



# Monetary policy lessons learned from the crisis and the post-crisis landscape

**Stephen G Cecchetti<sup>1</sup>**

Economic Adviser and Head of Monetary and Economic Department  
Bank for International Settlements

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Ladies and Gentlemen,

It is both a pleasure and a privilege to address the inaugural SEACEN-CEMLA Conference this morning in Kuala Lumpur. In my remarks, I would like to examine three main themes, drawing out the main lessons from the crisis for central banking in the post-crisis era. They are:

- The future of inflation targeting
- The future of central banks' operational frameworks
- The future of global central bank cooperation

It is immediately clear to everyone here that we have seen each of these aspects – inflation targeting, central banks' operational frameworks and global central bank cooperation – put to the test. In each case, the experience of the last three years has changed the way in which we do and should think about how central banks go about meeting their macroeconomic stabilisation objectives. But, not only do these lessons influence how we formulate policy frameworks, they also have implications for how we should go about constructing a credible and consistent governance structure. After all, governance is the enduring core of central banking. Without appropriate governance arrangements, policymakers cannot even set out on the difficult path that they need to follow.

## What is the future of inflation targeting?

With that as a brief introduction, let me turn to my first theme: the future of inflation targeting.<sup>2</sup>

Here, I will start with the basics – the three main elements that define an inflation targeting framework:

1. The public announcement of medium-term numerical targets for inflation
2. An institutional commitment to price stability as the primary goal of monetary policy
3. Frequent communication with the public about the plans, objectives and decisions

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<sup>1</sup> I would like to thank Andrew Filardo, Boris Hofmann and Aaron Mehrotra for their help in preparing these remarks. The views expressed here are those of the author and do not necessarily reflect those of the BIS.

<sup>2</sup> See F S Mishkin, "Inflation targeting", in B Snowdon and H R Vane (eds), *An Encyclopedia of Macroeconomics*, Edward Elgar, 2002.



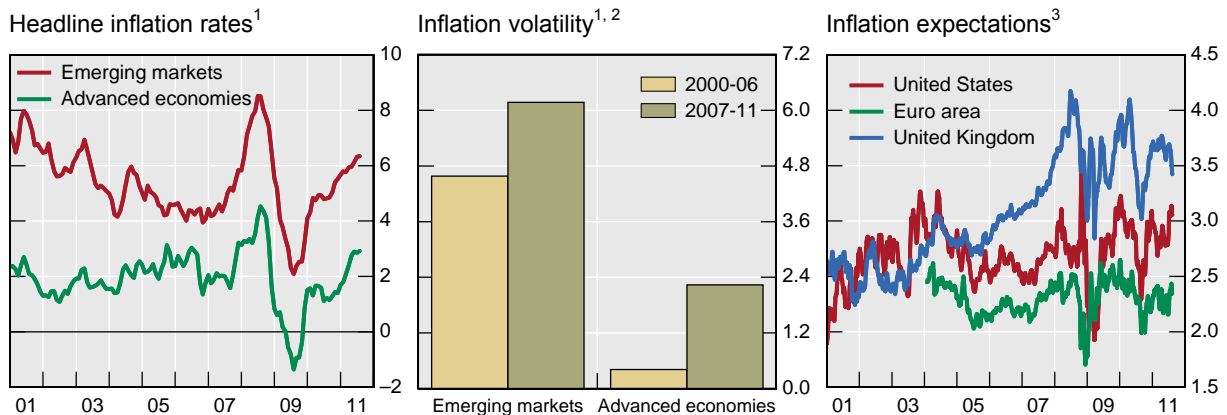
By focusing on a clearly defined and easily observable numerical inflation statistic, and requiring frequent communication with the public, inflation targeting increases policymakers' accountability and helps to establish their credibility. Not only do central bankers know what they are supposed to do – everyone else does too. The result is not just lower and more stable inflation, but higher and more stable growth as well.

But the proof of the pudding is truly in the eating. And here, there is clear success. I have little doubt that the adoption of inflation targeting frameworks – either explicit or implicit – was one of the key factors in the achievement of low and stable inflation rates globally for more than a decade (as shown in the left-hand panel of Graph 1). And in addition to more stable prices, countries that adopted inflation targeting enjoyed higher and more stable growth rates prior to the crisis. This was no small feat.

Graph 1

**Inflation**

Year-on-year percentage changes



<sup>1</sup> Aggregates based on 2005 GDP and PPP exchange rates of the countries listed. Emerging markets: Argentina, Brazil, Chile, China, Colombia, the Czech Republic, Hong Kong SAR, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, the Philippines, Poland, Russia, Saudi Arabia, Singapore, South Africa, Thailand and Turkey. Advanced economies: the euro area, Japan, the United Kingdom and the United States. <sup>2</sup> Variance of monthly year-on-year changes of headline inflation. Argentina, Russia and Turkey are excluded. <sup>3</sup> Five-year forward five-year-ahead inflation-linked swap rate.

Sources: Bloomberg; Datastream; national data.

The benefits of inflation targeting frameworks were clearly revealed during the crisis. An institutional commitment to the inflation objective together with timely and clear communication – both inherent features of price stability-oriented frameworks – helped keep inflation expectations stable when the crisis hit. The stability of inflation expectations, in turn, reduced the risk of deflation. As you can see in the right-hand panel of Graph 1, inflation expectations have also remained well anchored in the subsequent recovery despite extraordinarily loose monetary conditions and soaring commodity prices. This was supported by the high accountability and credibility of inflation targeting central banks. But, while inflation targeting worked well, there is clearly need for refinement.

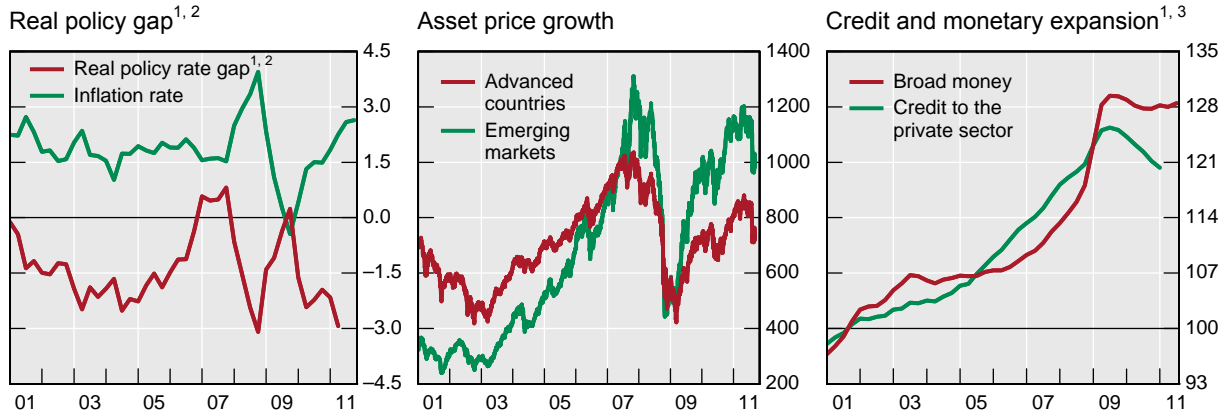
A key lesson from the crisis is that existing monetary policy frameworks need to be modified to put additional weight on the risks associated with a build-up of financial imbalances, even when inflation rates remain low and stable. It is important for policymakers to monitor general financial conditions, including both the prices and transaction volumes in a broad array of asset markets. The experiences of the past decade have demonstrated that accommodative monetary conditions can lead to massive increases in asset prices and credit aggregates without triggering movements in consumer price inflation. We can see this in Graph 2, where I have plotted a measure of policy accommodation along with inflation in the left-hand panel together with asset price and credit growth in the centre and right-hand panels. The message is that, during the last decade, policy was almost always accommodative. And, from 2001 to



2006, asset prices and credit both boomed. At the same time, inflation appeared largely under control.

Graph 2

**Low interest rates, asset price growth and credit expansion**



<sup>1</sup> Major OECD countries; weighted averages based on 2005 GDP and PPP exchange rates. <sup>2</sup> Real policy rate minus natural rate. The real rate is the nominal rate adjusted for four-quarter consumer price inflation. The natural rate is defined as the average real rate in 1985–2005 (for Japan, 1985–95; for Switzerland, 2000–05) plus the four-quarter growth in potential output less its long-term average. <sup>3</sup> For advanced countries, MSCI World Index; for emerging markets, MSCI Emerging Markets Index. <sup>4</sup> Relative to nominal GDP; 2001 = 100.

Sources: IMF; OECD; Bloomberg; national data; BIS calculations and estimates.

The immediate implication is that achieving financial stability as well as price stability requires modification of inflation targeting frameworks; but how? First, there is the need to lengthen the policy horizon beyond the conventional two years or so typical of many inflation targeting frameworks. Financial imbalances tend to build up only gradually over many years. Addressing the systemic risks that arise is something that can require policymakers to allow inflation to deviate from their short-term objectives.

Second, monetary policy needs to be tightened aggressively during financial booms, not only loosened during the following busts. This helps avoid situations where policy interest rates trend downwards over time to levels incompatible with price stability in the steady state and where excessive leverage is encouraged.

Let me briefly turn to the role of the exchange rate in inflation targeting frameworks, especially in emerging market economies. Over the past decade, there has been a somewhat disturbing growth in foreign exchange reserves in emerging market economies, particularly in Asia. Graph 3 compares the levels in January 2001 with those today. Initially, much of the build-up reflected the desire to increase the stock of precautionary reserves as a defence against the type of issues that arose in the Asian financial crisis in the late 1990s. However, over time, the build-up increasingly reflected exchange rate regimes which were resisting appreciation pressures.

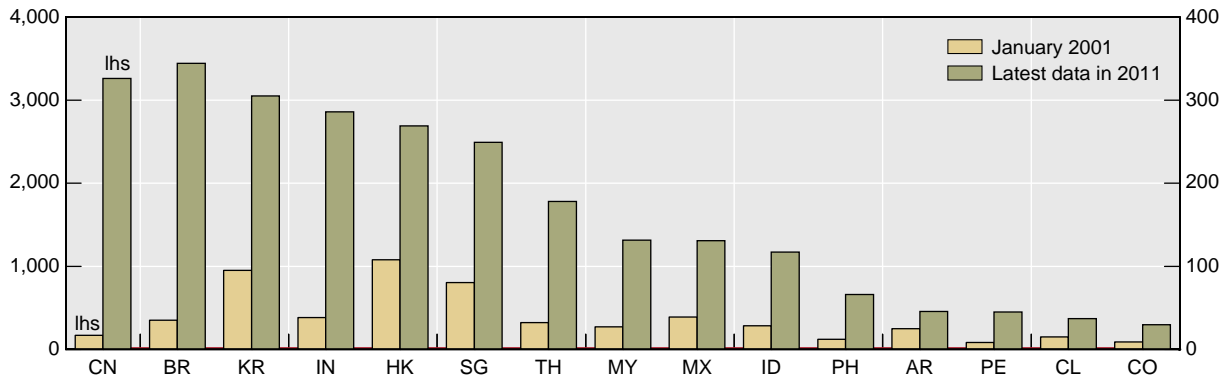
Some have argued that emerging market policymakers have been trying to reduce volatility, not to influence the level of the exchange rate per se. To be sure, these concerns can be justified by short-term concerns over macroeconomic and financial stability, and medium- to long-run concerns over resource allocation. But resisting exchange rate pressures for too long implies some willingness on the part of monetary policymakers to lessen their commitment to inflation control. And, we should always remember the benefits of exchange rate flexibility. Increased exchange rate flexibility, in particular allowance for greater exchange rate appreciation, helps contain domestic inflation during booms.



Graph 3

**Reserve accumulation**

In billions of US dollars



AR = Argentina; BR = Brazil; CL = Chile; CN = China; CO = Colombia; HK = Hong Kong SAR; ID = Indonesia; IN = India; KR = Korea; MX = Mexico; MY = Malaysia; PE = Peru; PH = Philippines; SG = Singapore; TH = Thailand.

Sources: IMF, *International Financial Statistics*; CEIC; Datastream; national banks.

To sum up, inflation targeting frameworks proved their worth before and during the crisis. They fostered conditions that contributed to stable inflation and firmly anchored inflation expectations. While refinements to such frameworks are needed, price stability is an essential component of any stability-oriented policy framework going forward.

## What is the future of central banks' operational frameworks?

Let me now turn to my second theme: the future of central banks' operational frameworks. The pre-crisis consensus was that monetary policy should be both framed and implemented via policy interest rates. The characterisation of monetary policy in most cases boiled down to Taylor-type rules in which the level of the policy-controlled interest rate reacted to a combination of movements in inflation and fluctuations in the state of the business cycle.

This view has been fundamentally challenged with the experiences of the crisis. Central banks' toolboxes now comprise a whole range of monetary policy instruments:

- The policy rate
- The size of the central bank balance sheet
- The composition of the central bank balance sheet
- Reserve requirements
- The remuneration rate on excess reserves

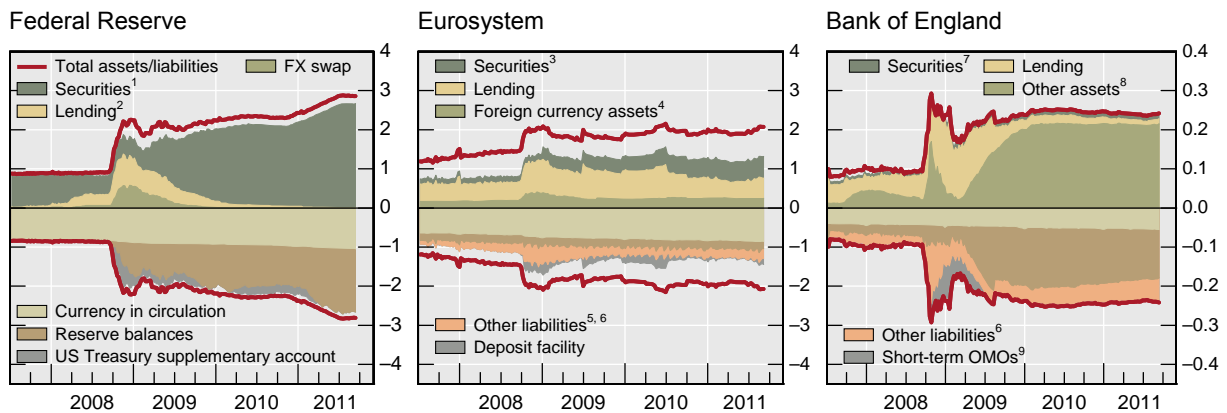
In advanced economies, central bank balance sheet policy has shown itself to be a powerful and flexible instrument during crisis times. The size of central bank balance sheets increased to unprecedented levels, and the composition varied over time and across central banks, as different strategies were adopted. Graph 4 shows the change in both size and composition since 2007. Arguably, this aggressive and flexible use of central bank balance sheets was instrumental in preventing a collapse of the global financial system and the global economy.



Graph 4

**Central bank assets and liabilities**

In trillions of respective currency units



<sup>1</sup> Securities held outright. <sup>2</sup> Repurchase agreements, term auction credit, other loans and Commercial Paper Funding Facility. <sup>3</sup> Securities issued by euro area residents and general government debt, in euros. <sup>4</sup> Including US dollar liquidity auctions. <sup>5</sup> Including liabilities to non-euro area residents in euros and liabilities to euro area residents in foreign currency. <sup>6</sup> Including to central banks. <sup>7</sup> Bonds and other securities acquired via market transactions. <sup>8</sup> Including US dollar liquidity auctions and loans to the Bank of England Asset Purchase Facility Fund. <sup>9</sup> Open market operations, including issuance of Bank of England sterling bills.

Sources: CEIC; Datastream; national data.

At the same time, central bank reserve policy has gained importance as a monetary policy tool. Some advanced economies' central banks have used the remuneration rate on reserves as a tool to enhance the management of reserve holdings and the control over money market rates against the background of expansionary balance sheet policies. Reserve requirements have been used by a number of EME central banks as a tool to ease banks' financing conditions during periods of financial stress and to dampen credit growth during booms.<sup>3</sup>

These new instruments are very likely to remain important elements of central banks' toolboxes in the foreseeable future. The ongoing fragility and volatility of the global economic and financial environment suggest that we cannot expect to return anytime soon, if at all, to an operational framework centred on the policy rate as the single monetary policy instrument. Situations where the short-term financing needs of the financial sector cannot be sufficiently addressed by the policy rate or where they are even at odds with the central bank's medium-term macroeconomic stability goals appear increasingly likely in the future. As a consequence, central banks' operational frameworks will be much more complicated than those that prevailed before the crisis.

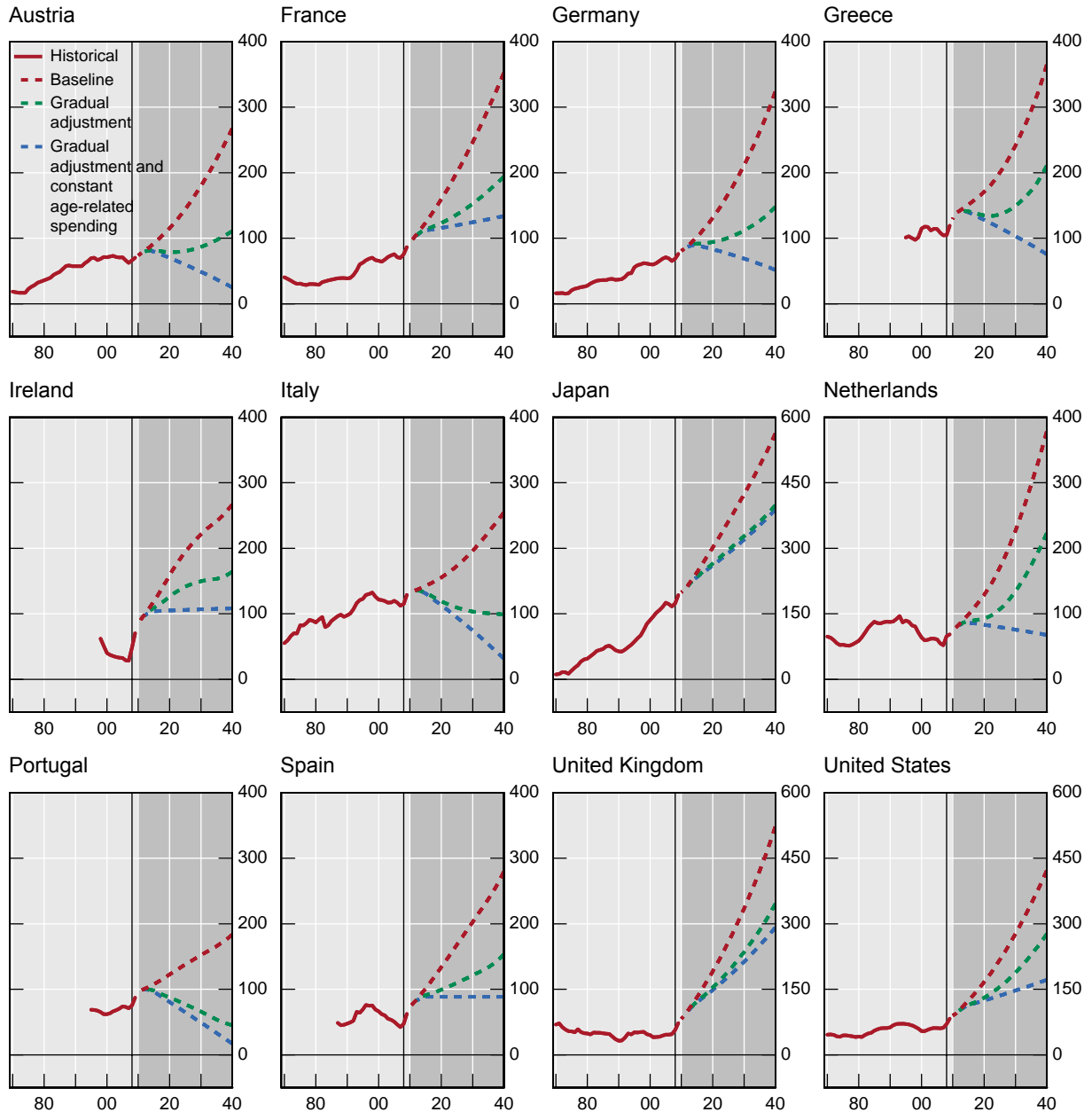
Additional complications arise from the huge debt burdens facing many economies. Graph 5 displays trajectories for government debt for a sample of large advanced economies in several policy scenarios. As governments address these large and growing financing needs, sovereign debt management decisions will play an increasingly important role in the implementation of monetary policy. By choosing the quantity and maturity structure of the supply of government bonds, debt managers influence the shape of the sovereign yield curve. To the extent that debt managers and central banks have different priorities, they might find themselves working at cross purposes. This does not necessarily mean that monetary policy

<sup>3</sup> See C Montoro and R Moreno, "The use of reserve requirements as a policy tool in Latin America", *BIS Quarterly Review*, March 2011, pp 53–65.



will be less effective, but it does mean that central banks will have to work harder to achieve their desired policy stance with respect to the level and shape of the yield curve.<sup>4</sup>

Graph 5  
Gross public debt projections  
As a percentage of GDP



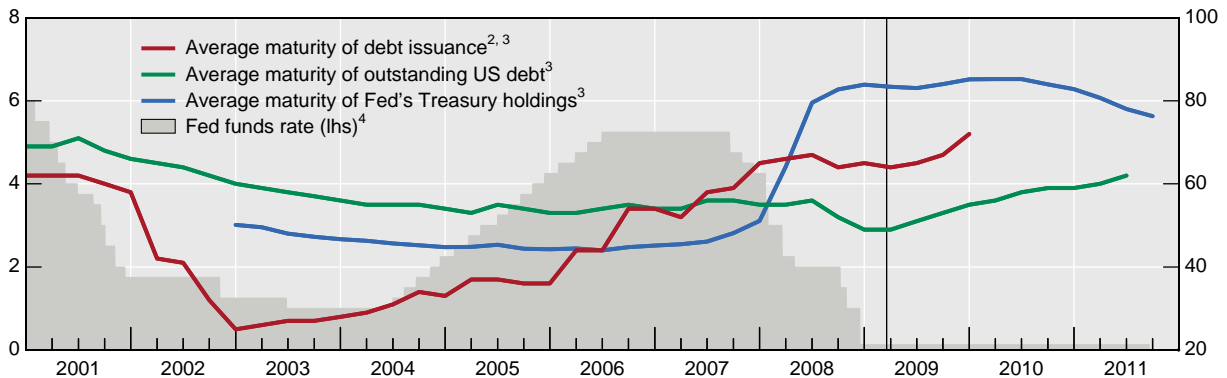
Sources: European Commission; IMF, *World Economic Outlook*, April 2007; OECD; US Congressional Budget Office; authors' projections.

<sup>4</sup> See P Turner, "Fiscal dominance and the long-term interest rate", *LSE Financial Markets Group Special Paper*, no 199; and Committee on the Global Financial System, "Interactions of sovereign debt management with monetary conditions and financial stability: lessons and implications for central banks", *CGFS Papers*, no 42.



Based on US experience, there is reason to expect interaction between debt management and monetary policy. For example, the maturity of government debt issuances has historically displayed a positive correlation with the level of the federal funds rate, indicating that the maturity structure of debt was shortened when short-term rates were low and lengthened when they were high. As you can see in Graph 6, more recently US Treasury issuance increased the supply of long-term sovereign debt at the same time as the Federal Reserve was actively buying at the long end of the yield curve to reduce duration.

Graph 6

**Balance sheet policy overlaps with sovereign debt management<sup>1</sup>**

<sup>1</sup> The vertical line indicates the Federal Reserve's announcement of the \$300 billion Treasury purchase programme. <sup>2</sup> One-year moving average; data no longer released after February 2010. <sup>3</sup> In months. <sup>4</sup> In per cent.

Sources: US Treasury; Datastream; BIS calculations.

So, what is the future of central bank operating procedures? For one, central bank operating procedures of the future will be more complicated, with more tools and more options. In addition, the interaction of monetary policy and sovereign debt management will be a major challenge for those operating procedures in the coming years. Central banks in economies with high debt burdens and those affected by the actions taken in economies with high debt burdens will therefore need to keep abreast of the activities of debt managers when implementing monetary policy.

## What is the future of central bank cooperation?

I now turn to my last theme: the future of central bank cooperation. Rapid economic and financial globalisation has been a key characteristic of the world economy over the past two decades. Graph 7 shows the dramatic increase in international investment positions over the past 30 years, from well below 50% of world GDP in 1980 to more than 150% of world GDP today. At present, these positions sum to more than US\$ 100 trillion. Combined with the dramatic increase in goods and service trade, this has been a key driver of global growth and prosperity. We must continue the integration process in order to reap its benefits. A return to isolationism is not an option.

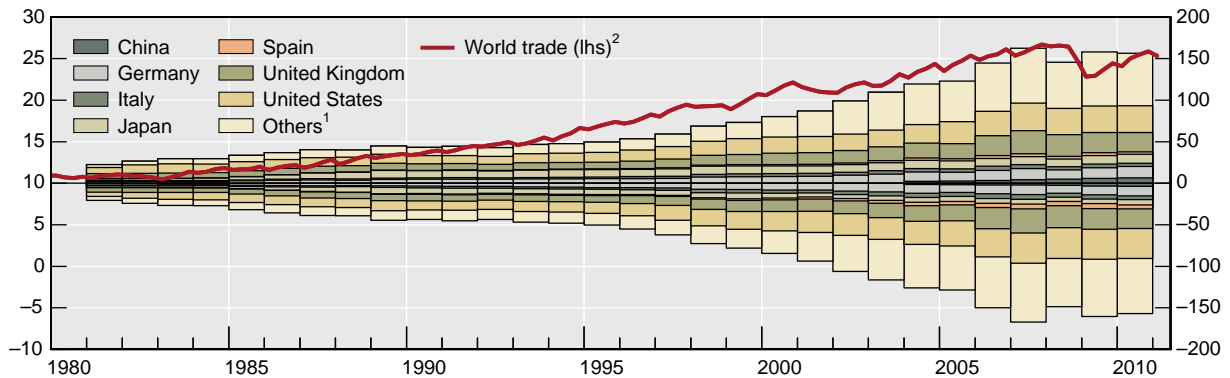
However, greater global integration brings important new challenges for everyone, including central banks. Economic and financial conditions in one country are increasingly influenced by global conditions. And those global conditions, in turn, while appearing independent of each individual country's actions, are inevitably influenced by collective behaviour. This means that central banks need to take better account of the impact of their actions on others, and on monetary conditions globally.



Graph 7

International investment positions of all countries

As a percentage of world GDP



¹ Sum of 114 economies. ² Average of exports and imports in goods and services.

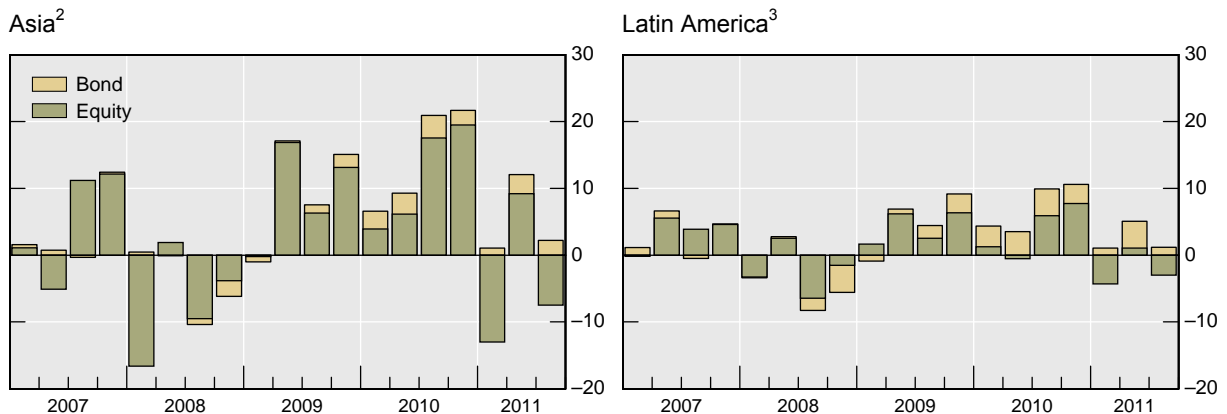
Sources: IMF, *International Financial Statistics* and *World Economic Outlook*; OECD; BIS calculations.

Again, there are lessons to be learned from the crisis. As already mentioned, accommodative global monetary conditions played a role in the run-up to the international financial crisis. Unusually low policy rates in many advanced economies were transmitted to the rest of the world in large part by the choice of a number of emerging market economies to resist exchange rate appreciation pressures. Taken together, the result was an unusually loose global monetary policy stance despite record global growth. The resulting global asset price and credit boom set the stage for the subsequent global bust. More worrisome now, we cannot rule out the possibility that we are seeing the beginning of a similar phenomenon playing itself out again. As shown in Graph 8, the level and volatility of capital flows to emerging market economies have increased significantly. This is probably driven in part by record low interest rates and additional monetary easing via balance sheet policies in advanced economies, but it probably also just reflects the natural outcome of capital flowing towards economies with stronger growth prospects.

Graph 8

Capital flows into emerging markets¹

In billions of US dollars



¹ Quarterly sums of weekly data up to 7 September 2011 across the economies listed. ² China, Chinese Taipei, Hong Kong SAR, India, Indonesia, Korea, Malaysia, the Philippines, Singapore and Thailand. ³ Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela.

Source: EPFR.





What are the options for global economic policy cooperation against this background? The EMEs would certainly like to see the advanced economies recover more quickly, maintain low inflation, and move decisively to achieve sustainable public finances. The problem is that delivering this outcome, along with an accelerated normalisation of monetary policy, is unlikely to be feasible. As a result, EMEs may have to consider a compromise. It seems reasonable for the EMEs to expect public finances in the advanced economies to be brought onto a sustainable path, in order to reduce short-term financial instability and medium-term inflation risks. To achieve this, monetary policy will have to do what it can to keep advanced economies from falling back into recession.

At the same time, the EMEs will need to consider what they themselves can do to foster more balanced and sustainable growth of the world economy. As I have argued elsewhere,<sup>5</sup> one natural option would be greater exchange rate flexibility. This might be more palatable to each EME if it were agreed by many at once. One concern for any individual EME pursuing such a policy is that any action, if taken in isolation, would disadvantage its export sector. And with an EME being small in the global economy, the go-it-alone option would not be seen as resolving the more general global imbalance. In other words, it is important that a collective understanding arises that overcomes the first mover disadvantage.

We are of course far away from forging such effective cooperative arrangements. But we are making progress. The frameworks for global economic policy cooperation now involve both advanced and emerging market economies. The G20 has replaced the G7 as the prime forum for global economic governance issues. And the Global Economy Meeting of BIS central bank governors has replaced the G10 group of governors as the prime forum of central bank cooperation.

In addition, regional efforts are also contributing to a strengthening of global central bank cooperation. A good illustration of how regional efforts can reinforce global cooperation is the success of SEACEN and CEMLA. And, today, at this inaugural joint SEACEN-CEMLA event, we are a part of what some have called the death of distance. Clearly, emerging market economies share plenty of opportunities and policy challenges. It is important that such collaboration fosters stronger global cooperation. In other words, we must ensure that regional efforts complement global efforts and guard against actions that might substitute for effective global cooperation.

In conclusion, central bank cooperation has been critical to our success and more is needed as the global challenges multiply. In our globalised world, purely domestically oriented policy approaches are bound to be inadequate and potentially counterproductive. We are still a long way from the ideal of a truly global perspective in the conduct of monetary policy, but progress is being made and we are on the right track.

## **Central bank governance – the enduring core of central banking**

Let me now come to the final and concluding part of my presentation, central bank governance. This is the enduring core of central banking and a theme that cuts across all of the themes I have discussed thus far. And within governance, it is central bank independence which safeguards the monetary policy objectives from the temptation of politicians to use central banks for short-term political gain. Let me return to some of the

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<sup>5</sup> S G Cecchetti, "Global imbalances: current accounts and financial flows", remarks prepared for the Myron Scholes Global Markets Forum, University of Chicago, 27 September 2011.



points I raised earlier in order to illustrate how they tie in with governance and monetary policy independence in particular.

I think of inflation targeting as the quid pro quo for central bank independence. At the same time, central bank independence itself is essential for inflation targeting frameworks to be credible. Independence will also be the key to effective implementation of a leaning-against-the-wind approach to monetary policy. While increasing policy interest rates in the context of inflationary booms is bound to meet with some political resistance, surely it is even harder to politically justify countercyclical policy measures when the near-term inflation outlook is benign. A high level of operational independence is essential to ensure sufficient room for manoeuvre to take action against risks in the financial system that build up slowly and often without overt near-term inflation pressures. To reduce political opportunism, well designed governance arrangements are needed to provide a clear allocation of responsibilities for financial stability and this must be buttressed with strong accountability provisions.

Safeguarding central bank independence is also crucial in an environment of high public debt burdens and concerns about fiscal sustainability. High public debt levels increase the risks of fiscal dominance, where central banks are pressured to monetise and inflate away the public debt.

Central bank independence is also important in the context of public debt management and monetary policy. While central banks must take debt management decisions into account in the implementation of monetary policy, they should not be put in the position of having to subjugate their price stability goals to the goals of the debt managers.

Finally, governance issues are at the heart of the dilemma of central banking in a more globalised world. Mandates for domestic monetary policymaking may appear to be in conflict with taking a global monetary policy perspective. But, the reality is that global factors are playing an increasingly important role in determining domestic outcomes. Therefore, it is imperative that governance frameworks at least allow central banks to go beyond simply keeping their own house in order in the short run. Central banks need to be independent from domestic political pressures so that they can implement policies that take account of global spillovers and feedbacks from their individual monetary policy actions. This independence should, implicitly or explicitly, provide incentives for central banks to cooperate with other central banks and to seek global solutions to problems where international cooperation is required.

## **Concluding remark**

What I have tried to do this morning is to describe a set of very tough challenges facing central banks in the coming years. But, as we all focus on the future, it is important not to lose sight of the remarkable progress in the theory and practice of monetary policy. Looking back to the beginning of my professional career, I remember vividly the difficult and confusing inflation problems of the late 1970s and early 1980s. And with that confusion came widespread scepticism about the capacities of the world's monetary policymakers. But central banks in both advanced economies and the emerging world changed their operational frameworks and governance arrangements, made a number of tough choices and delivered price stability. It is our job to build on this success, modifying and extending inflation targeting frameworks, refining balance sheet tools, and enhancing global cooperation to further enhance the welfare of society.

This inaugural joint SEACEN-CEMLA Conference is an important part of this effort. I congratulate the organisers, wish all of you success over the next two days, and thank you for your attention.