reality, emerging market style sovereign debt crises. Just as in other debt crises-resolution episodes, their responses will include debt buybacks (as in Greece) and debt-equity swaps.

Another option, which seemingly holds out the attraction of avoiding some of the aforementioned costs or at least spreading them over time, will be to attempt to limit the effective cost of debt by requiring domestic financial institutions to hold it. While advanced economies are unlikely to call their policies financial repression when more politically correct characterizations, such as prudential regulation, are available, they could move to a system more akin to what the global economy had prior to the 1980s market-based reforms. That system of domestic and external financial regulation was instrumental in keeping real interest rates low (and often negative) and reducing advanced economies' government debt levels from their record highs at the end of World War II.

Some recent moves suggest governments might attempt similar measures today. Basel III provides for the preferential treatment of government debt in bank balance sheets via substantial differentiation (in favor of government debt) in capital requirements. Other approaches may be even more direct. For example, at the height of the financial crisis, UK banks were required to hold a larger share of gilts in their portfolios. The IMF's April 2011 *Global Financial Stability Report* documents how Greek, Irish, and Portuguese banks have already liquidated a substantial fraction of their foreign assets and swapped those into domestic public debt.[23] Evidently, the process whereby debts are being "placed" at below market interest rates in pension funds and other more captive domestic financial institutions is already under way. Spain has recently reintroduced a *de facto* form of interest rate ceilings on bank deposits.[24,25] At the same time, however, it remains to be seen whether governments have the ability to go much further in today's financially-sophisticated, high-capital-mobility world.

If governments do embark on this path, central banks are likely to come under pressure to be part of this process, as they were in the period after World War II. In many countries, central banks are financial regulators, so the impetus for, or at least acquiescence to, measures compelling other financial institutions to hold government bonds will have to come from the central bank, and the central bank will come under political pressure to provide it. The central bank may also come under pressure to support bond prices—or equivalently, to cap interest rates on treasury bonds—as was the case in the United States prior to the Treasury-Federal Reserve Accord of 1951 that restored the Fed's operational independence. The European Central Bank has already engaged in limited purchases of the government bonds of heavily indebted euro-area countries and is under pressure (as we write) to undertake more, with the effect of transferring sovereign obligations onto its own balance sheet.

The normative question (which we address in the concluding section to this chapter) is whether, under what circumstances, and how far the central bank should go down this road. As discussed earlier, the conceit behind central bank independence and inflation targeting is that monetary policy

[23] See Figure 1.17 in that report. The question of course being the extent to which this reflects regulation, public pressure, or private incentives.

[24] See http://www.lavanguardia.mobi/mobi/noticia/54140090670/El-Gobierno-limita-las-superofertas-de-depositos-bancarios-con-mas-exigencias.html

[25] Our discussion has focused primarily on Western Europe, but similar trends are emerging in Eastern Europe. Pension reform adopted by the Polish parliament in March of this year has met with criticism from employers' federations and business circles. According to the Polish Confederation of Private Employers Lewiatansay, the proposal seeks to hide part of the state's debt by grabbing the money of the insured and passing the buck to future governments. The confederation also points out that moving money from pension funds to ZUS will protect the government from having to change the definition of public debt and exceed financial safety thresholds, but will expose future retirees to losses. Struggling with budgetary pressure at home, Hungary has nationalized its pre-funded pension schemes and excluded the cost of the reforms from their public debt figures. Bulgaria has taken measures in the same direction.

can and should target price stability alone, while other economic objectives are best addressed with other instruments and by other agencies. But in a second-best world, where other instruments are ineffective or constrained and where uncertainty prevails, this neat separation breaks down. Under these circumstances, central bankers need to ask whether, inter alia, undertaking bond purchases, while creating moral hazard for their governments, interfering with the conduct of conventional monetary policy, and sending mixed messages, is better or worse than standing by idly and potentially forcing the debt to be restructured, already weak banks to take a haircut, and—in the worst case should be joined—financial market meltdown to occur.

This debate has taken on a particularly sharp edge in the context of the unfolding European sovereign debt crisis. As the public discussions among different official players in that context vividly illustrate, the right answers are far from obvious and outcomes are intimately tied to political rather than just economic considerations. It is also unlikely that the same answer to these questions will be correct under all circumstances.

Central bankers face a difficult dilemma. The more they take these competing objectives on board, the more they depart from the intellectual framework that guides their action, and the more complicated their task becomes. But when they overlook such spillovers in the name of monetary purity, they begin to be viewed as part of the problem and they risk undermining the political consensus that underpins their independence.

Dealing with Currency Misalignments and Overvaluation

Another area where this dilemma is experienced is in the relationship between monetary policy and trade competitiveness. Central banks frequently come under pressure from exporters, industrialists, and agricultural interests who complain that the central bank's focus on domestic price stability and neglect of the exchange rate comes at the expense of the profitability of key sectors. In emerging markets, the typical pattern is for an upswing in expectations to cause capital inflows that in turn strengthen the exchange rate, squeezing tradable economic activities. In advanced countries, similar problems can arise as a result of safe-haven flows and economic problems abroad (see the recent cases of Switzerland and Japan).

Central banks have traditionally responded to capital inflows with sterilized intervention and various forms of capital-account regulation. But sterilized intervention that results in the build-up of reserves is costly and ultimately self-defeating when financial markets are open. Unsterilized intervention (a form of quantitative easing) may help where there is no existing problem of inflation (Switzerland, Japan), but it is problematic in the booming emerging-market setting, where inflation and overheating risk already exist (see, however, Turkey for an experiment along these lines). There has been an increased tendency therefore in emerging markets to resort to controls of various types. Now that such measures are no longer under attack by the IMF, more countries have become willing to discuss and institute them: Brazil, Thailand, and Korea being cases in point.

It is easy to dismiss pressure from exporters as self-interested lobbying. However, there may also be some broader validity to their claims. The share of employment in manufactures tends to shrink as a country moves through middle- and high-income status. But very sharp appreciation of the exchange rate can accelerate that process, with disruptive effects. Workers with industry-specific skills and training may find it hard to redeploy them elsewhere. A long-standing comparative advantage can be undermined. Recall, for example, discussions of how the high dollar in the mid-1980s was creating a Rust Belt in the Midwest and of how a strong franc currently threatens to hollow out Swiss industry.

Some of these arguments seem to apply with even greater force to emerging markets and developing countries. Manufactures, modern services, and non-traditional agriculture are critically important for economic growth in these countries. Countries that have initiated and sustained modern economic growth have often done so on the back of successful expansion of exports. This has required the promotion of tradables through the adoption of supportive policies.

One economic rationale for emphasizing tradables is that the obstacles that impede structural transformation affect predominantly modern, high-productivity economic activities that are tradable.[26] Such obstacles can take the form of government failures, for example weaknesses in property rights and contract enforcement. Or they can come in the form of market failures, such as learning externalities or coordination failures. The first, best response is to eliminate these underlying distortions, but this is often easier said than done. Alternatively, second-best policies promoting tradables ensure that resources move from low- to high-productivity activities, generating economic growth in the process.

This has been China's recent growth strategy, as well as that of Japan, South Korea, Taiwan, and other East Asian tigers before it. In contrast, countries experiencing shrinkage in non-traditional tradables, such as those in Latin America after 1990, have had low rates of economy-wide productivity growth. Even for emerging markets that have followed a less explicit export-led growth strategy than those in Asia, the trend toward sustained real exchange rate appreciation has rekindled old concerns about the "Dutch disease" consequences.

The structure of production depends on the relative profitability of different activities.The real exchange rate, as the relative price of tradables to non-tradables, may therefore shape structural transformation and set the pace of economic growth.The question is how much weight central banks should attach to the impact of their policies on the real exchange rate.

In principle they can take refuge in the dichotomy between *nominal* and *real* exchange rates and argue that the conduct of monetary policy has implications for the first but not the second. The *real* exchange rate is an endogenous relative price determined by real quantities, namely the balance between domestic saving and domestic investment. Under textbook conditions, the competitiveness of tradables can be divorced from monetary policy.

There are two counter-arguments, one empirical and the other conceptual. The empirical point is that prices tend to be stickier than the exchange rate, as a result of which nominal and real exchange rates tend to move together. Exporters who see the nominal value of the domestic currency rise can be pretty certain that this will have an adverse impact on their profitability over time horizons they care about.

The conceptual point is that economies with large amounts of surplus labor have quasi-Keynesian features, allowing monetary policy to have real effects. An excess supply of labor in rural areas (or informality) pins down the (nominal) wage rate at the margin at some low level. Since wages are a key determinant of non-tradable-goods prices, an increase in the nominal money supply can then raise the relative price of tradables to non-tradables (i.e., depreciate the real exchange rate) and have real effects. The Chinese economy provided a potential illustration until recently, when labor shortages began to produce wage increases.

Whether or not an undervalued real exchange rate is useful for promoting structural change in emerging market economies (a point about which there is no consensus among authors of this report), it has a major disadvantage. An undervalued currency taxes the consumption of tradables (along with

[26] See Rodrik (2008).

subsidizing their production) and so produces a trade surplus. Other countries must therefore be willing to run the counterpart deficits on their trade account. Before the financial crisis, the United States and some other industrial countries were willing to do so. But as demonstrated by the debate over "global imbalances," the effects may not have been entirely benign, and the advanced countries may no longer be happy to resume their traditional role.

This also points to a distinction between small and large countries. A small country that seeks to maintain an undervalued exchange rate can do so without significant implications for global imbalances and the associated financial risks. Its policies will also have only minor implications for the competitiveness of its emerging market neighbors. For a large country, this kind of active use of exchange rate policy is more problematic on both grounds. This distinction also points to a potential fallacy of composition: what could work for an individual country may become problematic for the world when pursued by countries as a group.

One alternative to using monetary-cum-exchange-rate policy to promote growth-friendly structural change in the direction of producing exportables is of course to subsidize tradables directly or reduce input costs. Such policies can in principle be effective in promoting structural change, and if they are combined with macroeconomic policies that maintain external balance, they need not be associated with trade surpluses.[27] However, such policies run afoul of World Trade Organization (WTO) rules and the Agreement on Subsidies, in particular, which prevent emerging market economies from utilizing explicit or implicit export subsidies. Tax exemptions, directed credit, payroll subsidies, investment subsidies, domestic content requirements, and export processing zones are all potentially actionable under WTO rules.[28]

Such policies also face well-known difficulties of implementation. Interventions may be poorly targeted and subject to political capture and rent-seeking. Currency policy, because it works across the board, is less prone to capture by specific industrial lobbies. For all these reasons, it is an inescapable reality that governments have tried to maintain an undervalued currency as a key element of their growth strategy.

The pressure on central banks to keep an eye on competitiveness can be intense. Inflation targeting that pays little attention to the level or volatility of the exchange rate becomes harder to practice. Central banks are more likely to safeguard their independence by acknowledging such concerns and pressing for non-monetary policy measures that achieve similar aims than by playing the game "who, me?" That means, in turn, greater cooperation and coordination with fiscal and regulatory authorities to create the conditions for a more competitive real exchange rate. Fiscal policy needs to be tight enough to allow the currency to settle on a lower trajectory. Regulators need to be willing to tighten prudential liquidity requirements and capital-account measures when too much money is flowing in. Central banks can signal their willingness to watch (if not "target") the exchange rate, as long as other parts of the economic-policy machinery are doing their respective bits.

The point that not all countries can simultaneously run trade surpluses obviously still stands. From a systemic standpoint, while policies designed to prevent currency overvaluation are not objectionable, those targeting large undervaluations and trade surpluses certainly are. Similarly, there is an element of externality in capital controls in that one country's success in evading capital inflows only increases the difficulty of other countries doing the same. This is certainly a problem at the level of emerging markets as a group.

[27] A production subsidy on tradables produces an incipient trade surplus, which can be eliminated by allowing the currency to appreciate. The appreciation does not remove the production stimulus on tradables entirely as long as tradables *consumption* is sensitive to the exchange rate. See Rodrik (2010).

[28] Least developed countries are exempt from these rules.

What Should Central Banks Do?

We have enumerated a number of additional pressures that central banks will face in the post-crisis economic environment. These will make it difficult for them to implement their policies using a traditional framework in which price stability is the overarching goal. Unavoidably, they will become entangled in debates over public debt and its management and come under pressure to do something to help maintain competitiveness in the production of tradables.

While the two sets of issues arise most immediately in different sets of economies—high public and private debts are mainly a problem for the advanced economies, while exchange rate overvaluation is largely a worry for emerging markets (although Japan and Switzerland are currently experiencing difficulties)—they are related. While emerging markets may increasingly look to financial regulatory measures to keep international capital "out" during periods of surging capital inflows, advanced economies have incentives to keep capital "in" and create a domestic captive audience to facilitate financing for the high existing levels of public debt.

Concerned about overheating, inflationary pressures, and competitiveness issues, emerging market economies may, in some cases, welcome changes in the regulatory landscape that keep financial flows bottled up in advanced economies rather than let them spill across borders. This creates the possibility that advanced and emerging market economies may at some point meet on the common ground of increased regulation and/or restrictions on international financial flows and, more broadly, on returning to a more tightly regulated domestic financial environment.

This much is positive analysis. We turn now to the normative question of how central banks might handle these difficult burdens placed on them.

A first point is that central banks are more likely to safeguard their independence and credibility by acknowledging the tensions between inflation targeting and competing objectives than by denying such linkages and proceeding with business as usual. Central bank independence ultimately rests on political consensus—on the convergence of views among leading political interests that society's broader economic goals are best served by this independence. A central bank perceived as insensitive to problems of debt sustainability and exchange rate overvaluation is likely to be dragged into bruising political battles and will not be able to maintain its independence for long. This does not mean that central banks must become debt-managers' and development ministers' poodles, but neither can they aspire to the purity of driven snow.

Exceptional circumstances might require exceptional responses. In those circumstances, it is crucial that the central bank clearly communicate what it is doing and why, and how its actions are consistent with its broader policy framework. When taking unconventional steps to support the market in sovereign bonds, central banks need to make clear the rationale for their action. If the justification is disorderly conditions in the market due to temporary liquidity problems or panic, its purchases are likely to be temporary and should be explained as such. If the action is designed to help give the government extended breathing space so it can put in place a package of adjustment measures to revive the economy and grow out from under the debt burden, purchases may have to continue for a lengthier period, and again this should be explained.

An example of what not to do can be seen in the case of the European Central Bank, which resumed purchasing peripheral euro-area bonds without adequately explaining why it was following this course of action. Not surprisingly, its initial action did not restore confidence.

On the exchange rate overvaluation front, central banks will have to devise a communication strategy that acknowledges the importance of the level and volatility of the exchange rate, without

committing to use foreign exchange market intervention or capital controls as the primary instrument to maintain external competitiveness. This will allow them to take actions to prevent exchange rate overshooting in exceptional circumstances without departing from the inflation targeting framework.

Central banks should also make clear, however, that monetary policy is only one part of the policy response. Bond purchases without fiscal and structural adjustment achieve nothing. Maintaining a stable and fairly valued real exchange rate is not exclusively the responsibility of the central bank; achieving this goal and deriving benefits from it also require prudent fiscal policies, sound macroprudential supervision, and, where necessary, regulation of the capital account. The message from central banks has to be: we are willing to keep an eye on the currency with the goal of preventing overvaluation as long as the fiscal and regulatory authorities are fulfilling their part of the bargain as well. Making the quid pro quo with the government explicit not only educates the public, it helps deflect pressure from the central bank.

Similarly, with regard to the challenges posed by debt overhangs, particularly those of the public sector, a communication strategy that addresses recurring concerns about the central bank's independence from the fiscal authorities will be crucial in maintaining credibility. More transparency on the policy objectives and strategy are especially valuable in periods (such as that now being experienced by the Federal Reserve) when a very expansive policy stance is observationally equivalent to monetization of the debt.

CHAPTER 5

Rethinking Central Banking

There is an emerging consensus that the framework underpinning modern central banking must be rethought. A monetary policy framework focusing on price stability and output growth will also affect financial stability through its impact on asset valuations, commodity prices, credit, leverage, capital flows, and exchange rates. One country's monetary policy can spill over to other countries, especially when central banks follow inconsistent frameworks, with cross-border capital flows serving as the transmission channel. All this suggests that the conventional framework for central banking is inadequate. It is too narrow to meet domestic and global needs.

There may be broad consensus on this point, but there is still little agreement about the particulars of the new framework. It is those particulars that we seek to elaborate in this chapter.

Monetary Policy and Financial Stability

1. Financial stability should be an explicit mandate of central banks. Other micro- and macroprudential policies should be deployed first, wherever possible, in the pursuit of financial stability, but monetary policy should be regarded as a legitimate part of the macroprudential supervisors' toolkit.

2. When rapid credit growth or other indicators of financial excess accompany asset price increases, the authorities should employ stress tests to measure the effects of changes in credit conditions on asset prices, economic activity, and financial stability. Instead of seeking to identify bubbles, the authorities should simply ask whether current financing conditions are raising the likelihood of sharp reversals in asset prices that are disruptive to economic activity.

3. Where the answer to the aforementioned question is yes, central bankers should then lean against the wind using a combination of the tools at their disposal, turning first to nonmonetary micro- and macroprudential tools, but also to monetary policy tools when necessary. If this results in periods when, in the interests of financial stability, the central bank sets policies that could result in deviations from its inflation target, then so be it.

4. Responsibility for the maintenance of financial stability can be assigned either to the central bank or to a self-standing financial supervisory authority. But in both setups, close coordination between

the central bank and other agencies that contribute to ensuring the stability of financial conditions is essential. This is particularly important when policy makers have to evaluate the trade-offs between the use of monetary tools and prudential measures, and make decisions on the appropriate mix.

5. Central banks already require substantial operational independence in order to pursue their mandates. They will require even greater independence when a financial stability objective is added to those mandates. They will, in turn, have to establish the legitimacy of their actions in circumstances where the nature of threats to financial stability is poorly understood. The public and its elected representatives may not be happy, for example, if the central bank curbs credit growth in the interest of financial stability, causing asset prices to fall. This makes it important for the central bank to clearly communicate its assessment of the risks and the rationale for its policy actions. It needs to explain how it seeks to balance the objectives of price stability, output stability, and financial stability. Better communication and greater clarity on how the central bank will be held accountable for its broader mandate are necessary to defend central bank independence. Independence is politically viable only with accountability, and the best way to enhance accountability is for central banks to become more transparent and forthright about their objectives and tactics.

6. The spillover effects of a central bank's policies in other countries are a legitimate concern. At present, central banks do little to internalize these effects. Admittedly, they may have difficulty in justifying actions taken in the effort to do so to domestic political authorities. This tension points to the need for further changes in prevailing policy framework. Specifically:

   (i) Domestic political authorities should be persuaded to allow such considerations to play an explicit role in the central bank's monetary policy framework in large economies.

   (ii) Large-country central banks should pay more attention to their collective policy stance and its global implications. Where appropriate, they should consider coordinated action to help stabilize the global economy in times of stress.

   (iii) These recommendations are unlikely to be implemented in isolation. We therefore propose that a small group of systemically significant central banks, perhaps called the International Monetary Policy Committee, should meet regularly under the auspices of the Committee on the Global Financial System of the BIS. This group would discuss and assess the implications of their policies for global liquidity, leverage, and exposures, and the appropriateness of their joint money and credit policies from the point of view of global price, output, and financial stability.

Although central bank governors already meet regularly at the BIS, we recommend a substantial upgrade for our proposed committee from the current informal and closed-door format. Communication of central bank actions is important at the global level, just as it is for a domestic audience. In some ways, it is more important, since the global spillovers and coordination can be discussed explicitly. For this reason, the committee should periodically issue a report assessing and justifying their policies from this global perspective, pointing out areas of dissent or inconsistency.

The report should be submitted to the Group of Twenty and released more broadly with a formal public presentation.[29]

Central bankers will of course insist they have no control over one another. Some will claim that such matters are already discussed informally at BIS meetings or formally at the G20 meetings. However, the current BIS format is not conducive to accountability, and the current G20 format gives precedence to heads of government and finance ministers, not central bank governors. The discussion that takes place at the margins of the G20 meetings is informal. For these reasons, a separate forum is needed. The need to issue periodic public reports can help central bankers identify and publicly air the inconsistencies in their policies. With time, this should encourage them to internalize some of the external consequences of their policies.

The kind of report we have in mind can inform a broader discussion of how the mandates of large central banks can be altered so as to minimize the adverse spillover effects of their policies, even while their responsibilities continue to be domestic. It would have the ancillary benefit of stimulating research on the definition, determinants, and means of control of global liquidity, a notion that nowadays remains a very abstract and ill-defined concept in policy discussions.

Macroprudential Supervision under the proposed framework

Enhancing financial stability will require supplementing traditional micro-prudential measures with macroprudential tools.

1. Regulatory guidance on loan to value (LTV) and debt service to income (DTI) ratios over the cycle is useful for dampening credit booms. Countercyclical and contingent capital requirements, dynamic provisioning, liquidity buffers, and taxes on short-term funds borrowed by financial institutions are additional possible instruments. Given that there is still little evidence on the relative effectiveness and costs of each of these tools, authorities will have to learn by doing and from shared experience.

2. Supervisors will need to identify direct and indirect exposures and linkages, cross border as well as domestic. They need to identify institutions or trades where activity is disproportionately concentrated (for example, on interbank derivative exposures). While they should collect such data for their own supervisory needs, they should also release that information, in aggregated form, to the broader public, including market participants. Broader dissemination will allow market participants to better manage risks, and in turn allow the public to better monitor supervisory behavior.

3. Cross-border surveillance of conditions pertinent to financial stability should be part of the mandate of the IMF, FSB, and BIS. Such institutions should work in concert with domestic macroprudential supervisory authorities to collect and disseminate information across countries on global exposures and risks, as well as experience with macroprudential tools.

4. Macroprudential tools will be more effective if coordinated and implemented

[29] Multilateral institutions like the IMF should also, of course, continue to analyze the spillover effects of large-country policies—as part of the Mutual Assessment Process (MAP), Article IV consultations, and the World Economic Outlook and Global Financial Stability Reports—and use these in evaluating a country's overall policy stance. The IMF's newly instituted "spillover reports" are an obvious vehicle for carrying out this charge. The IMF should also analyze the collective policy stance of large central banks, and this report could be the starting point for the central bankers' discussions and report. The G-20 needs to develop a mechanism for using these reports to influence domestic assessments of central bank performance.

across countries to dampen credit and leverage cycles. The IMF or a beefed up FSB/BIS should have the mandate to assess financial stability risks across borders and make recommendations to national supervisors on the level at which to set a relevant macroprudential tool.

5. Some countries will benefit more than others from the use of macroprudential tools and may also face lower costs of implementation. Coordination may be especially hard, however, when different countries see very different costs and benefits. This suggests the multilateral institution responsible for assessing financial stability should:

    a. Persuade all countries to put macroprudential measures on the books, even if the measures are initially levied at zero rates.
    b. Focus less on coordination at the initial stages, which will allow experience to be built up on the use of the tools in different settings.
    c. Encourage supervisory authorities to expend greater effort to find tools that are lower cost relative to efficacy and therefore more widely acceptable.
    d. Encourage greater dialogue as systemic risks build up so as to create the possibility of greater coordination.

6. The importance of cross-border spillovers associated with intermediation practices and conditions of systemically relevant financial institutions (SIFIs) was highlighted by the recent crisis. Macroprudential tools tailored to contain these risks include significantly higher capital buffers for SIFIs (the new Swiss regime proposes about 19%), contingent capital requirements, and possibly a Financial Stability Contribution along the lines proposed by the IMF. While a start in implementing these measures should be made now, the precise form of such levies should be allowed to develop in light of experience. Unfortunately, because any such standard will be subject to extensive lobbying, the ideal requirement may be hard to attain, and the initial standards likely to be sticky. This suggests building flexibility into the initial standards so there are alternative ways to meet the requirements.

7. Although there has been some progress on cross-border supervision (through the creation of colleges of supervisors, for example), there has been little progress on mechanisms for resolving failures of cross-border financial institutions. Efforts to harmonize national bankruptcy and resolution regimes should therefore be redoubled. Explicit loss-sharing protocols need to be negotiated, informed by the (soon-to-be-written) living wills of large cross-border banks.[30] If no progress is made in addressing cross-border spillovers, countries will be inclined to protect themselves by mandating that foreign institutions place their domestic activities into separately incorporated and capitalized domestic subsidiaries, thereby partially reversing the globalization of finance. The committee recognizes that this is a second-best option, and while it may be what the world will settle for, urges the regulatory community to be more ambitious.

8. Even vigorous countercyclical macroprudential measures such as those recommended here cannot neutralize the effects of incompatible macroeconomic policies. In a number of situations, macroeconomic

[30] A living will is a document prepared by the bank that explains to its supervisors where its assets and liabilities are, and how they will be sorted out in a bankruptcy.

policies such as low interest rates on one side of a border and exchange-rate targeting on the other can give rise to destabilizing cross-border capital flows. To the extent that these are problematic for financial stability, it is important for multilateral institutions to point to the incompatibility of macro-economic policies and press countries to make them more consistent instead of forcing countries to rely solely on macroprudential measures.[31]

9. More progress is needed on reducing the uncertainties surrounding the availability of liquidity facilities for dealing with systemic crises—such as bilateral swaps between central banks, regional liquidity pooling arrangements, and IMF facilities. While there may be an element of moral hazard associated with guaranteeing access to such facilities, financial stability may require them to be "on the shelf"—that is, to be ready for use if a crisis hits. At the very least, some efforts to aggregate the likely availability of such facilities and set them against potential needs should become part of the multilateral stability surveillance process.

Exchange Rates and Capital Controls

Many developing countries have found it helpful to intervene in the foreign exchange market as a way of encouraging exports and labor-intensive manufacturing. However, this practice can create problems for the global system when the country or countries concerned are large, either individually or collectively. This leads us to the following recommendations.

1. Countries need to recognize that such policies are not without significant costs for their own economies and should move away from such policies over time. Even when such policies may be in their narrow short-term national self-interest, they should be encouraged by the international community to move away from them because of their implications for the global system.

2. This is not, however, an argument for an immediate transition to a freely floating exchange rate. Short-run interventions in the foreign exchange market that afford time to adjust may be justified. Occasional interventions that smooth out temporary exchange rate fluctuations that threaten serious dislocations may also be justified when the temporary nature of the shock and the costs of sharp exchange rate changes are firmly established.

3. Controls on capital inflows whose main effect is to enhance financial stability, by preventing the build-up of currency or maturity mismatches or limiting the growth of intermediation through the domestic banking sector, have a useful role when other policy tools are not available or less than fully effective in addressing these problems. International standards should allow rare interventions in the foreign exchange market and temporary, financial stability-oriented capital controls while discouraging the use of measures that attempt permanently to distort the pattern of comparative advantage. In step with the reassessment of capital controls, blanket strictures against controls in bilateral investment treaties, European Union rules, and OECD guidelines need to be revisited.

4. Such measures will be more effective when applied uniformly to domestic and foreign institutions. Applying them differentially can give rise to opportunities for evading

[31] For instance, this could be one of the tasks of the small committee of systemically significant central bankers proposed earlier.

these measures through cross-bank transactions.

5. Policy makers should recognize the limitations, fiscal costs, and distortionary effects of instruments such as intervention in foreign exchange markets and even selective capital controls, especially when used for sustained periods. They should not see them as substitutes for structural reform and macroeconomic policy adjustment.

6. When a number of countries undertake measures to intervene in foreign exchange markets, this should be taken as a signal to the proposed committee of central bankers that there are policy inconsistencies at the international level that need to be addressed. These discussions could improve the likelihood of collective solutions that minimize adverse spillovers, or at least reduce the possibility of tit-for-tat escalation—for instance, through trade restrictions or competitive devaluations—that leads to worse collective outcomes.

7. Cash-strapped governments will be tempted to use prudential measures to capture domestic sources of financing (via statutory liquidity requirements on banks mandating the holding of domestic government bonds, for example). Such practices are likely to become increasingly prevalent as governments grapple with the budgetary consequences of high post-financial-crisis debt ratios. This makes it important to recognize that these measures come with risks. They can lead to greater risk concentration (as, for example, when domestic banks become exposed to an insolvent government), something that could prove costly to the global community when the country needs foreign support. Moreover, long-term barriers to cross-border capital movements divert capital flows into less transparent channels, making it harder to undertake adequate supervision.

Conclusion

Our objective in this report has been to lay out a roadmap for central banking in the post-crisis world, where financial stability can no longer be seen as outside the ambit of monetary policy, cross-border spillovers have increased in scope and size, and central banks have come under new pressures. The report sets out a strategy for incorporating financial stability concerns in the implementation of monetary policy without diluting the price-stability objective. It proposes institutional mechanisms for dealing with tensions caused by cross-border spillovers of inconsistent domestically-oriented policies. Finally, it describes how central banks are under pressure from a variety of new mandates and constraints imposed on them by other policies and institutional structures and what they should do about it.

We, of course, recognize that practical central banking differs from the theoretical ideal of flexible inflation targeting and that it may already incorporate some of what we suggest. Still, a framework is needed to articulate and better guide central banking in the more complicated and interconnected world that we now live in, especially in light of the lessons learned from the global financial crisis. By tracing the connections among different facets of central banking, we have attempted to create a broader framework and set out some concrete proposals for making progress.

References

Adrian, T. and Song, H. S. (2011). Financial Intermediaries and Monetary Economics. In Benjamin Friedman and Michael Woodford (Eds.) *Handbook of Monetary Economics* (pp. 601-650). Amsterdam: Elsevier.

Angeloni, I., et al. (Forthcoming). Reforming the International Monetary System: Options And Implications. Brussels: Bruegel/CEPII.

Bank for International Settlements (2010). Funding Patterns and Liquidity Management of Internationally Active Banks. *CGFS Paper 39.* http://www.bis.org/publ/cgfs39.htm

Bean, C. (2003). Asset Prices, Financial Imbalances and Monetary Policy: Are Inflation Targets Enough? In Anthony Richards and Tim Robinson (Eds.). *Asset Prices and Monetary Policy* (pp.48-76). Sydney: Reserve Bank of Australia.

Bernanke, B. (2002). Asset-Price "Bubbles" and Monetary Policy, *Proceedings of New York Chapter of the National Association for Business Economics.* October 15, 2002. http://www.federalreserve.gov/boarddocs/speeches/2002/20021015/default.htm

Bernanke, B. and Gertler, M. (1999). Monetary Policy and Asset Volatility. *Federal Reserve Bank of Kansas City Economic Review*, 84, 17-52.

Bernanke, B. and Gertler, M. (2001). Should Central Banks Respond to Movements in Asset Prices? *American Economic Review,* 91, 253-257.

Blanchard, O. (2000). Bubbles, Liquidity Traps, and Monetary Policy, In Ryoichi Mikitani and Adam Posen (Eds.). *Japan's Financial Crisis and its Parallels to the US Experience.* Washington, DC: Institute for International Economics Special Report 13.

Bordo, M. and Jeanne, O. (2002). Monetary Policy and Asset Prices: Does Benign Neglect Make Sense? *International Finance,* 5, 139-164.

Borio, C. and Lowe, P. (2002). *Asset Prices, Financial and Monetary Stability: Exploring the Nexus*. Basel: Bank for International Settlements Working Paper 114. http://www.bis.org/publ/work114.htm

Borio, C. and White, W. (2003). Whither Monetary and Financial Stability? The Implications of Evolving Policy Regimes. *Proceedings of the Federal Reserve Bank of Kansas City Symposium*. Jackson Hole. http://www.kc.frb.org/publicat/sympos/2003/sym03prg.htm

Cecchetti, S., Genberg, H., Lipsky, J., and Wadhwani, S. (2000). Asset Prices and Central Bank Policy. *Geneva Reports on the World Economy 2, International Centre for Monetary and Banking Studies and Centre for Economic Policy Research.*

Cetorelli, N. and Goldberg, L. (Forthcoming). Banking Globalization and Monetary Transmission, *Journal of Finance*. http://www.newyorkfed.org/research/economists/cetorelli/Cetorelli_Goldberg_final.pdf

Crockett, A. (2003). International Standard Setting in Financial Supervision. *Institute of Economic Affairs*, Lecture. London: Cass Business School.

Dudley, W. (2006). *Panel discussion, NBER conference on Monetary Policy and Asset Prices*. http://www.nber.org/books_in_progress/assetprices/dudley6-28-06.pdf

Farhi, E., Gourinchas, P.O., and Rey, H. (Forthcoming). Reforming the International Monetary System, *CEPR* eReport.

Goodhart, C. (2000). Asset Prices and the Conduct of Monetary Policy. *Working paper, London School of Economics*.

Greenspan, A. (2002). Economic Volatility. *Proceedings of Federal Reserve Bank of Kansas City Symposium, Jackson Hole.* http://www.federalreserve.gov/boarddocs/speeches/2002/20020830/default.htm

International Monetary Fund (2010). A Fair and Substantial Contribution by the Financial Sector. *Report for the G20*. Washington, DC: International Monetary Fund. http://www.imf.org/external/np/g20/pdf/062710b.pdf

Kohn, D. (2005). Commentary: Has Financial Development Made the World Riskier? *Proceedings of the Federal Reserve Bank of Kansas City Symposium, Jackson Hole.* http://www.kc.frb.org/publicat/sympos/2005/sym05prg.htm

Kubelec, C. and Sá, F. (2010). The Geographical Composition of National External Balance Sheets: 1980-2005. *Bank of England Working Paper*, No. 384.

Lane, P.R. and Milesi-Ferretti, G.M. (2001). The External Wealth of Nations: Measures of Foreign Assets and Liabilities for Industrial and Developing Countries. *Journal of International Economics*, 55, 263–94.

Mishkin, F. (2008). How Should We Respond to Asset Price Bubbles? *Speech at the Wharton Financial Institutions Center and Oliver Wyman Institute's Annual Financial Risk Roundtable*. Philadelphia: Federal Reserve. http://www.federalreserve.gov/newsevents/speech/mishkin20080515a.htm

Ostry, J., Ghosh, A., Habermeier, K., Chamon, M., Qureshi, M.S., and Reinhardt, D.B.S. (2010). Capital Inflows: The Role of Controls. *IMF Staff Position Note 10/04*. Washington, DC: International Monetary Fund.

Portes, R. (2010). *Currency Wars and Emerging Markets Economies*. http://www.voxeu.org/index.php?q=node/5740

Reinhart, C.M. and Reinhart, C.R. (2010). After the Fall. *Proceedings of the Federal Reserve Bank of Kansas City Economic Policy Symposium, Macroeconomic Challenges: The Decade Ahead, Jackson Hole*. http://www.kansascityfed.org/publicat/sympos/2010/reinhart-paper.pdf

Rodrik, D. (2008). The Real Exchange Rate and Economic Growth. *Brookings Papers on Economic Activity*. Washington DC: Brookings Institution.

Rodrik, D. (2010). Growth After the Crisis. In Michael Spence and Danny Leipziger (Eds.). *Globalization and Growth: Implications for a Post-Crisis World.* Washington DC: Commission on Growth and Development.

Rose, A. (2007). A Stable International Monetary System Emerges: Inflation Targeting is Bretton Woods, Reversed. *Journal of International Money and Finance*, 26, 663-681.

Stark, J. (2008). Main Challenges for Monetary Policy in a Globalised World. *Proceedings of the Monetary Policy in Sub Saharan Africa: Practice and Promise conference.* Cape Town: Bank for International Settlements. http://www.bis.org/review/r080331e.pdf

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