IV. The limits of monetary policy

In the major advanced economies, policy rates remain very low and central bank balance sheets continue to expand in the wake of new rounds of balance sheet policy measures. These extraordinarily accommodative monetary conditions are being transmitted to emerging market economies in the form of undesirable exchange rate and capital flow volatility. As a consequence, the stance of monetary policy is accommodative globally.

Central banks' decisive actions to contain the crisis have played a crucial role in preventing a financial meltdown and in supporting faltering economies. But there are limits to what monetary policy can do. It can provide liquidity, but it cannot solve underlying solvency problems. Failing to appreciate the limits of monetary policy can lead to central banks being overburdened, with potentially serious adverse consequences. Prolonged and aggressive monetary accommodation has side effects that may delay the return to a self-sustaining recovery and may create risks for financial and price stability globally. The growing gap between what central banks are expected to deliver and what they can actually deliver could in the longer term undermine their credibility and operational autonomy.

This chapter first reviews the main monetary policy measures taken over the past year by central banks in advanced and emerging market economies and provides an assessment of the global monetary policy stance. It then explores the scope and limitations of prolonged and aggressive monetary accommodation: the implications for effective balance sheet repair in advanced economies; the consequences of global monetary policy spillovers to emerging market economies; and the resulting longer-term risks for central banks.

Monetary policy in advanced and emerging market economies

Monetary policy measures taken over the past year

Between June 2011 and the beginning of June 2012, central banks halted or reversed the tightening of policy rates that had taken place in many advanced and emerging market economies in the first half of 2011 (Graph IV.1). This occurred against the backdrop of weakening growth and receding inflationary pressures. The European Central Bank (ECB) cut its main refinancing rate back to 1%, while allowing the euro area overnight rate to fall to a level close to its deposit facility rate, which was reduced to 0.25%. In the other major advanced economies, policy rates stayed at their effective lower bound. In the emerging market economies, the Central Bank of Brazil cut rates by 400 basis points starting in August last year, the Reserve Bank of India lowered policy rates by 50 basis points in April 2012, and the People's Bank of China cut its benchmark one-year loan rate by 25 basis points in early June. Some emerging



market central banks, specifically those of China and India, also reduced reserve requirements.

As of early June 2012, markets expected further policy rate cuts in the euro area, China and Brazil and unchanged rates in the United States, United Kingdom, Japan and India in the course of 2012 (Graph IV.1, dots). Forward curves indicated that markets were pricing in low policy rates in the major advanced economies for the next two years (Graph IV.2). These expectations reflected at least in part central banks' forward guidance. In its statement in April 2012, the Federal Open Market Committee said that it expects the federal funds rate to remain at exceptionally low levels at least until late 2014 given the macroeconomic outlook.

Central banks in the major advanced economies embarked on new rounds of balance sheet policy measures during the period under review. The Federal Reserve, the Bank of England and the Bank of Japan augmented existing or launched new large-scale asset purchase programmes aimed at lowering longterm interest rates and financial risk premia more generally in order to bring about additional monetary easing. In September 2011, the Federal Reserve launched the Maturity Extension Program (MEP) under which the proceeds from selling \$400 billion of shorter-term Treasury securities by the end of June 2012 are used to buy longer-term Treasury securities. The Bank of England and the Bank of Japan increased their asset purchase programmes over the period, by £125 billion and ¥30 trillion, respectively.

The large-scale asset purchases implemented by these three central banks from late 2008 considerably increased their outright holdings of



longer-term securities, in particular of government bonds (Graph IV.3, first three panels). This contributed to the fall of long-term interest rates to very low levels (Graph IV.4, left-hand panel).¹

The ECB's balance sheet policy measures during the period under review were targeted at addressing disruptions in the euro area's monetary transmission mechanism arising from deteriorating government and bank funding conditions. Following rapid increases in bond yields for some euro area sovereigns (Graph IV.4, right-hand panel), the ECB reactivated purchases of government bonds under the Securities Markets Programme (SMP) in August 2011. In order to address rapidly worsening bank funding conditions in euro area markets, the ECB conducted two three-year longer-term refinancing operations (LTROs), one in December 2011 and one in February 2012, with full allotment. At the same time, it widened the range of collateral assets accepted in refinancing operations and halved the required reserve ratio. All this relieved funding pressures for banks and sovereigns, but only temporarily. Beginning in March 2012, intra-euro area strains intensified again (see Chapter II).

As a consequence of these measures, the size and maturity of the assets on the Eurosystem's balance sheet increased significantly (Graph IV.3, last panel). By the end of May 2012, the outright holdings of securities purchased under the SMP stood at \in 212 billion, while the outright holdings of covered bonds purchased under the covered bond purchase programmes were around \in 69 billion. The total allotment under the two three-year LTROs was around \notin 1 trillion, leading to a net increase in the Eurosystem's balance sheet of

¹ For an overview and new evidence of the effect of central bank bond purchase programmes on longterm government bond yields, see J Meaning and F Zhu, "The impact of recent central bank asset purchase programmes", *BIS Quarterly Review*, December 2011, pp 73–83, and J Meaning and F Zhu, "The impact of Federal Reserve asset purchase programmes: another twist", *BIS Quarterly Review*, March 2012, pp 23–32. The latter study concludes that the Federal Reserve's bond purchases may have lowered the US 10-year bond yield by more than 150 basis points by the end of 2011.



roughly \in 500 billion as the scale of other, shorter-term refinancing operations was reduced at the same time.

The Japanese authorities and the Swiss National Bank (SNB) intervened in foreign exchange markets in response to strong appreciations of their currencies in the context of safe haven flows. Japan's foreign currency reserve holdings increased by \$185 billion in 2011, to a total of \$1,221 billion (Table IV.1). The SNB set a minimum exchange rate for the currency of 1.20 to the euro in September last year. All the same, the increase in Switzerland's foreign exchange reserves in 2011 fell short of that in the previous year (Table IV.1). However, in May 2012, the SNB's foreign



Annual changes in foreign exchange reserves

In billions of US dollars

	At current exchange rates								
	At current exchange rates					outstanding			
	2006	2007	2008	2009	2010	2011	(December 2011)		
World	933	1,449	639	829	1,099	935	10,204		
Industrial	91	99	61	83	194	269	2,037		
United States	3	5	4	1	2	-0	52		
Euro area	17	19	-1	-8	13	1	208		
Japan	46	73	55	-7	39	185	1,221		
Switzerland	2	7	0	47	126	54	271		
Asia	396	695	410	715	651	424	5,112		
China	247	462	418	453	448	334	3,181		
Chinese Taipei	13	4	21	56	34	4	386		
Hong Kong SAR	9	19	30	73	13	17	285		
India	39	96	-20	12	9	-5	263		
Indonesia	8	14	-5	11	29	14	104		
Korea	28	23	-61	65	22	11	298		
Malaysia	12	19	–10	2	9	27	129		
Philippines	4	10	3	4	16	12	66		
Singapore	20	27	11	12	38	12	235		
Thailand	15	20	23	25	32	-0	165		
Latin America ¹	54	127	42	25	81	97	642		
Argentina	8	14	0	-1	4	-7	40		
Brazil	32	94	13	39	49	63	343		
Chile	3	-3	6	1	2	14	40		
Mexico	2	11	8	0	21	23	137		
Venezuela	5	-5	9	–15	-8	-3	6		
CEE ²	26	42	6	13	14	3	260		
Middle East ³	96	108	150	-29	50	84	661		
Russia	120	171	-56	-5	27	8	441		
Memo:									
Net oil exporters ⁴	286	331	144	-62	107	135	1,556		
¹ Countries shown plus Colombia and Peru. ² Central and eastern Europe: Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia. ³ Kuwait, Libya, Qatar and Saudi Arabia. ⁴ Algeria, Angola, Kazakhstan, Mexico, Nigeria, Norway, Russia, Venezuela and the Middle East.									

Sources: IMF; Datastream; national data.

Table IV.1

exchange reserve holdings surged by more than 25% over the previous month as pressure on the minimum Swiss franc per euro exchange rate heightened.

In emerging market economies, specifically in Asia, authorities slowed down the accumulation of foreign currency reserves during 2011 (Table IV.1). This reflected in part diminishing upward pressure on exchange rates in the second half of the year, as rising global risk aversion induced an outflow of portfolio capital (see Graph II.6, left-hand panel). However, the total foreign currency reserve holdings in emerging Asia remained very high, amounting to \$5 trillion, or half of the world's total, in December 2011. At over \$3 trillion, a little under one third of global foreign exchange reserves at that time was held by China.



Assessment of the monetary policy stance

Real (inflation-adjusted) policy rates indicate a very accommodative global monetary policy stance, irrespective of whether core or headline inflation is used to deflate nominal rates (Graph IV.5). As of early 2012, real policy rates



The Taylor rules are calculated as $i = c + 1.5(\pi - \pi^*) + 0.5y$, where π is a measure of inflation and y is a measure of the output gap. The constant c is defined as the sum of the average inflation rate and real GDP growth since Q1 2000. π^* is computed as the average level of the inflation rate since Q1 2000. Taylor rules were computed for all combinations of three measures of inflation (headline, core and consensus headline forecasts) and measures of the output gap obtained from three different ways to compute potential output (HP filter, linear trend and unobserved components). The graph shows the mean, maximum and minimum Taylor rate of all nine combinations.

¹Weighted average based on 2005 PPP weights. "Global" comprises the economies listed here. Advanced economies: Australia, Canada, Denmark, the euro area, Japan, New Zealand, Norway, Sweden, Switzerland, the United Kingdom and the United States. Emerging economies: Argentina, Brazil, China, Chinese Taipei, the Czech Republic, Hong Kong SAR, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, Poland, Singapore, South Africa, Thailand and Turkey.

Sources: Bloomberg; CEIC; © Consensus Economics; Datastream; national data; BIS calculations. Graph IV.6



were around zero globally. They remained firmly negative in the core advanced economies. In emerging market economies, they rose slightly, but still look very low against the background of these economies' trend output growth rate over the past several years.

Interest rates implied by the Taylor rule, which links policy rates in a mechanical way to inflation and the output gap, present a very similar picture (Graph IV.6). True, an assessment based on this benchmark is inevitably complicated by the high degree of uncertainty about the level and growth rate of potential output. Even so, taking into account all combinations of different measures of inflation (headline and core) and alternative output gap estimates (time-varying and constant linear trend), the level of policy rates appeared unusually accommodative by the end of 2011 (Graph IV.6, left-hand panel). This result was driven mainly by the emerging market economies (Graph IV.6, right-hand panel), reflecting the significant role of external factors, ie concerns about exchange rate and capital flow volatility, in these economies' monetary policy conduct. In the advanced economies, policy rates were just below the range of Taylor rule benchmarks, after falling within this range for most of the period since the outbreak of the crisis (Graph IV.6, centre panel).

Real interest rates and Taylor rules are of course unable to fully characterise the stance of monetary policy. Monetary easing might be overstated to the extent that a number of factors relevant in the current policy environment are ignored. These include concerns about destabilising capital inflows, lingering financial headwinds from the crisis and changes in reserve requirements.

However, the monetary policy stance looks considerably more accommodative if one also takes into account the unprecedented expansion of central bank balance sheets. Total assets held by central banks have more than doubled over the past four years and stood at approximately \$18 trillion at the end of 2011 (Graph IV.7, left-hand panel). In the advanced economies, central bank assets rose to about 25% of GDP in the wake of balance sheet policy measures adopted in reaction to the global financial crisis (Graph IV.7, right-hand panel). This provided additional monetary accommodation, for instance by contributing to low long-term bond yields.² In the major emerging market economies, central bank assets stood at roughly 40% of GDP at the end of 2011, reflecting the large accumulation of foreign exchange reserves over the past decade, in particular in emerging Asia. This arguably mitigated exchange rate appreciation and thereby boosted growth.

Prolonged monetary accommodation: scope and limitations

Decisive action by central banks during the global financial crisis was probably crucial in preventing a repeat of the experiences of the Great Depression. This can be tentatively inferred from a comparison of crisis dynamics (Graph IV.8, right-hand panel) and monetary policy response (Graph IV.8, left-hand panel) during that period (dashed lines) with those of the recent global financial crisis (solid lines) in the United States.

However, while there is widespread agreement that aggressive monetary easing in the core advanced economies was important to prevent a financial meltdown, the benefits of prolonged easy monetary conditions are more controversial. In particular, their implications for effective balance sheet repair



The dashed lines refer to the Great Depression (horizontal axis in italics); the solid lines refer to the global financial crisis.

¹ In per cent. For the Great Depression, discount rate; for the global financial crisis, federal funds rate target. ² Q1 1929 / Q1 2008 = 100. ³ For the Great Depression, real GNP; for the global financial crisis, real GDP. ⁴ For the Great Depression, nominal bank loans; for the global financial crisis, non-financial private debt.

Sources: Bloomberg; Global Financial Data; NBER; national data.

Graph IV.8

² For an overview of the financial market impact and the macroeconomic effects of balance sheet policies by central banks in the major advanced economies, see M Cecioni, G Ferrero and A Secchi, "Unconventional monetary policy in theory and in practice", *Bank of Italy Occasional Papers*, no 102, September 2011. See the references in footnote 1 for more recent evidence on the effects of central bank bond purchases.

as a precondition for sustained growth, the risks for global financial and price stability, as well as the longer-term consequences for central banks' credibility and operational autonomy, are subject to debate.

Monetary easing and balance sheet repair

Accommodative monetary policy can facilitate private and public sector balance sheet repair in the short term. It buys time for banks and governments to address solvency problems and thereby helps prevent disorderly deleveraging and defaults. Furthermore, it can lower debt servicing costs, prop up asset prices and support output and employment.

At the same time, however, in the recovery from a financial crisis monetary policy is likely to be less effective in stimulating the economy than otherwise. Overindebted economic agents do not wish to borrow in order to spend, and an impaired financial system is less effective in transmitting the policy stance to the rest of the economy. This means that, in order to have the same short-term effect on aggregate demand, monetary accommodation will naturally be pushed further. But this cannot substitute for direct corrective action to address debt burdens and impaired balance sheets. Ultimately, there is even the risk that prolonged monetary easing delays balance sheet repair and the return to a self-sustaining recovery through a number of channels.

First, prolonged unusually accommodative monetary conditions mask underlying balance sheet problems and reduce incentives to address them head-on. Necessary fiscal consolidation and structural reform to restore fiscal sustainability could be delayed. Indeed, as discussed in more detail in Chapter V, more determined action by sovereigns is needed to restore their risk-free status, which is essential for both macroeconomic and financial stability in the longer term.

Similarly, large-scale asset purchases and unconditional liquidity support together with very low interest rates can undermine the perceived need to deal with banks' impaired assets. Banks are indeed still struggling with the legacy of the global financial crisis and often depend heavily on central bank funding (see Chapter VI). And low interest rates reduce the opportunity cost of carrying non-performing loans and may lead banks to overestimate repayment capacity. All this could perpetuate weak balance sheets and lead to a misallocation of credit.³ Evidence that deleveraging by US households came through a reduction in new loans rather than writedowns of unsustainable debt (see Chapter III) points to the relevance of such mechanisms at the current juncture. Similarly, the coexistence of depressed market-to-book ratios for banks, which are generally well below one, with loan loss provisions that are low despite weak macroeconomic conditions (see Table VI.1) could indicate evergreening practices.

³ There is evidence of widespread evergreening practices in Japan during the long period of low nominal interest rates in the 1990s. There is also evidence of evergreening in Italy during the first years of the global financial crisis. See R Caballero, T Hoshi and A Kashyap, "Zombie lending and depressed restructuring in Japan", *American Economic Review*, vol 98, December 2008, pp 1943–77, and U Albertazzi and D Marchetti, "Credit supply, flight to quality and evergreening: an analysis of bank-firm relationships after Lehman", Bank of Italy, *Temi di Discussione (Working Papers)*, no 756, April 2010.

Second, monetary easing may over time undermine banks' profitability. The level of short-term interest rates and the slope of the yield curve are both positively associated with banks' net interest income as a result of their positive effects on deposit margins and on the returns from maturity transformation, respectively.⁴ True, there is evidence from a sample of internationally active banks that, in the period 2008–10, monetary easing boosted banks' profitability, supporting the rebuilding of capital bases (see Box IV.A on page 44). The negative effects associated with the reduction in the short-term policy rate were more than offset by the steepening in the slope of the yield curve. However, an environment of protracted low interest rates characterised by both low short-term interest rates and flattened yield curves would ultimately lead to an erosion of banks' interest income. Signs of this happening are already present, as the more recent flattening of the yield curve in the United States and United Kingdom has gone hand in hand with a drop in banks' net interest margin (see Table VI.1).

Low returns on fixed income assets also create difficulties for life insurance companies and pension funds. Serious negative profit margin problems associated with the low interest rate environment contributed to a number of life insurance company failures in Japan in the late 1990s and early 2000s. Today, insurance companies and pension funds have partly insulated themselves from these effects, either by hedging interest rate risk, or by moving towards unit-linked insurance products or defined contribution schemes.⁵ These measures, however, eventually shift risks onto households and other financial institutions.

Third, low short- and long-term interest rates may create risks of renewed excessive risk-taking. Countering widespread risk aversion was one important motivation for the exceptional monetary accommodation provided by central banks in response to the global financial crisis. However, low interest rates can over time foster the build-up of financial vulnerabilities by triggering a search for yield in unwelcome segments. There is ample empirical evidence that this channel played an important role in the run-up to the financial crisis.⁶ Recent large trading losses by some financial institutions may indicate pockets of excessive risk-taking and require scrutiny.

Fourth, aggressive and protracted monetary accommodation may distort financial markets. Low interest rates and central bank balance sheet policy measures have changed the dynamics of overnight money markets, which may complicate the exit from monetary accommodation (see Box IV.B on page 46). Large-scale asset purchases, intended to lower long-term interest rates and

⁴ See U Albertazzi and L Gambacorta, "Bank profitability and the business cycle", *Journal of Financial Stability*, vol 5, December 2009, pp 393–409.

⁵ For more details, see Committee on the Global Financial System, "Fixed income strategies of insurance companies and pension funds", *CGFS Papers*, no 44, July 2011.

⁶ For a review of empirical studies on the risk-taking channel see, amongst others, A Maddaloni and J-L Peydró (2011), "Bank risk-taking, securitization, supervision, and low interest rates: evidence from the euro-area and the U.S. lending standards", *Review of Financial Studies*, vol 24, June 2011, pp 2121–65, and Y Altunbas, L Gambacorta and D Marqués, "Do bank characteristics influence the effect of monetary policy on bank risk?", *Economic Letters*, 2012 (forthcoming).

Box IV.A: Monetary policy and bank profitability in 2008-10

This box analyses the link between changes in the interest rate term structure and banks' profitability after Lehman Brothers' default. We use balance sheet information on 107 large international banks headquartered in 14 major advanced economies active in different jurisdictions. For this reason, we construct all macroeconomic indicators as a weighted average across the countries in which each bank operates, using foreign claims data from the BIS consolidated banking statistics.

The table below reports simple cross-section regressions on average values over the period 2008–10 for: (i) the net interest margin (NIM); (ii) the ratio of impaired loans to total assets; and (iii) the return on assets (ROA). A reduction in the level of the short-term interest rate and in the slope of the yield curve (in both segments, between 0 and 2 years, and between 2 and 10 years) has a negative impact on banks' net interest income. However, in 2008–10, for the 14 countries analysed, short-term interest rates declined, on average, by 2.44 percentage points, while the two segments of the yield curve increased by 0.35 percentage points and 1.33 percentage points, respectively. Overall, these changes contributed positively to the NIM (0.69 percentage points). Changes in the structure of the yield curve also reduced the ratio of impaired loans to total assets (0.17 percentage points), containing the deterioration of the quality of the credit portfolio during the downturn. These results also hold after controlling for the expansion of central banks' total assets, business cycle conditions and bank-specific characteristics such as size, liquidity, incidence of market funding and the inclusion of a specific dummy for those banks that benefited from rescue packages.

	(i) NIM	(ii) Impaired loaps /	(iii) BOA
Explanatory variables		total assets	nort
	Coeff Sig	Coeff Sig	Coeff Sig
Short-term interest rate	0.258 **	1.651 ***	0.034
	(0.107)	(0.486)	(0.226)
Slope of the yield curve 0–2yrs	0.641 ***	1.287	1.321 ***
	(0.206)	(0.914)	(0.272)
Slope of the yield curve 2–10yrs	0.820 ***	2.562 ***	0.253
	(0.190)	(0.993)	(0.354)
Change in central bank total assets / GDP	0.002	-0.024	0.005
	(0.006)	(0.033)	(0.011)
Nominal GDP growth	0.019	-0.787 ***	0.151 *
	(0.039)	(0.180)	(0.080)
Market funding ratio	-0.021 ***	0.057	-0.023 ***
	(0.003)	(0.037)	(0.006)
Bank size	-0.01	-0.899 ***	0.297 ***
	(0.041)	(0.323)	(0.097)
Bank liquidity ratio	-0.014 **	-0.019	-0.001
	(0.006)	(0.029)	(0.013)
Number of observations	107	107	107
R ²	0.635	0.411	0.311
Average values of the dependent variables in 2008–10	1.57%	2.40%	0.45%

All variables are calculated as simple averages over the period 2008–10. We measure bank size as the logarithm of total assets, bank liquidity as the ratio of cash and liquidity to total assets, and market funding as the share of assets funded by non-deposit liabilities. All ratios are expressed in per cent. Coefficients for the dummy variable indicating those banks that benefited from rescue interventions are not reported. Robust standard errors in parenthesis. The symbols *, ** and *** represent significance levels of 10%, 5% and 1%, respectively. For more information on the database, see M Brei, L Gambacorta and G von Peter, "Rescue packages and bank lending", *BIS Working Papers*, no 357, November 2011.

financial market risk spreads, ultimately also dampen market signals. Longterm yields on core government bonds are a key benchmark for financial intermediation. Their exceptionally low level (Graph IV.4) could therefore lead to financial mispricing more generally and undermine financial markets' function of fostering an effective intertemporal allocation of resources.

With policy rates in the core advanced economies at the effective lower bound for more than three years now and central bank balance sheets continuing to expand, these possible side effects bear close watching. Indeed, as discussed in Chapters III, V and VI, the recovery remains fragile due to large debt overhangs and persistent structural imbalances while measures to ensure fiscal sustainability and repair balance sheets have not been undertaken with the necessary vigour.

Global monetary policy spillovers

While prolonged monetary easing probably has only limited potency to rekindle sustained growth in the advanced economies, its global spillover effects may be substantial. Persistently large interest rate differentials (Graph IV.1) support capital and credit flows to fast-growing emerging market economies and have put upward pressure on their exchange rates. This makes it more difficult for emerging market central banks to pursue their domestic stabilisation objectives. Interest rates have been raised only hesitantly in response to buoyant domestic macroeconomic and financial conditions out of concerns that this would widen interest rate differentials and further boost capital inflows. As a result, monetary policy in emerging market economies may be systematically too loose, as suggested by the large gap between policy rates and interest rate benchmarks shown in Graph IV.6.

The prevailing loose global monetary conditions have been fuelling credit and asset price booms in some emerging market economies for quite some time now (see Chapter III). This creates risks of rising financial imbalances similar to those seen in advanced economies in the years immediately preceding the crisis. Their unwinding would have significant negative repercussions, also globally as a result of the increased weight of emerging market economies in the world economy and in investment portfolios.

Loose global monetary policy has probably also contributed to the strength of commodity prices since 2009 (Graph IV.9, left-hand panel). Commodity prices are set in global auction markets and are very sensitive to global demand conditions, which are in turn shaped by the global monetary policy stance. The growing role of financial investors in commodity markets may have further raised the sensitivity of prices to monetary conditions.⁷

The effect of higher commodity prices was felt in particular in emerging market economies. Two bouts of rising inflation in this group of countries since 2006 have been associated with increasing commodity prices (Graph IV.9, right-hand panel). Inflation rates have dropped since the second half of last year as commodity prices have declined. As of early 2012, inflation rates in

⁷ See BIS, *81st Annual Report*, June 2011, Box IV.B, for a more detailed discussion of the financialisation of commodities and its implications.

most emerging market economies were inside central banks' inflation target ranges and markets expected them to moderate slightly further in the rest of the year (Graph IV.9, right-hand panel, dot). However, risks of potential second-round inflation effects remain, as unit labour costs edged up in the fourth quarter of 2011 (Graph IV.9, right-hand panel, blue line). Given the growing importance of emerging market economies in global supply chains, these developments could also have an impact on inflation in advanced economies. That said, as of early 2012, price and wage increases in this group

Box IV.B: Developments in overnight money markets

Traditionally, central banks have relied on the unsecured overnight money market to implement monetary policy. However, the balance sheet policies pursued in many jurisdictions have led to substantial changes in market dynamics. To the extent that these new dynamics are not well understood or self-reversing, they may pose challenges for the eventual exit and lead to changes in the operational frameworks.

The expansion of central bank balance sheets has led to a substantial increase in central bank reserves (Graph IV.B, left-hand panel). These excess reserves have driven overnight interbank rates towards their lower bounds, ie the rates at which central banks remunerate deposits (Graph IV.B, right-hand panel). In other words, central banks have abandoned their usual practice of keeping the overnight rate close to a target – often the midpoint of the corridor spanned by the rates at which banks can borrow from and lend to the central bank, respectively. In the United States and the United Kingdom, the overnight market includes non-bank entities that do not have direct access to the central bank deposit facility. Such market segmentation, as well as limits to arbitrage, allows banks (with access) to offer low bids for funds from these entities and consequently drive reported market rates below the rate the central bank offers to banks.⁽⁰⁾

In addition, unsecured market volumes are falling as banks have less need to borrow reserves from one another to offset daily liquidity shocks (Graph IV.B., centre panel). For example, in the United Kingdom the unsecured trading volumes that form the basis for the SONIA fixing have fallen by more than half since 2008.^(a) In the euro area, the EONIA trading volumes have fallen similarly.^(a) Moreover, counterparty concerns and regulatory changes have increased the attractiveness of secured markets. In contrast to the SONIA, the trading volumes that underlie the secured RONIA fixing in the United Kingdom have, on average, remained around the levels that prevailed in 2008.^(a) Similar trends are reportedly seen in other jurisdictions as well.

Furthermore, there is evidence that the dynamics of overnight rates are changing. In the United States, the pass-through from the unsecured overnight rate to secured rates – a crucial link in the transmission of the monetary policy – has weakened during the period of near zero rates.[©] In Sweden, the volatility of the overnight rate (tomorrow-next) has been higher than before the crisis since the Riksbank's exit from its balance sheet policies.[©]

With a view to controlling the overnight rate in an exit scenario, central banks need to have in place properly tested tools for controlling reserves. Moreover, they may need to reconsider whether the precrisis practice of targeting a short-term unsecured market rate is still the most effective.[®]

[®] See M Bech and E Klee, "The mechanics of a graceful exit: interest on reserves and segmentation in the federal funds market", *Journal of Monetary Economics*, 58(5), July 2011, pp 415–31. [®] See Bank of England, *Quarterly Bulletin*, 2011 Q2. The SONIA fixing is the weighted average of all unsecured overnight sterling transactions brokered in London by the members of the Wholesale Markets Brokers' Association (WMBA). [®] The EONIA (Euro OverNight Index Average) is computed as a weighted average of all overnight unsecured lending transactions undertaken in the interbank market, initiated within the euro area by contributing banks. [®] The RONIA fixing is the weighted average interest rate of all secured (ie repo) sterling overnight cash transactions conducted via brokers using CREST's delivery-by-value mechanism, a way of borrowing sterling cash against gilt collateral. CREST is a UK central securities depository. [®] See M Bech, E Klee and V Stebunovs, "Arbitrage, liquidity and exit: the repo and federal funds markets before, during, and emerging from the financial crisis", Federal Reserve Board *Finance and Economics Discussion Series*, 2012–21. [®] See P Sellin and P Sommar, "The Riksbank's operational framework for the implementation of monetary policy – a review", *Sveriges Riksbank Economic Review*, 2012:2. [®] See eg the welcome address by Jürgen Stark at the ECB Workshop on "The post-crisis design of the operational framework for the implementation of monetary policy", Frankfurt, 10 October 2011.



of countries were moderate and headline inflation was expected to decline further in the course of the year (Graph IV.9, centre panel).

The growing relevance of monetary policy spillovers suggests that central banks need to take better account of the global implications of their actions. In a highly globalised world, a more global monetary policy perspective is also called for to ensure lasting price and financial stability.⁸



⁸ See C Borio, "Central banking post-crisis: what compass for uncharted waters?", *BIS Working Papers*, no 353, September 2011.



Longer-term risks for central banks

Long-term inflation expectations currently do not signal perceptions of rising risks to price stability in the major advanced and emerging market economies. Both market- and survey-based indicators of long-term inflation expectations (Graph IV.10) have in general remained stable and close to central banks' inflation goals.

The stability of long-term inflation expectations indicates that central banks' credibility remains high. One could interpret this as suggesting that central banks still have some leeway to provide further monetary stimulus. However, the credibility of central banks should not be taken for granted. In the core advanced economies, if the economy remains weak and underlying solvency and structural problems remain unresolved, central banks may come under growing pressure to do more. A vicious circle can develop, with a widening gap between what central banks are expected to deliver and what they can actually deliver. This would make the eventual exit from monetary accommodation harder and may ultimately threaten central banks' credibility. Likewise, in emerging market economies, continued reliance on export-led growth strategies may raise doubts about central banks' determination to pursue price stability and exit from large-scale foreign exchange interventions. Such doubts could over time gradually unanchor inflation expectations globally.

This concern is reinforced by growing political economy risks. Central banks' balance sheet policies have blurred the line between monetary and fiscal policy. Their effects can be properly assessed only as part of the consolidated public sector balance sheet. And most of these policies could be replicated by the government. The very meaning of instrument independence therefore becomes unclear when central banks engage in large-scale balance sheet policy measures. As a result, protracted reliance on such measures

raises concerns about possible restrictions on central banks' operational autonomy, especially as public debt is on an unsustainable path in many countries (see Chapter V).

The growing financial risks in the bloated balance sheets of central banks may furthermore undermine their financial independence. While financial losses do not per se hamper central banks' operational capabilities, they may undermine operational autonomy if the central bank is no longer able to pursue its policy objectives without recourse to financial resources from the government.⁹

Against the background of these growing longer-term risks for central banks, the current stability of long-term inflation expectations is no reason for complacency. If central banks' credibility were to be eroded and inflation expectations were to pick up, it would be very difficult and costly to restore price stability, as the experience of the 1970s has shown.

Summing up

The global monetary policy stance is unusually accommodative. Policy rates are well below traditional benchmark measures. At the same time, central bank balance sheets have reached an unprecedented size and continue to expand.

Against the background of weak growth and high unemployment in many advanced economies, sustained monetary easing is natural and compelling. However, there is a growing risk of overburdening monetary policy. By itself, easy monetary policy cannot solve underlying solvency or deeper structural problems. It can buy time, but may actually make it easier to waste that time, thus possibly delaying the return to a self-sustaining recovery. Central banks need to recognise and communicate the limits of monetary policy, making clear that it cannot substitute for those policy measures that can address the root causes of financial fragility and economic weakness.

The combination of weak growth and exceptionally low interest rates in the core advanced economies, and efforts to manage the spillovers in emerging market economies, has helped to spread monetary accommodation globally. The resulting risks of a build-up of financial imbalances and increasing inflationary pressures in emerging market economies might have significant negative repercussions on the global economy. This points to the need for central banks to take better account of the global spillovers from their domestic monetary policies to ensure lasting financial and price stability.

Finally, central banks need to beware of longer-term risks to their credibility and operational independence. Failing to appreciate the limits of monetary policy raises the risk of a widening gap between what central banks are expected to deliver and what they can actually deliver. This would complicate the eventual exit from monetary accommodation and may ultimately threaten central banks' credibility and operational autonomy. This concern is reinforced by political economy risks arising from the combination of balance sheet policies that have blurred the line between monetary and fiscal policies, on the one hand, and the risk of unsustainable fiscal positions, on the other.

⁹ See P Stella, "Minimising monetary policy", BIS Working Papers, no 330, November 2010.