VI. Monetary policy at the crossroads

Monetary policy continues to be extraordinarily accommodative as central banks have kept policy rates very low and further expanded their balance sheets. Even though these measures have played an important role in successfully navigating the crisis and its immediate aftermath, concerns are being raised about the declining effectiveness of additional monetary policy actions and the negative side effects of prolonged monetary accommodation. Central banks face several significant challenges as they consider the merits of further accommodation, contemplate the eventual exit and look to the nature of policy frameworks in a more normal environment.

This chapter first reviews recent central bank actions against the backdrop of the trend towards monetary policy activism since the start of the crisis and considers the near-term policy challenges. It then turns to issues associated with the eventual exit from the current policy stance and discusses the longer-term implications of the crisis experience for monetary policy frameworks. The chapter concludes that flexible strategies for a smooth exit and challenging adjustments – albeit not major reforms – to pre-crisis monetary policy frameworks will be important priorities for central banks.

Monetary policy and the crisis

Two major interrelated trends have characterised the conduct of monetary policy over the past five years. First, policy rates in all economic areas have been cut and kept low (Graph VI.1). Most major advanced economy central banks had by early 2009 reduced interest rates all the way to their effective lower bound, where they still are four years later. The Federal Reserve underpinned its low interest rate policy by adopting forward guidance linking the duration of its policy stance to unemployment and inflation objectives. The ECB has kept rates low since early 2009. After raising rates twice in 2011, it subsequently reduced rates, most recently to new lows. In real terms, policy rates in the major advanced economies have not been so persistently negative since the 1970s.

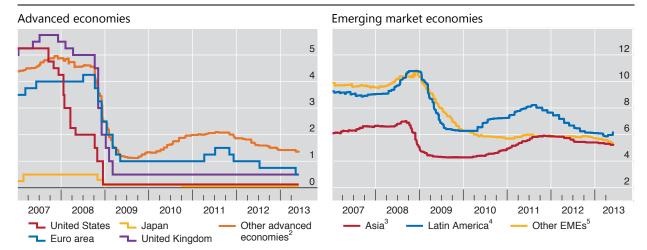
In the other advanced economies and the emerging market economies, policy rates have also trended down (Graph VI.1). While nominal rates have generally been well above their lower bounds, real rates have also been very low, in particular against the background of stronger economic performance and more buoyant asset and credit markets than in the major advanced economies.

The second key monetary policy trend is the massive growth of central bank balance sheets, both in absolute terms and as a percentage of GDP (Graph VI.2). Since late 2007, central bank total assets worldwide have roughly doubled to about \$20 trillion, or just over 30% of global GDP. In the emerging Asian economies, central bank assets correspond to more than 50% of GDP, unchanged since the end of 2007 as GDP in this region also expanded strongly over the period. And in Switzerland, the ratio recently reached 85% of GDP as the Swiss National Bank sharply increased its foreign reserves – to roughly \$470 billion by the end of 2012 – in defence of its exchange rate floor against the euro.

Along with the expansion of balance sheets, the maturity of central bank assets in the major advanced economies has lengthened markedly, driven by the changing

Policy rates¹

In per cent Graph VI.1



¹ Policy rate or closest alternative; for target ranges, the midpoint of the range. Aggregates are weighted averages based on 2005 GDP and PPP exchange rates. ² Australia, Canada, Denmark, New Zealand, Norway, Sweden and Switzerland. ³ China, Chinese Taipei, Hong Kong SAR, India, Indonesia, Korea, Malaysia, the Philippines, Singapore and Thailand. ⁴ Argentina, Brazil, Chile, Colombia, Mexico and Peru. ⁵ Other emerging market economies (EMEs): the Czech Republic, Hungary, Poland, Russia, Saudi Arabia, South Africa and Turkey.

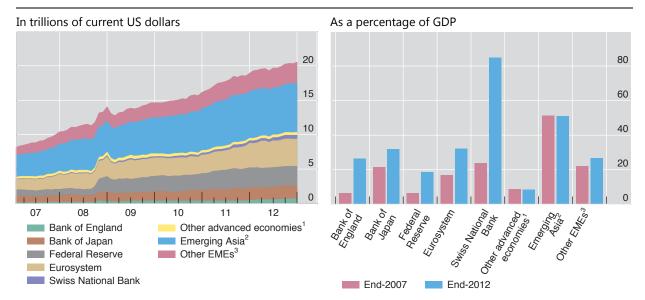
Sources: Bloomberg; Datastream; national data.

nature of unconventional monetary policy measures implemented since 2007 (Graph VI.3). In the early phase of the crisis, central banks stepped up overnight and term funding for financial institutions in order to address tensions in money markets. Subsequently, the Federal Reserve, the Bank of Japan and the Bank of England launched large-scale programmes to purchase longer-term private and public sector debt securities with the aim of providing further monetary stimulus at the effective lower bound by reducing longer-term interest rates.

The ECB has focused on addressing impairments in the euro area monetary transmission process. To this end, the ECB launched additional longer-term refinancing operations (LTROs) and asset purchase programmes targeted at illiquid segments of private and government bond markets. As a consequence, outright securities holdings of the Eurosystem have remained small compared with those of the other three major economy central banks, but the duration of the refinancing operations has lengthened.

At the current juncture, the four major central banks are pursuing different balance sheet programmes to address the specific economic and financial difficulties they face. The Federal Reserve is operating an open-ended asset purchase programme of \$85 billion in monthly purchases, including mortgage-backed securities and Treasuries. This programme, along with forward guidance on policy rates, has pushed the US yield curve down to historical lows in order to boost aggregate demand. The Fed has announced that the pace and eventual size of the programme will be determined by labour market and inflation performance.

The Bank of England's Funding for Lending Scheme (FLS) aims at boosting credit availability to the real economy. It does this, in part, by subsidising the funding costs of financial firms. The extension of the FLS earlier this year reflects some initial signs of success in stimulating lending but also concerns about continued impairment in the monetary transmission mechanism. The extended scheme seeks to increase banks' incentives to lend to small and medium-sized enterprises.



¹ Australia, Canada, Denmark, New Zealand, Norway and Sweden. ² China, Chinese Taipei, Hong Kong SAR, India, Indonesia, Korea, Malaysia, the Philippines, Singapore and Thailand. ³ Argentina, Brazil, Chile, Colombia, the Czech Republic, Hungary, Mexico, Peru, Poland, Russia, Saudi Arabia, South Africa and Turkey.

Sources: IMF, International Financial Statistics; Datastream; national data.

The ECB's Outright Monetary Transactions (OMTs) address redenomination risk in the euro area. By providing a liquidity backstop for sovereign debt markets, OMTs aim at ensuring the integrity of the area-wide monetary policy. The activation of OMTs is conditional on the fulfilment of strict criteria under an appropriate European Financial Stability Facility / European Stability Mechanism programme. OMTs have yet to be formally activated, but their mere establishment has contained downside tail risks in the euro area (see Chapter II).

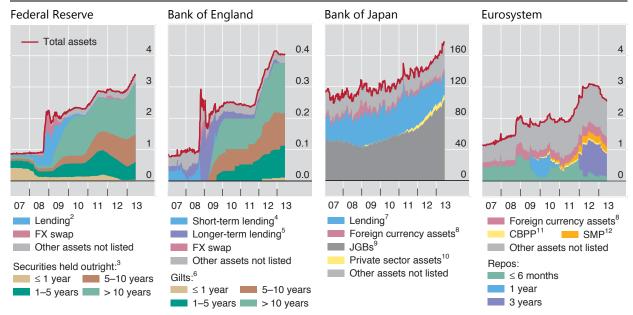
The Bank of Japan has launched its Quantitative and Qualitative Monetary Easing programme aiming to double the size of its monetary base and the outstanding amounts of Japanese government bonds and exchange-traded funds and more than double the average maturity of its government bond purchases. The programme is part of a broader effort by the Japanese government and the Bank of Japan to overcome deflation and support sustainable growth. The plan includes an increase in the Bank of Japan's price stability target to 2% annual inflation, from its goal of 1% previously; and a shift in the main operating target for money market operations from the uncollateralised call rate to the monetary base. At the time of this Report, according to both market- and survey-based measures, inflation expectations in Japan have drifted upwards, but it is too early to assess the lasting impact of the programme.

Outside the major advanced economies, the increase of central bank assets has been mainly driven by a large-scale accumulation of foreign exchange reserves. Many emerging Asian economies added to their foreign exchange holdings in the wake of the crisis as they leaned against appreciation pressures on their currencies. While the rate of accumulation has slowed down in recent years, the stock of foreign reserve holdings in these economies is large, amounting to more than \$5 trillion at the end of 2012, or about half of the world's total stock of foreign reserves (Table II.1). Moreover, these economies now hold reserves in excess of conventional metrics of reserve adequacy.

Central bank balance sheet size and composition¹

In trillions of respective currency units

Graph VI.3



¹ Bank of England and Federal Reserve: breakdown by remaining maturity; Eurosystem: breakdown of outstanding repo operations by original maturity.

Outstanding in repos, term auction facility, other loans and net portfolio holdings of Commercial Paper Funding Facility LLC.

Justine Treasury securities, mortgage-backed securities and agency debt; face value.

Long-term repo operations.

Longer-term repo operations.

Receivable under resale agreements and loans excluding those to the Deposit Insurance Corporation.

Ricludes US dollar liquidity auctions.

Japanese government bonds.

Commercial paper, corporate bonds, exchange-traded funds and listed real estate investment trust securities.

Covered bonds held under the Covered Bond Purchase Programme (CBPP) 1 and the CBPP 2.

Securities held under the Securities Markets Programme (SMP).

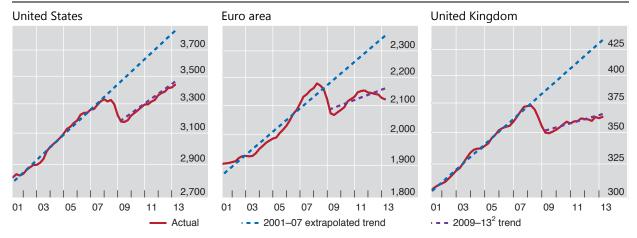
Sources: Datastream; national data.

Taken together, central bank actions since the start of the crisis have played a critical stabilising role, by first offsetting the forces of the financial collapse and then supporting a recovery in the real economy. However, economic activity has remained well below its pre-crisis trends in the United States, the euro area and the United Kingdom (Graph VI.4), and unemployment rates have remained stubbornly high, especially when compared with previous cyclical recoveries. This observation in part explains why central banks have taken further actions over the past year, and why even more radical ideas have been entertained, such as the adoption of nominal GDP targeting and monetisation of fiscal deficits.

Despite having succeeded in containing the crisis, monetary policy has fallen short of original expectations for various reasons. In this regard, it may have been inappropriate to regard the previous trajectory of GDP as a benchmark. At least in the countries at the centre of the financial bust, the sustainable path of GDP has arguably been overestimated. Financial booms tend to conceal structural misallocations of resources; these imbalances are only fully revealed in the subsequent busts and the balance sheet recessions that accompany them (see Chapter III). There is also ample evidence that, in the aftermath of financial crises, the path of potential output shifts downwards. In addition, under these conditions monetary policy is likely to be less effective than usual. In balance sheet recessions, private sector retrenching and an impaired financial sector clog the transmission of monetary policy measures to the real economy. In order to lift growth in a sustainable way, appropriate repair and reform measures are necessary.

Real GDP¹ Quarterly data, in billions of respective currency units





¹ Seasonally adjusted, on a logarithmic scale. ² First quarter.

Sources: National data; BIS calculations.

Along with the impaired monetary transmission mechanism, there remain concerns that central bank policies may have become less effective at the margin. After all, there are limits to how far interest rates and risk spreads can be compressed. For example, term premia for long-term yields are already highly negative. And as the degree of market segmentation declines compared with the height of the crisis, the portfolio balance channel of large-scale asset purchase programmes may lose some of its force.

At the same time as central bank measures may have become less effective, accommodative monetary policies have produced various side effects, as highlighted in last year's Report.¹ Prolonged low policy rates tend to encourage aggressive risk-taking, the build-up of financial imbalances and distortions in financial market pricing. This environment has also created incentives to delay necessary balance sheet repair and reforms. These incentives have been sending the wrong signals to those fiscal authorities with serious long-term sustainability issues and to those financial institutions which have not gone far enough in recognising losses and increasing capital and have been evergreening loans.

Another significant side effect comes from global monetary policy spillovers. Persistently low interest rates in the major advanced economies have put upward pressure on exchange rates and encouraged destabilising capital flows to fastergrowing emerging market economies and several small advanced economies.²

See BIS, 82nd Annual Report, June 2012, Chapter IV, for a detailed discussion of the side effects of prolonged monetary accommodation.

For more details on the risks arising from global spillovers, see J Caruana, "International monetary policy interactions: challenges and prospects", speech at the CEMLA-SEACEN conference on "The role of central banks in macroeconomic and financial stability: the challenges in an uncertain and volatile world", Punta del Este, Uruguay, 16 November 2012.

Exit strategies

In the years ahead, exiting from the extraordinarily accommodative policy stance will raise significant challenges for central banks. They will need to strike the right balance between the risks of exiting prematurely and the risks associated with delaying exit further. While the former are well understood, it is important not to be complacent about the latter just because they have not yet materialised. And central banks will need to ensure that exit proceeds as smoothly as possible.

The timing and pace of exiting will naturally depend on the individual circumstances in each of the major advanced economies. Evidence of some strengthening of the recoveries earlier this year led markets to expect a somewhat earlier, though not imminent, exit. Forward curves indicate that policy rates are expected to remain at their current very low levels for at least another year and then only gradually pick up, with somewhat different trajectories over time for the four economies (Graph VI.5). Of course, expectations may display discontinuities over time as developments unfold and as perceptions about the effectiveness of each central bank's strategy evolve.

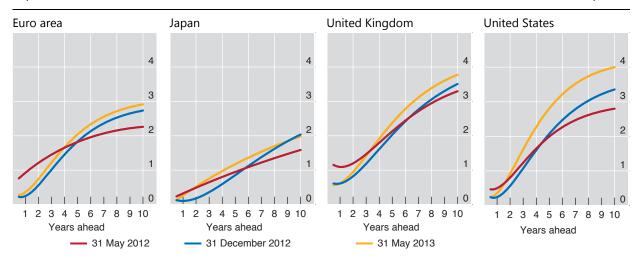
In recent years, central banks have strengthened their operational capabilities to flexibly manage the exit. Indeed, there was once a concern that policy interest rates could not be raised before the large-scale asset purchases were unwound. From a purely technical perspective, however, this is no longer considered a primary issue. Central bank deposit facilities, payment of interest on excess reserves, term repos and other arrangements now offer central banks a wide range of options that allow them to decouple policy rate from balance sheet policy decisions.

Moreover, central bank communication strategies will also be key in this context. The enhanced forward guidance adopted by some central banks in recent years has strengthened the ability to shape private sector expectations in a manner consistent with policy goals.

One cautionary episode that provides a historical benchmark to help calibrate the exit risks is the mid-1990s normalisation of US policy rates. In early 1994, the Federal Reserve raised its policy rate after keeping it unusually low for a considerable

Forward curves¹

In per cent Graph VI.5



¹ Instantaneous nominal forward rates derived from the Libor/swap curve.

Sources: Datastream; BIS calculations.

period. The immediate response was a sharp increase in yield curves not just in the United States but around the world.³

To be sure, much has changed since 1994. But considerations cut both ways. On the one hand, central banks are now much more transparent about their policy intentions and have gained considerable experience in managing expectations. On the other hand, the context is much more complex. Exit now requires a sequencing of both interest rate increases and the unwinding of balance sheet policies.

In addition, each exit will have to be engineered in an environment of high levels of debt, much of which has been issued at record low interest rates. Open questions remain about how well markets will react to a change in course of monetary policy, not least as central banks have taken on such a large role in key markets. In some cases, for instance, central banks are in effect perceived as the marginal buyer of longer-term bonds; in others, they have provided an ample liquidity backstop and in effect become core intermediaries in interbank markets. These considerations highlight the possibility that disruptive market dynamics could even materialise as soon as central banks signal that an exit is imminent. The risk that exit will be delayed to avoid such disruptions is likely to rise over time, as the situation becomes more entrenched.

This also puts a premium on financial institutions having the capacity to bear interest rate risk. Financial market innovations over time have improved the ability of investors to hedge against interest rate risks. In addition, current efforts in stress-testing balance sheets to a sharp rise in yield curves are important to strengthen readiness. That said, there may be limits to investors' ability to hedge effectively if the transition to higher rates turns out to be particularly abrupt and bumpy. In this situation, counterparty risks are also likely to emerge, as aggregate exposures to interest rate risk cannot be eliminated by such private sector practices. And, with banks holding significant portfolios of long-dated fixed income assets, a sharp rise in interest rates could also raise the risk of financial system stress.

The initiation and subsequent pace of exiting by central banks in the major advanced economies will also have consequences for small advanced as well as emerging market economies. To the extent that the exit in each economy is well timed and smooth, against the backdrop of solid recovery that puts the global economy on a path to balanced and sustainable growth, the outcome would be positive for all. In contrast, an outsize increase in interest rates could lead to volatile capital flows and exchange rates, with corresponding adverse implications for global macroeconomic and financial stability. This suggests that those economies likely to be affected would benefit from strengthening their capital buffers, reducing financial imbalances and increasing the capacity of their policy frameworks to absorb volatility.

Central banks also face various political economy challenges as they consider exiting. History has shown that monetary policy decisions are best when insulated from short-term political expediency considerations; hence the importance of operational autonomy. This applies with particular force in extreme conditions such as those prevailing today. On balance, political economy pressures could make exit harder and work towards delaying it.

There are several reasons for this. First, indebted sectors, be they households, non-financial firms or, indeed, governments, will not welcome an increase in interest rates. To be sure, there is nothing new in this. But with interest rates having been extraordinarily low for so long, the high levels of debt together with the special lending schemes in place are likely to strengthen indebted sectors' reaction,

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For a more detailed description of this episode, see BIS, 66th Annual Report, June 1996, Chapter V.

especially if their expectations and patterns of behaviour have become accustomed to this unusual environment. For instance, it is easy to imagine tensions arising between central banks trying to exit and debt management offices seeking to keep servicing costs low.

Second, central banks' finances could easily come under strain, raising questions about their use of public money, reducing government revenues and possibly even undermining the institutions' financial independence. The public's tolerance for central bank losses may be quite low.

Finally, there may be broader reputational considerations at play. For example, where central banks pay interest on reserves, unless exit is accompanied by a rise in unremunerated reserve requirements, the associated higher transfers to the banks may raise eyebrows among the public and take on a political dimension, particularly if they occur at a time of fiscal consolidation.

All this puts a premium on careful preparation and advance communication and requires that central banks' anti-inflation credentials remain intact. Retaining the flexibility and wherewithal to exit is critical to avoid being overtaken by markets.

The road ahead

While central banks face daunting challenges in the near term and in the eventual exit, they also have to keep an eye on the road ahead. What lessons should be drawn from the crisis for central banks' monetary policy frameworks? Some of these lessons pertain to policy instruments and market operations; others to the more strategic aspects of the frameworks.

In response to the crisis, central banks have widened the range of tools and altered their market operations in order to address sometimes extreme conditions. Should these tools and practices become a permanent feature of the new frameworks?

Some of the issues are rather technical, although they may have significant implications for market functioning. One example is the payment of interest on reserves. This common practice was not available to the Federal Reserve before the crisis and is likely to be retained, as it improves the ability of the central bank to control short-term interest rates. A second, more delicate, point concerns the range of acceptable collateral. This was considerably broadened in crisis-hit countries and is unlikely to be narrowed considerably going forward. That said, central bank choices in this domain will need to balance various considerations, including the availability of high-quality collateral, regulatory reforms and views concerning the appropriate role of central bank liquidity in normal and turbulent times. A third point is what short-term policy rate to target, for example a collateralised or uncollateralised interest rate. This, again, is likely to depend on country-specific circumstances, as it has in the past.

A more general issue is whether central banks should resume operating in the markets so as to influence only a short-term rate. This would mean shelving attempts to influence broader financial conditions more directly through, for instance, large-scale asset purchases or special lending schemes. If so, the short-term policy rate and expectations about its future path would again become *the* mechanism to steer monetary conditions.

While it might be tempting to opt for a broader set of tools, there are good reasons to return to a narrower one. First, while central banks have direct control over the short-term rate, their ability to influence other asset prices, such as long-term government bond yields, can only be assessed within the context of the consolidated government sector balance sheet: what the debt management office

does, for example, matters too. Second, central bank balance sheet measures can easily blur the distinction between monetary and fiscal policies. Third, these measures can also put the central bank's financial strength at risk. All this raises tricky issues concerning coordination with the government and operational autonomy. For these reasons, such tools are best considered suitable for exceptional circumstances only.

Turning to the more strategic aspects of monetary policy, the crisis has not discredited the core elements of pre-crisis frameworks: price stability orientation and independence in central bank decision-making. These features have been essential to achieving low and stable inflation in advanced and emerging market economies alike over past decades and have proved instrumental in anchoring inflation expectations.

However, pre-crisis monetary policy frameworks did not ensure lasting financial and economic stability. In an environment of low and stable inflation, financial imbalances ushered in the most severe crisis since the Great Depression. This experience suggests that there are gains from integrating financial stability considerations more systematically into the conduct of monetary policy, particularly in view of the tendency of economies to generate long-lasting financial booms followed by busts.

Regulatory reform will surely play an important role in mitigating such risks, but it is not sufficient. Significant progress has already been made in the regulatory area (see Chapter V), especially with respect to macroprudential frameworks and tools. These measures will undoubtedly make the financial system more resilient and better able to withstand financial busts. That said, their effectiveness in restraining financial booms is less clear. And regulatory measures can only go so far: some parts of the financial system are difficult to regulate, and over time these measures may lose some of their effectiveness owing to regulatory arbitrage. In the light of these considerations, monetary policy has an important complementary role to play, as the policy rate represents the universal price of leverage in a given currency that cannot be bypassed so easily.

Integrating such financial stability considerations into monetary policy frameworks raises serious analytical challenges. The pre-crisis workhorse macroeconomic models ignored the possibility of financial booms and busts and assigned no meaningful role to the financial sector. Moreover, financial stability analysis at central banks hardly informed monetary policy decisions. Since the crisis, central banks have redoubled efforts to address these deficiencies. Progress has been made with respect to model design, the range of available tools and ways of incorporating their insights into policymaking. The Central Bank of Norway, for example, has recently amended its benchmark policy model to capture the notion that interest rates that are too low for too long can create distortions over time. Even so, the road ahead is still a long one.

These efforts should help inform the adoption of a more symmetrical approach to financial booms and busts than in the past. Over the past 10 to 15 years, central banks appear to have responded asymmetrically to financial stability concerns. In advanced economies, for example, policy rates were slashed aggressively in response to financial headwinds (the LTCM crisis, the bursting of the dotcom bubble and the recent international credit and sovereign financial crisis) but subsequently raised only hesitantly and gradually; this is sometimes referred to as "financial dominance".4

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See H Hannoun, "Monetary policy in the crisis: testing the limits of monetary policy", speech at the 47th SEACEN Governors' Conference, Seoul, Korea, 13–14 February 2012.

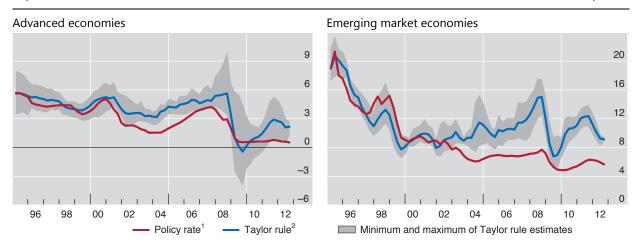
A more symmetrical approach would mean tightening more strongly in booms and easing less aggressively, and less persistently, in busts. Such an approach could help mitigate the risk of a renewed build-up of financial imbalances. In practice, this includes paying more attention to financial stability concerns and extending policy horizons to take account of the fact that the build-up of financial imbalances takes a long time to unfold, often spanning more than one business cycle upswing, as traditionally measured.

The historical interpretation of the past 10 to 15 years is consistent with evidence from a simple Taylor rule that links policy rates in a mechanical way to inflation and the output gap. Estimates suggest that monetary policy in advanced economies has been systematically too accommodative for most of the period since the early 2000s (Graph VI.6, left-hand panel). To be sure, there is considerable uncertainty about a number of inputs in this simple benchmark, not least the longer-term equilibrium level of interest rates. Even so, the benchmark ignores the influence of forward guidance or balance sheet policies, which would make the policy at the current juncture considerably more accommodative. And this evaluation is further supported by signs of rapid credit and property price increases in several economies less affected by the crisis, as highlighted in central banks' own assessments of macroeconomic conditions and confirmed by the activation of macroprudential measures.

These uneven developments across countries shine the spotlight on yet another aspect of policy frameworks: the need for a better appreciation of global monetary policy spillovers in the increasingly globalised world. The recent crisis has underscored their importance. Accommodative monetary conditions played a role in boosting vulnerabilities globally. Unusually low policy rates in the major advanced economies were transmitted to the rest of the world in part by the resistance of emerging market economies to exchange rate appreciation and capital flow pressures. Graph VI.6 (right-hand panel) shows that many emerging market

The Taylor rule and policy rates

In per cent Graph VI.6



¹ Weighted average based on 2005 GDP and PPP exchange rates. Advanced economies: Australia, Canada, Denmark, the euro area, Japan, New Zealand, Norway, Sweden, Switzerland, the United Kingdom and the United States. Emerging market economies: Argentina, Brazil, China, Chinese Taipei, the Czech Republic, Hong Kong SAR, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, Poland, Singapore, South Africa and Thailand. ² See B Hofmann and B Bogdanova, "Taylor rules and monetary policy: a global 'Great Deviation'?", *BIS Quarterly Review*, September 2012, pp 37–49.

Sources: IMF, International Financial Statistics and World Economic Outlook; Bloomberg; CEIC; Consensus Economics; Datastream; national data; BIS calculations.

economies kept interest rates lower than would have been suggested by domestic macroeconomic conditions (ie as implied by a simple Taylor rule). These economies also intervened heavily in foreign exchange markets. Taken together, this policy response amplified the global credit and asset price boom prior to the crisis.

The recent build-up of financial imbalances in a number of emerging market and small advanced economies indicates that this mechanism may be at work again. This does not necessarily mean that central banks need to coordinate their policies more closely than in the past. Rather, it suggests that central banks, at a minimum, may benefit from putting more weight on the global side effects and feedbacks that arise from their individual monetary policy decisions. This is in each central bank's own interest, especially if the spillovers have the potential to foster financial instability that ends in crisis, with significant global repercussions that swing back to the originating countries.

Summing up

Central banks have become increasingly overburdened, as they have been relied on heavily for years to stimulate economies through very accommodative monetary policies. There are growing concerns at this juncture about the effectiveness of these policies and their negative side effects. Monetary accommodation can only be as effective as the balance sheet, fiscal and structural policies that accompany it.

The eventual exit from current policies also presents first-order challenges, some purely technical and others of a more political economy nature. Tools to manage the exit are in place and have been tested to some extent. But central banks are mindful of the fact that the size and scope of the exit will be unprecedented. This magnifies the uncertainties involved and the risk that it will not be smooth.

Moreover, the longer the current accommodative conditions persist, the bigger the exit challenges become. This puts central banks in a very uncomfortable position and highlights the need to address the economies' underlying balance sheet and structural problems without delay.

The crisis has also reinforced the view that price stability is not enough. That said, efforts to integrate financial stability concerns into monetary policy frameworks are still a challenging work in progress. And at the same time, in a more globalised world, central banks will increasingly need to factor in global policy spillovers.