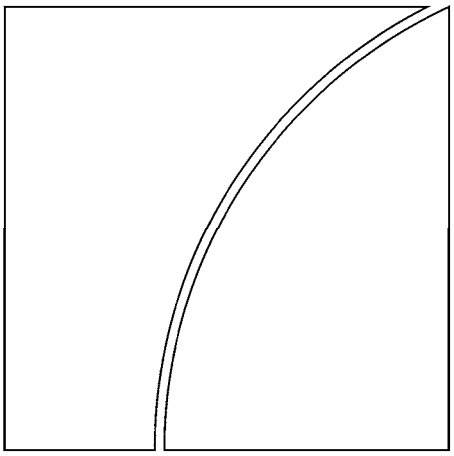
Committee on the Global Financial System



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Interactions of sovereign debt management with monetary conditions and financial stability

Lessons and implications for central banks

Report submitted by a Study Group established by the Committee on the Global Financial System

This Study Group was chaired by Paul Fisher of the Bank of England

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Preface

In November 2010, the Committee on the Global Financial System (CGFS) established a Study Group to examine the possible impact of sovereign debt management choices on monetary conditions and financial stability under the current unprecedented circumstances. The crisis dramatically altered the environment in which debt managers and central banks operate, and the linkages between the concerns of the different policy areas may have intensified.

The Study Group was chaired by Paul Fisher, Executive Director, Bank of England. The report was presented to central bank Governors at the Global Economy Meeting in May 2011, where it received endorsement for publication.

We hope that this report will be a relevant and timely input to national and international discussions about managing the current circumstances of economic and financial strain.

Mark Carney

Chairman, Committee on the Global Financial System

Governor, Bank of Canada

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Executive summary

This report, prepared by a Study Group commissioned by the Committee on the Global Financial System (CGFS), discusses interactions of sovereign debt management (SDM) with monetary conditions and financial stability under current, historically unusual circumstances. Debt managers aim to minimise the medium- to long-term expected cost of funding the government's activities, subject to prudent risk management. Theory and some evidence suggest that SDM choices about maturity, indexation and issuance could matter for central banks.

The crisis dramatically altered the environment in which debt managers and central banks operate. In response to changed market conditions and funding needs, some highly rated issuers shortened maturities, but other issuers tended not to, in spite of the market pressures. Important factors now include markedly higher government debt issuance, fiscal sustainability concerns, large-scale asset purchases by some central banks, and new prudential liquidity requirements.

In most countries, the effects of debt managers' recent choices on monetary and financial conditions do not seem to have been large or difficult to manage. But in countries facing fiscal sustainability concerns and in some emerging market economies, legacy SDM choices (about maturity and foreign participation, for example) have affected crisis dynamics and thus financial stability. Lessons are that SDM can reduce financial volatility by spreading maturity, avoiding concentrated placement and developing stable and diversified investor bases, which help in the recovery from crisis.

SDM choices do not appear to have constrained central banks' ability to ease monetary conditions via large-scale asset purchases. This partly reflects institutional arrangements and communications to avoid such complications, including emphasis by debt managers on steady and predictable issuance. When central banks come to sell the assets, however, they will be operating on the same side of the market as debt managers, which could amplify the effects. That said, as market conditions normalise somewhat, the scope for potential interactions may be reduced. The respective agencies will again need to communicate their objectives clearly.

How SDM should relate to macroeconomic policy functions depends on their respective objectives and on economic and financial system circumstances. Economies with deep financial markets have tended to emphasise the separation of SDM from other policy functions. In developing systems, where, for example, the central bank might also issue debt for sterilisation purposes or manage government-related cash balances, policy coordination has been more common, including some cases where the central bank is responsible for some SDM functions or involved in SDM oversight.

The Study Group has found little evidence that existing arrangements for operational independence of SDM and monetary policy functions have created material problems. Modifying these arrangements would be risky. But in the current circumstances, or where financial systems are still developing, there is benefit in debt managers taking a broad view of cost and risk. Central banks can likewise benefit from keeping abreast of SDM activities. Recent experience confirms that medium-term strategic outcomes for the maturity structure and risk characteristics of outstanding debt do matter for financial stability in particular. This underscores the importance of close communication among the relevant agencies, yet with each agency maintaining independence and accountability for its respective role. Such an approach is consistent with Principle 6 from the *Stockholm Principles: Guiding principles for managing sovereign risk and high levels of public debt*, which were recently promulgated by debt managers and central bankers from 33 advanced and emerging market economies.

1. Introduction

The financial crisis and associated policy responses have reignited interest in the relationship between sovereign debt management (SDM), monetary policy and financial stability.[1] SDM mandates govern choices about the structure and issuance of government debt. In most countries, the mandates emphasise the minimisation of the expected cost of funding the government's activities over the medium to long term, subject to prudent risk management. This report, by a Study Group commissioned by the Committee on the Global Financial System (CGFS), considers central banks' interests in SDM activities, where they have impacts beyond government funding cost minimisation.[2]

Prior to the crisis, SDM had generally been seen as a narrow technical activity whose impact on other policy areas was either limited or fairly easy to accommodate. For example, a 1999 Bank of England conference[3] considered the influence of the quantity, composition and ownership of government debt on monetary conditions, but concluded that, for routine changes to SDM choices, this influence would normally be small. Even then, however, discussions acknowledged that the impact of SDM on the monetary policy transmission mechanism under more unusual circumstances deserved to be analysed further.

Although the objectives of SDM, monetary policy and financial regulation generally remain unchanged, the linkages between the concerns of the different policy areas could have intensified as a result of the crisis. Maturity, indexation and issuance choices, for example, might be material for current monetary policy and financial stability considerations. Trends in government debt markets that could have increased the strength of interactions include:

- ***Significant increases in the supply of government debt***. Due to recession and official financial sector support, gross government debt levels are at multi-decade highs in many advanced economies. Average maturities of outstanding debt have fallen in many cases.
- ***Unconventional monetary policy***. Some central banks have become significant holders of government debt through large-scale asset purchases (LSAPs). More generally, the substantial loosening of monetary policy since 2008 has markedly increased the volume of open market operations, with sovereign debt a major part of the collateral received.
- ***Structural shifts in the demand for government debt***. New prudential liquidity requirements have increased banks' and other financial institutions' demand for government bonds. Meanwhile, the riskiness of some countries' government debt has been reassessed, with likely implications for ongoing demand.
- ***An increase in foreign ownership of government debt***, as part of the ongoing process of financial globalisation and integration.

This report does not focus on fiscal policy. However, market concerns about fiscal sustainability in some countries clearly intensify the interaction between the different policy areas. Such concerns constrain the space in which policy choices can be made.

The report is structured as follows. The next section provides an overview of SDM principles and frameworks, and reviews the literature on how SDM might interact with monetary and

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[1] See eg Hoogduin et al (2010) and Goodhart (2010).

[2] The Study Group's mandate and membership are shown in Annexes 4 and 5, respectively. Previous CGFS work on the relevance of government securities markets to central banking functions includes CGFS (1999).

[3] See Chrystal (1999). For a summary, see Chrystal et al (1999).

financial conditions under normal circumstances. Section 3 discusses how these interactions could be heightened under current unusual circumstances. Section 4 concludes with a discussion of the implications for central banks and issues to consider over the near future.

2. Sovereign debt management principles and frameworks

An effective domestic macroeconomic framework requires sound SDM. Institutional arrangements for SDM are diverse across countries, reflecting local circumstances. Central banks, treasuries and separate debt management offices (DMOs) are variously involved.[4]

The general SDM objective is to minimise the expected risk-adjusted cost of funding over the medium to long term, sometimes with a complementary objective of developing and maintaining an efficient market for government securities. These objectives will involve trade-offs to the extent that transactions that lower expected costs typically increase risk.

SDM objectives are pursued through a range of means, including:

- contract design (maturity, currency denomination, indexation to inflation or interest rates, other forms of conditionality);
- issuance and placement (frequency and type of auctions, on- or offshore placement); and
- the use of derivatives to modify exposure to risks (such as interest or exchange rate risk).

This report focuses on the choices that have changed most over the crisis period, or that might otherwise have impacts on monetary or financial stability.

Since the early 1980s, practitioners' views on prudent SDM practices have converged.[5] In 2003, the IMF and the World Bank disseminated recommendations for such practices based on a survey of 18 developing and industrial countries, covering: objectives and coordination; transparency and accountability; institutional frameworks; debt management strategy; risk management; and the development and maintenance of efficient government debt markets.

More recently, an IMF Forum (2010) of debt managers and central bankers from 33 advanced and emerging market countries supplemented these recommendations with the "Stockholm Principles" for managing sovereign debt in the context of market turbulence.[6] Particularly noteworthy is Principle 6, that "Communication among debt managers and monetary, fiscal, and financial regulatory authorities should be promoted, given greater inter-linkages across objectives, yet with each agency maintaining independence and accountability for its respective role". In addition, the Stockholm Principles underscore the need for flexibility in market operations, transparency and a broad conception of the risks to be managed. The two sets of principles are reproduced in Annexes 1 and 2 respectively.

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[4] For example, Denmark shifted SDM to the central bank in 1991 and Iceland did so in 2007. In Canada, SDM is the joint responsibility of the central bank and the treasury. In India, central bank and treasury staff form an SDM coordinating body, which is executed in a central bank department functionally separate from monetary management. In Colombia, the issue of government debt requires central bank consent. OECD (2002) and Wolswijk and de Haan (2005) review institutional arrangements in the OECD and the euro area, respectively.

[5] Many countries model the expected cost of debt service over the medium to long term and measure risk as the expected volatility in cost. A few countries are beginning to model debt service and macro variables jointly in order to consider broader influences on cost and risk. See eg Renne and Sagnes (2006) and Renne (2009).

[6] See also IMF (2010a), which summarises the IMF Forum proceedings.

2.1 Theoretical and empirical literature on SDM

The academic literature on SDM identifies channels through which it can affect the economy, with implications for macroeconomic policy setting. Some theoretical or empirical models incorporate SDM, monetary and fiscal policy under diverse assumed objective functions for each policy area (see Missale (1999) for a review of SDM objectives).

SDM objectives. Tobin (1963) views SDM as a tool primarily for macroeconomic stabilisation, with minimisation of interest costs secondary. The instrument is the volume of long-dated issuance, which affects monetary conditions. Barro (1999, 2003) assumes tax smoothing as the SDM objective, and favours indexed bonds with long durations. Missale (2000) looks at deficit stabilisation. Wheeler (2004) suggests that the benefits for deficit stability of inflation-indexed debt are sensitive to whether inflation is driven by supply or by demand shocks. If the former, non-indexed debt can help reduce the impact on the deficit.

Literature on the market development objective includes analysis of the welfare effects of completing markets for assets that, for example, allow trade between generations (eg Gale (1990), or that covary with risks that cannot otherwise be hedged (eg Bohn (1988, 1990)).

The completeness of markets matters for the relative benefits of long vs short issuance. With complete markets, Barro (1999, 2003), Angeletos (2002) and Nosbusch (2008) conclude that it is optimal for governments to issue long-term debt and hold short-term assets. In contrast, Buera and Nicolini (2004) and Faraglia et al (2008) argue that when markets are incomplete, these results may no longer be valid.

Other objectives examined include alleviating time-inconsistency problems in fiscal policy (Milesi-Ferretti (1995)) and manipulating the level of political support for monetary union (Uhlig (1997)). Togo (2007) looks at the role of debt management in a coordination problem with fiscal and monetary policy, exploring the implications of various forms of independence.

SDM and monetary policy. Lucas and Stokey (1983), Persson and Svensson (1984), Calvo and Guidotti (1990) and Missale and Blanchard (1994) emphasise that debt composition can ensure the time-consistency of anti-inflation policies when there are commitment problems. In particular, by issuing assets and liabilities that would not generate benefits for the government from surprise inflation, the government can commit to price stability. García and van Rixtel (2007) discuss inflation-indexed issuance as a tool to promote price stability.

In some models, the relative supply of government bonds of different maturities can affect interest rates (unlike under the expectations theory of the term structure, for example). Early literature in monetary economics emphasised the liquidity effects of debt management operations to draw the connection with monetary conditions (eg Cagan (1966)). Later literature relied more on financial imperfections. For example, preferred-habitat models (eg Vayanos and Vila (2009)) assume that some investors prefer specific maturities and tend not to alter their portfolios to take advantage of higher yields outside their preferred habitat. If investors willing to arbitrage across different maturities are risk-averse, their behaviour will not entirely offset that of preferred-habitat investors. The relative supply and demand of securities of different maturities will therefore affect yields.

Avouyi-Dovi and Idier (2010) explore the interaction of government debt market conditions and monetary policy via collateral for open market operations and standing facilities. They find that the effects of monetary policy can depend on whether bond markets are segmented.

SDM and financial stability. Although short-maturity debt cannot easily be inflated away, it must be refinanced often, increasing transaction costs and leading to heightened rollover risk during a crisis. Giavazzi and Pagano (1990) argue that when public debt is high, debt maturity should be lengthened, the time pattern of maturing debt smoothed out and foreign markets for debt developed. Das et al (2010) highlight that high debt reinforces rollover risk and can crowd out private sector fund-raising; that a high proportion of foreign currency-denominated or short-term debt can increase the economy's vulnerability to shocks (also emphasised by Hoogduin et al (2010)); and that debt structure is key to developing a

benchmark yield curve. Debt managers can thus promote financial stability by issuing instruments targeted at investor types chosen to fill gaps in the markets.

Empirical literature. A significant strand of the empirical literature looks at the impact of the debt structure not only on financial risk for the government, but also on the stability of the economy and the financial system. Missale (1999) examines the optimal shares of short- and long-term nominal, foreign currency and index-linked debt using the conditional covariances of their returns with permanent output, spending, inflation and the exchange rate. The findings suggest that nominal debt can perform a useful macroeconomic hedging role, while long-term nominal debt can help minimise budgetary risk. Renne (2009) finds that interest payments associated with medium- to long-term nominal bonds are countercyclical while those associated with indexed bonds are procyclical.

Missale et al (2002) look at the optimal structure of public debt under asymmetric information using 72 episodes of fiscal stabilisation in different countries. The idea is that when a stabilisation plan is announced, it does not have full credibility among investors and long-term interest rates are thus higher than policymakers' expectations of future rates. The findings are that three factors increase the share of fixed rate, long-term debt issued at the beginning of stabilisation programmes: (i) if the fall in long-term rates following the programme's announcement is larger; (ii) if the conditional volatility of short-term interest rates is higher; and (iii) if long-term rates are lower. In general, debt managers prefer long to short maturity because of the risk of refinancing at higher than expected interest rates. But when long-term rates are high relative to their expectations (because of the information asymmetry), they issue short-maturity debt to minimise borrowing costs.

Several papers seek to explain SDM choices empirically. For example, de Fontenay et al (1995) find that lower interest rates abroad compared to domestic rates have a positive effect on the foreign currency debt share. Piga (2001) documents that debt managers are increasingly using swaps to modify the effects of movements in interest or exchange rates.

The evidence on how the supply of government bonds affects interest rates is mixed. The early 1960s US Federal Reserve programme "Operation Twist" aimed to lower long-term yields relative to short-term by selling short-term and buying long-term debt. This episode strongly influenced the debate on the effects of SDM, being the only example then of debt management being used with the stated objective of a specific macroeconomic outcome. Several studies which analyse that programme (eg Hakim and Rashidian (2000)) find only small effects on yields. The most recent study, Swanson (2011), uses event study techniques and finds statistically significant effects of Operation Twist announcements on longer-term Treasury yields, of the order of about 15 basis points. That study also presents data suggesting that the trading volumes involved in Operation Twist were comparable to those in the Federal Reserve's second round of recent quantitative easing operations (QE2).[7]

Bernanke et al (2004) conclude that more recent interventions in the US Treasury market had significant effects on yields. Hamilton and Wu (2010) find that the maturity structure of US Treasury debt held by the public can be used to forecast US interest rates for the 1990–2007 period. For that period, however, the findings suggest that a complete sale by the Federal Reserve of all its holdings of short-term debt to buy long-term debt would have lifted short-term yields and lowered long-term yields by only a small amount, of the order of 10 to 15 basis points. But if the policy rate is close to zero, such a switch in holdings could lower long-term yields without a rise in short-term yields.

[7] Kuttner (2006)) argues that Operation Twist was a poor test for the general effects of debt management on bond yields because its effect on the volume of outstanding long-term notes and bonds was small.

Looking at other sources of shifting supply and demand for government bonds, Warnock and Cacdac Warnock (2009) find for the 1984–2005 period that foreign purchases of US bonds had an economically large and statistically significant impact on long-term yields. A related literature has analysed the effects of changes in the supply of US Treasuries on spreads between Treasuries and private debt. For instance, Krishnamurthy and Vissing-Jorgensen (2010) estimate that these effects are large, on average, over the 1926–2008 period.

2.2 Overall conclusion from literature review

An overall conclusion from the research literature is that there are a range of theoretical reasons to believe that SDM choices could interact with monetary and financial conditions, in mutually reinforcing or in conflicting ways. Monetary policy that steepens the yield curve, for example, could shift the incentives of the debt manager to issue short-term paper, hence increasing refinancing risk, to the detriment of financial stability. Or, SDM choices about the proportion of inflation-indexed bonds or floating rate bonds might not coincide with the proportion that is optimal from the point of view of underpinning the credibility and time-consistency of the central bank's commitment to price and financial stability.

The review also supports the idea that such interactions could be larger under the current strained macroeconomic and policy circumstances. The IMF and World Bank guidelines emphasise the need for institutional arrangements to resolve these overlaps, giving several examples of tensions that have not always been resolved in the most efficient way.

3. Interactions between SDM and central bank functions under current conditions

The mostly older literature reviewed above tends to abstract from crisis or post-crisis conditions of macroeconomic and financial impairment. It illustrates conceptually how SDM choices and central bank functions might interact, and suggests how the interactions might be stronger currently. This section reviews recent developments in SDM in this light.

3.1 Recent SDM trends

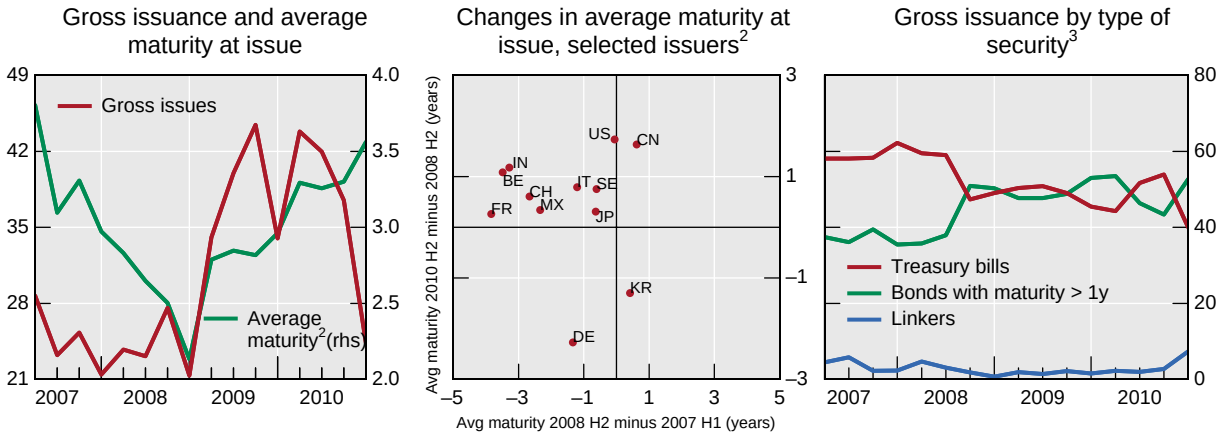
Averaging across the sovereign issuers in the CGFS economies (covering the world's major sovereign issuers), the average maturity of government bonds issued over the crisis period fell from about four years to two years by the end of 2008, and then increased to about three and a half years by December 2010 (Graph 1, left-hand panel). From the end of 2008, gross issuance ballooned, from around USD 20–30 trillion to more than USD 40 trillion in 2009–10.

The aggregates mask a range of behaviour at the national level. Graph 1 (centre panel) shows a scatter plot of selected issuers and illustrates the changes in maturity at issuance in the first half of the period against those in the second half. Issuers such as Belgium, France, India, Mexico and Switzerland reduced maturity from 2007 to 2009 by about two to four years, and then partly offset that with a subsequent increase in maturity. Others such as Italy and Sweden did not reduce maturity as much initially, and ended up with roughly unchanged average maturity at issuance in 2010 compared to 2007.

The proportions of very short-term maturities (Treasury bills with maturity up to one year), fixed rate bonds (non-indexed securities with maturity over one year) and linkers (securities indexed to inflation, other interest rates, etc) did not change very much over the period. After a sharp shift from bills to bonds in late 2008, their proportions fluctuated around 50% each, with the weight of linkers remaining small throughout (Graph 1, right-hand panel).

Graph 1

Sovereign debt issuance patterns, issuers in CGFS economies[1]



[1] Australia, Belgium, Brazil, Canada, China, France, Germany, Hong Kong SAR, India, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, Singapore, Spain, Sweden, Switzerland, the United Kingdom and the United States. Comprises domestic currency debt only. Quarterly issuance converted into annualised USD billion using the exchange rate on the issuance date, with no exchange rate adjustment subsequently. [2] BE=Belgium; CH=Switzerland; CN=China; DE=Germany; FR=France; IN=India; IT=Italy; JP=Japan; KR=Korea; MX=Mexico; SE=Sweden; US=United States. For clarity, not all issuers are shown. Average maturity of issuance for some issuers is volatile over the sample. [3] Percentage of total based on quarterly gross issuance.

Source: Bloomberg

In the euro area, short-term debt issuance increased to high levels in 2009, driving an increase in the proportion of short-term debt (Graph 2, left-hand panel). That was followed by a partial reversal in 2010. The increase in funding needs took place against a background of increasing perception of sovereign default risk for some countries, especially in 2010.[8]

Before the crisis, emerging market (EM) economies markedly reduced their currency, interest rate and rollover risks by increasing the proportion of domestic currency, fixed rate, long-maturity debt (Graph 2, right-hand panel) – accepting the higher short-run interest costs such a strategy generally implied.[9] For example, the 10-years-plus average maturity of outstanding Indian government debt was one of the highest in the world pre-crisis. EM governments also developed markets to facilitate the growth of diverse domestic and foreign investor bases for more complex instruments such as inflation-linked debt. These programmes aimed in part to establish effective domestic benchmark yield curves.

These trends largely continued after only a few months' interruption by the market turmoil, when some markets closed and spreads sharply widened. Debt managers generally responded to the pressure on funding markets by using non-private sources of liquidity (such as cash reserves or central bank credit, or assistance from international financial institutions) and issuing floating at short maturities. Countries with larger and more developed domestic bond markets tended to face less pressure on debt management during the crisis, and indeed some of them saw a flight to government debt. Most EM issuers regained normal market access by mid-2009, returning to their earlier strategy of reducing rollover risk.

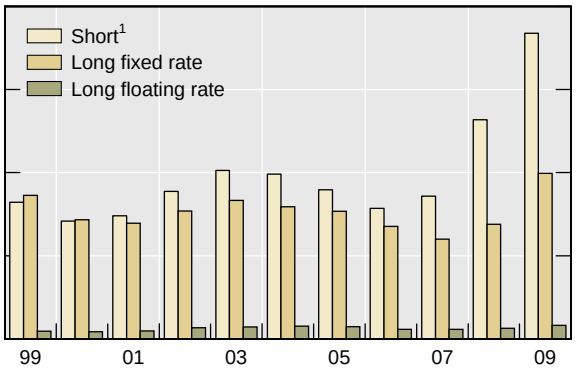
[8] De Broeck and Guscina (2011) study primary debt market issuance in the euro area during the crisis in detail.

[9] EM economies' SDM experiences are reviewed in Turner (2007) and Anderson et al (2010).

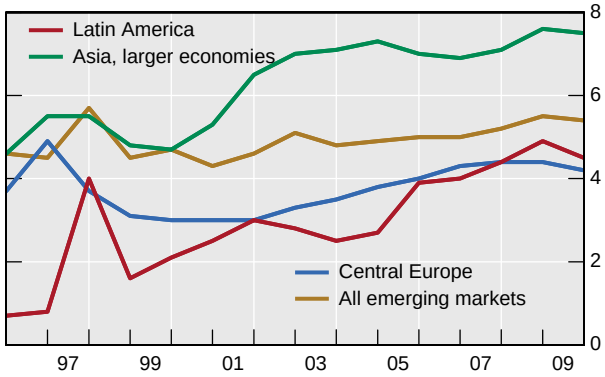
Graph 2

Gross debt issuance in the euro area and average maturity of outstanding EM debt

Euro area government debt gross issuance as a proportion of GDP



Maturity of domestic central government debt outstanding, emerging markets[2]



[1] Denotes debt securities with initial maturity of up to one year. [2] Includes bonds, notes and money market instruments. Latin America: Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela; Asia, larger economies: Chinese Taipei, India and Korea; central Europe: the Czech Republic, Hungary, Poland and Russia. Weights are given by amounts outstanding.

Sources: ECB; BIS.

3.2 Explaining SDM trends

The crisis and subsequent policy responses markedly shifted the environment in which SDM and central banks had to operate. Advanced economy central banks cut policy rates substantially, in some cases to close to zero, generating a very steep yield curve. Major advanced economy central banks then took extraordinary monetary policy easing measures, either targeting particular impaired markets or aiming to ease monetary conditions more generally, including by lowering longer-term interest rates. Extraordinary measures included explicit forward guidance on future short-term interest rates,[10] broadened liquidity provision and targeted asset purchases, including of longer-term government bonds. Subsequently, as fiscal sustainability concerns arose, sovereign risk premia increased for some issuers.

These changes altered the risk/cost opportunities facing debt managers. Blommestein and Gok (2009) and de Broeck and Guscina (2011) suggest that euro area issuers generally assumed more risk and in some cases "opportunistically" pursued short-term interest cost minimisation during the crisis. Hoogduin et al (2010) present evidence for the period 1990–2009 as a whole, suggesting that some highly rated euro area issuers generally shortened maturities in response to steep yield curves, but others tended not to, in spite of the upward pressure on long-term financing costs and market demand in favour of short-term debt. The latter group of issuers might have been more concerned about refinancing or interest rate risks.[11] In the United States, the share of short-term financing temporarily increased, partly due to the temporary Supplementary Financing Program,[12] which created a large unexpected

[10] Eggertsson and Woodford (2003) show that the central bank can stimulate when the overnight nominal interest rate is zero by committing to keep the policy rate low for longer than previously expected. They note that, in a standard New Keynesian model, such commitments are the only way to affect the yield curve – purchases of public sector assets are not stimulatory because the public anticipates the higher future taxes implied by the purchases. If frictions such as credit constraints are introduced, this irrelevance of asset purchases is unlikely to hold if assets are not perfect substitutes.

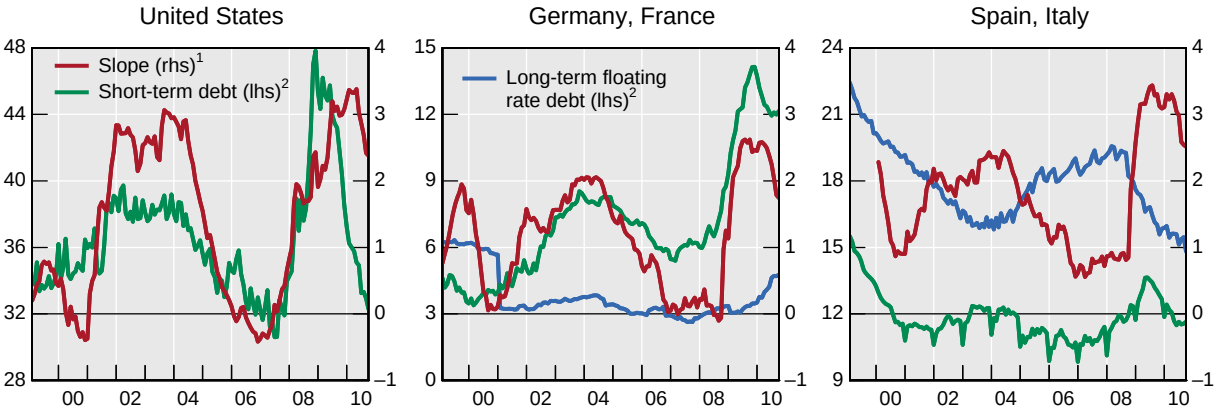
[11] A caveat on the measurement of interest rate risk is that the effective exposure may have been modified by the use of derivatives, for which data are lacking.

[12] See http://www.treasury.gov/press-center/press-releases/Pages/hp1144.aspx.

financing need. But then, the proportion of long-term financing "normalised" towards pre-crisis levels (Graph 3, left-hand panel).

Graph 3

Yield curves and proportions of short-term and floating rate debt



[1] Slope of the yield curve (10yr–1yr, in percentage points); in the cases of Germany and France and Spain and Italy, weighted by outstanding amounts. [2] Percentage of total.

Sources: ECB; National Bank of Belgium; Reuters Datastream.

Comparing the experiences of Germany and France (Graph 3, centre panel), as examples of countries which did not face market concerns about sovereign credit risk, with those of Spain and Italy (Graph 3, right-hand panel), as examples of countries which did, shows the role of perceptions of fiscal sustainability in SDM decisions. For Spain and Italy, the share of short-term financing increased very little and the share of long-term floating rate debt even fell. Risk aversion and the desire to lock in funding for longer periods seem to have dominated yield curve considerations. In the past, these countries tended to rely more on short-term and floating rate debt than other euro area countries, which could reflect the fact that their yield curves had tended to be steeper. In Germany and France, the yield curve slope appears to have been the dominant factor in the recent episode. In these two countries, the share of short-term financing increased significantly in response to the yield curve's initial sharp steepening, but decreased somewhat when the steepness abated.

EM economies' improvements over the past decade in terms of the depth and continuity of longer-duration domestic currency markets clearly helped limit the disruption during the crisis. The improvements had partly freed debt managers from their dependence on bank financing and having to choose between long-term fixed rate FX instruments and short-term local currency paper. The clear payoff from efforts to improve the resilience and reduce the risk associated with government funding activities probably contributed to EM economies' generally quick return to an emphasis on safe funding strategies following the crisis.

3.3 SDM and monetary conditions

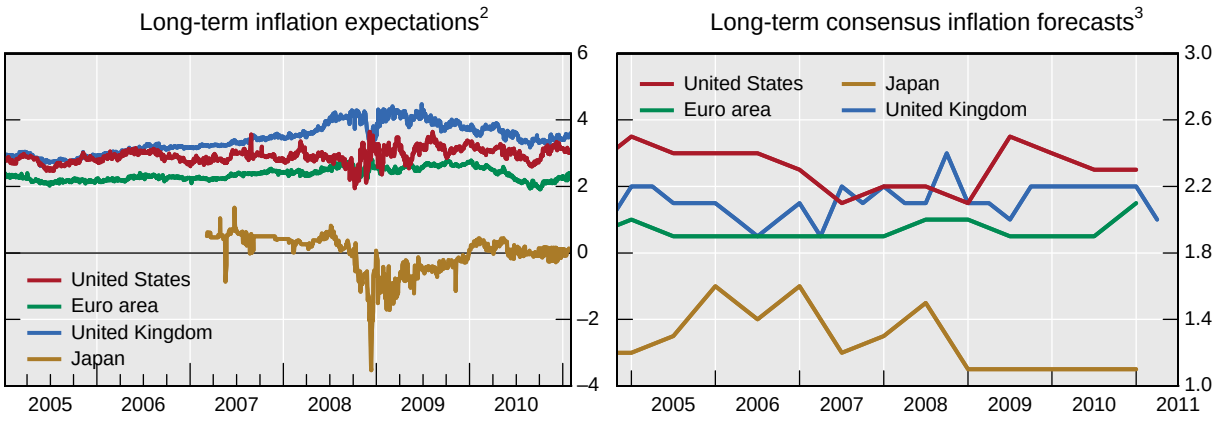
SDM can interact with monetary conditions through inflation expectations. High levels of long-term domestic currency nominal debt, especially if held abroad, can encourage perceptions that monetary policy might be used deliberately to generate inflation to reduce the government's real burden of debt (including via a lower exchange rate).[13] Such concerns

[13] See the "unpleasant monetarist arithmetic" of Sargent and Wallace (1981).

seem to have been offset by central banks' independence (extreme in the case of currency union with national SDM) and price stability mandates. Medium- to long-term inflation expectations continue to be anchored around levels consistent with price stability (Graph 4).

Graph 4

Long-term inflation expectations and forecasts[1]



[1] In per cent. [2] Five-year forward five-year-ahead inflation-linked swap rate. [3] United States, Japan and euro area: average of six- to 10-year-ahead forecasts from Consensus Economics; United Kingdom: four-year-ahead forecasts from HM Treasury survey of independent forecasters.

Sources: Bloomberg; © Consensus Economics; national data; BIS calculations.

Unconventional policy easing via large-scale asset purchases (LSAPs), including of government debt, is likely to interact with SDM operations directly. The major central banks that used LSAPs during the crisis were the Bank of England and the US Federal Reserve (Annex 3 provides details of the LSAP approaches at these central banks). While the Bank of Japan's quantitative easing approach did involve government bond purchases, its emphasis was mainly on interest rate expectation management. The ECB concentrated on liquidity provision to the banking sector, rather than outright purchases of government bonds.[14]

When assets are imperfectly substitutable, government bond purchases can lower long-term interest rates by shifting relative supplies of securities. By purchasing longer-term securities, the central bank reduces their supply in the market, which reduces the term premium embedded in longer-term yields (ie raises the price of long-duration assets). That effect should in turn boost the demand for, and prices of, other assets via the "portfolio balance" effect. Recent empirical work provides a sense of the size of these effects.[15]

The UK and US LSAP experiences illustrate the institutional coordination issues that can arise between SDM and monetary policy operations when macroeconomic strains are extreme. In the case of the United Kingdom:

- In theory, the UK government could have chosen to issue more gilts in the segments where the Bank of England's asset purchases had lowered yields. To ensure that debt management policy remained consistent with monetary policy, the Chancellor

[14] The extra liquidity could have been used by banks to buy sovereign debt securities. While this could have had an effect on their prices at the time of the first (large) one-year liquidity-providing operation in June 2009, such an impact would probably be limited to the maturities corresponding to those of the liquidity provision.

[15] A burgeoning literature focuses on the experience of the asset purchase programmes of the Federal Reserve and the Bank of England. For example, see D'Amico and King (2010), Gagnon et al (2010) and Hamilton and Wu (2010) for the Fed; and Joyce et al (2010) for the Bank of England.

announced in a letter to the Governor of the Bank of England that the UK DMO would not alter its issuance strategy as a result of the Bank of England's purchases.[16]

- The UK Monetary Policy Committee (MPC) announced an asset purchase programme that was deliberately large. It set out its purchase plan over three-month periods, which allowed the market to anticipate the purchases. Although the DMO has responsibility for ensuring that the gilt markets are orderly, the Bank of England executed the MPC's plan in such a way as to avoid unnecessary disruption to the market. When it became evident that the purchases were causing shortages in certain gilts, the Bank of England stopped purchasing those gilts where its holdings were at or close to 70% of the total amount of the particular gilt on issue (excluding government holdings). In August 2009, it then announced that it would loan gilts to the DMO for it to onlend to the market. In return for the loan of specific gilts, the DMO had to deliver government securities of equal value, so that the Bank of England's overall holdings of gilts were not affected.
- The backdrop of heavy government bond issuance raised the possibility that market participants would try to buy from the DMO and then sell to the Bank of England at a higher price. Partly to counter this possibility, the Bank of England purchased gilts through competitive reverse auctions, in which the Bank offered to buy bundles of gilts (so auctions were less vulnerable to a squeeze on any particular gilt). And gilts that the Bank of England knew the DMO was about to issue or had issued in the previous week were excluded from the auctions.

The interaction between US unconventional monetary policy using asset purchases and SDM during the financial crisis was broadly similar to that in the United Kingdom. Emphasis was placed on the different objective functions of the respective agencies. Public announcements by US debt managers reiterated that the objective of the US Treasury remained to issue securities to the private market at the lowest cost over time, while emphasising their willingness and capacity to meet that objective independently of the Fed's LSAP programme directed towards its dual mandate of full employment and price stability.[17]

If the mechanism by which central bank government bond purchases act on long-term interest rates is a pure portfolio balance effect, then similar and offsetting effects could in principle result from SDM decisions to issue long-term government bonds. Long-term issuance volumes in the United Kingdom and the United States over the period have been of roughly comparable magnitudes to the asset purchases. The effects will not in general be exactly the same, however, because of at least three effects:

- the signalling effects associated with the actions by the respective agencies will be different, because SDM actions seldom "surprise" the markets in the way that those of central banks do, and because debt managers do not control policy rates;
- the endogenous reaction by the two policy agencies to macroeconomic developments is in general different;[18] and

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[16] Letter from the Chancellor to the Bank of England Governor, dated 3 March 2009. See http://webarchive.nationalarchives.gov.uk/+/http://www.hm-treasury.gov.uk/d/chxletter_boe050309.pdf.

[17] See the remarks by Assistant Secretary for Financial Markets Mary J Miller before the Futures Industry Association Treasury and Rates Conference, New York: http://www.treasury.gov/press-center/press-releases/Pages/tg890.aspx.

[18] The need for unconventional monetary policy might often coincide with an increase in government debt issuance, because both are associated with recessions. Issuance of long-term debt might be further increased in recessions by governments seeking to reduce rollover risk where they can.

- central bank asset purchases consciously inject central bank money into the financial system, whereas government debt issues typically leave the level of central bank money ultimately unaffected, because they usually fund spending.

In practice, since the crisis, unconventional monetary policy seems to have achieved its objective of easing monetary conditions, suggesting that any effects on yields of long-term issuance activity have not been substantial.

3.4 SDM and financial stability

The cumulative effect of SDM choices on the maturity structure and risk characteristics of outstanding government debt can materially affect the propagation of stress through the financial system. The propagation channels arise from financial institutions' exposures to sovereign debt and the consequent effects on funding conditions. Such effects will probably be magnified if fiscal sustainability is under question at the same time. The intertwining of public and private sector funding conditions is even stronger if official support for the banking sector is seen as adding significantly to sovereign credit risk.[19]

SDM choices have multifaceted effects on financial stability, because different sectors within the financial system tend to focus on debt holdings of particular maturities and other characteristics. Banks, for example, demand highly liquid debt securities for use in the repo funding market. Also, the duration of their liabilities is relatively short, so banks may favour short-duration debt holdings to reduce maturity mismatch. By contrast, long-term investors such as insurers and pension funds have long-term liabilities, which they usually seek to hedge without taking on large credit risks, suggesting a focus on long-term government debt. If maturing long-term debt is rolled over into shorter-term issues, insurers and pension funds could be induced to look for alternatives, possibly in riskier asset classes, or to match liability- and asset-side exposures by using interest rate swaps.

Either of these possibilities deserves monitoring, because of the generally heightened credit and market risks currently. The implications for SDM are probably to make sure that a reasonable range of instruments is issued to support the depth of debt markets in general.

The risk of crowding out private sector funding probably increases if sovereign issuance is concentrated in similar market segments. Moreover, the stronger liquidity rules on banks and solvency requirements on pension funds and life insurers could shift demand from private to government debt. Higher demand from buy-and-hold investors such as pension funds and life insurers may reduce liquidity in government debt markets, reducing the quality of the benchmark curve. On the other hand, if banks are less tied to specific maturity segments and therefore more willing to trade across the government curve, their additional demand could improve liquidity. These issues may be particularly relevant in economies where government debt markets are thin, perhaps due to a small gross public debt position, or to infrequent trading of a large proportion of outstanding debt.

The quick restoration by EM economies, particularly in Asia and Latin America, of regular public and private sector long-term domestic currency issuance after the crisis demonstrates the value for financial stability of SDM strategies focused on developing domestic debt markets. Indeed, many EM economies are now concerned about strong capital inflows and their financial stability consequences, rather than about sudden stops and funding pressures.

Since the spring of 2010, euro area debt markets have been characterised by unprecedented turmoil related to the outlook for sovereign debt and deficits, adding to the pressure on debt

[19] See eg Dunne et al (2006) and IMF (2010b).

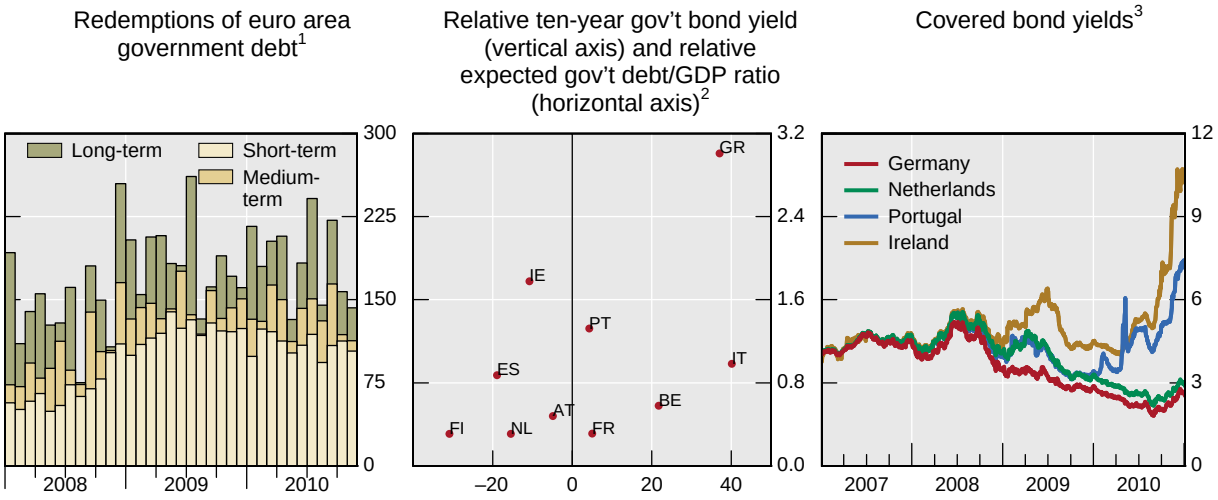
managers there. The recent experience in those markets shows how past SDM choices can affect the transmission of stress, through perceptions of sovereign rollover risks.

The turmoil threatened to make it nearly impossible for some countries to refinance their outstanding debt. It spread to other countries' debt markets and to private debt markets, and cast doubt on euro area banks' financial health, since banks (including in fiscally stronger countries) hold considerable amounts of sovereign debt issued by countries under stress.[20]

The increased issuance of short-term debt during the crisis has increased the exposure of euro area sovereign issuers to interest rate and rollover risk (Graph 5, left-hand panel).

Graph 5

Euro area financial market strains



[1] In billions of euros. Short-term: initial maturity up to one year; medium-term: initial maturity one to five years; long-term: initial maturity over five years. [2] Differences relative to Germany, in percentage points. Expected debt/GDP for current and following year based on latest available European Commission forecasts each day. Daily data averaged for 2008–10. AT = Austria; BE = Belgium; ES = Spain; FI = Finland; FR = France; GR = Greece; IE = Ireland; IT = Italy; NL = Netherlands; PT = Portugal. [3] Five-year par yields calculated from the estimated covered bond curves.

Sources: ECB; European Commission; Bloomberg.

For the euro area as a whole, expected redemptions of debt with a maturity of one year and over for 2011 markedly increased from EUR 193 billion as at December 2007 to EUR 510 billion as at December 2009. Moreover, the increasing share of short-term debt has made future redemptions of sovereign issuers more difficult to predict.

Unsurprisingly, countries with less favourable fiscal outlooks have been more heavily affected in the markets (Graph 5, centre panel). The varying intensity of sovereign funding and rollover strains across the euro area has been reflected in private sector funding conditions, as shown in the divergence of yields in corporate bond markets across countries. For example, five-year covered bond yields for Irish and Portuguese issuers increased much more than those for German and Dutch issuers (Graph 5, right-hand panel).

During the past year, awareness about government debt rollover risks and their contribution to more general financial volatility has increased. For instance, in its statement of

[20] The widening of those countries' bank debt spreads could in part have reflected not only correlated risks, but also a perception that it was more acceptable to short bank debt and equity than sovereign debt.

28 November 2010, the Eurogroup agreed that "Member States will strive to lengthen the maturities of their new bond emissions in the medium-term to avoid refinancing peaks".[21]

Of course, historical SDM decisions on maturity and issuance and the implied redemption schedules are not the only factor relevant to the propagation of financial system stress. Financial integration, such as in currency unions, also increases contagion risks. A related question is whether the pattern of placement and maturity choices across the union could have an impact on the depth and continuity of markets in the union. Finally, the functioning of the securities market infrastructure, including how government debt is traded and the transactions cleared and settled, has also been relevant in the euro area episode (as well as an important focus in EM economy financial system development efforts). Improvements in European repo market practices, for example, are being pursued as a result of the recent experience in sovereign debt markets.[22] Both debt managers (for cost and risk reasons) and central banks (for financial stability reasons) have a keen interest in such infrastructural initiatives.

3.5 SDM and central bank market operations

A range of central bank market operation functions can be affected by SDM due to the role of government bonds as collateral in open market operations and standing liquidity facilities, the role of the government debt yield curve as a benchmark, and the impact of SDM on movements of cash around the system.

The first two factors give central banks an interest in the maturity structure of outstanding debt and in the depth of the market, both of which affect the calibration of haircuts. Not only are the haircuts of interest from the narrow point of view of the central bank's financial risk, but also because they could affect the composition of banks' asset portfolios held for liquidity management purposes, which has flow-on effects for financial stability.

Central banks also have an interest in the government curve as an effective benchmark for monetary policy transmission. When conventional monetary policy uses policy interest rate adjustments and signalling as the instrument, central banks typically operate such that their transactions in government debt markets have minimal impacts on yields, so as not to undermine the curve's quality as a benchmark and indicator of macroeconomic expectations. This means that if misalignments in the prices of sovereign bonds with the same structure and similar maturities appear for whatever reason, and have an impact on private debt yields and broader financial conditions, central banks would have an interest in issuance actions that could correct the misalignments. (Having said this, the role of the government curve as benchmark may be diminishing with the development of deep and liquid markets for derivatives such as overnight index swaps, which can in some cases substitute as providers of benchmark or reference interest rates.[23])

For similar reasons, central banks might also have an interest in the impact of inflation-indexed debt issuance on its market pricing, because of the implications for measuring inflation expectations. Large swings in the supply of inflation-indexed debt could distort measures of inflation compensation, which are already noisy. Of course, policymakers look at many different measures of inflation expectations, but any "noise" in inflation

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[21] See http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ecofin/118050.pdf.

[22] See ICMA European Repo Council (2010).

[23] See BIS Study Group on Fixed Income Markets (2001).

compensation due to variations in issuance could make the job of gauging longer-term inflation expectations more difficult.

When volatile cross-border capital flows or exchange rates are a policy concern, sovereign issuance abroad or foreign participation in local currency bond markets can cause tension between SDM and policy functions concerned with the management of capital flows. Although strong foreign portfolio demand lowers the cost of sovereign issuance and can contribute to the development of local securities markets, it increases the need for sterilisation when exchange rates are managed.

These issues may be particularly important in emerging markets, where domestic financial systems often have low absorptive capacity. When global liquidity is amply available at low cost, debt managers might find it more attractive to issue offshore for cost reasons. Capital inflows tend in general to be more volatile than domestic financial flows, which creates financial stability issues associated both with sudden reversals and with managing the domestic liquidity consequences of strong inflows. If foreign currency debt issuance is used, the risks associated with currency mismatches in the sovereign balance sheet will also need to be controlled. Finally, the presence or use of capital controls aimed at managing volatility can reduce the demand for sovereign debt or increase its cost on a longer-term basis.

Where the central bank issues securities for sterilisation purposes, institutional arrangements should make clear which agencies can issue public sector securities and for what purpose. For example, securities issued for sterilisation or other liquidity management purposes might need to be distinguished from those issued to finance government operations.[24]

If government entities hold cash balances directly with the central bank, SDM and other government operations can influence system liquidity and need to be managed. In such cases, debt managers often provide central banks with government cash flow forecasts for liquidity management purposes.

Central banks' crisis actions to support liquidity in government bond and other markets are a legacy with some implications for interactions of central banks with SDM. The SDM objective of encouraging deep and complete government bond markets is pursued mostly through choices about maturity and other contractual features of newly issued government debt. By contrast, central banks actively trade in the secondary markets and typically have wider choice about the markets in which they will participate. The respective market support and development roles and how they should best interact to promote deep and liquid markets – which benefit monetary policy, financial stability and the cost of funding the government alike – are issues that may warrant further attention at the strategic level.

4. Conclusions: issues for central banks to manage

This report is about how SDM choices could interact with monetary conditions and financial stability. It explores the implications of large increases in the supply of government debt and fiscal sustainability concerns, the use of large-scale purchases of government debt as part of unconventional monetary policy, and structural shifts in the demand for government debt, including those arising from increasing foreign participation and new prudential requirements.

SDM choices during the crisis appear so far to have been prudent responses (conditioned, of course, by the market environment) consistent with the mainstream SDM emphasis on minimising risk-adjusted medium-term funding costs. The debt managers that have taken the

[24] See CGFS (2009).

greatest advantage of the unusually low funding cost in short-term debt markets have been from economies with a strong credit standing. Where credit standing has been less strong, SDM appears to have tried to stick largely to safe funding strategies, or to return to such strategies as soon as possible, despite the high funding costs imposed in some cases by the markets.

The Study Group's mandate posed three specific questions:

- What are the consequences of SDM choices for monetary and financial conditions in current circumstances?
- How should central banks take account of SDM choices when conducting unconventional monetary policies?
- What are the main channels through which SDM choices could affect financial stability in current circumstances?

This concluding section first briefly summarises the Study Group's answers to these questions, drawing on the evidence and analysis presented in the rest of the report. It then discusses some broader issues about how institutional arrangements and communication among the agencies involved can help manage the current unusual circumstances.

4.1 Impact of SDM choices on monetary and financial conditions

SDM choices during the crisis do not appear to have had large or difficult-to-manage effects on monetary and financial conditions thus far in most countries. Movements in duration, for example, while substantial in some cases, have not prevented central banks from maintaining control over monetary conditions. There is little evidence at present that inflation expectations are becoming de-anchored.

The connection between SDM and financial stability appears to have been more consequential. For countries facing fiscal sustainability concerns, earlier SDM choices about maturity, as well as structural features of the government debt markets such as the degree of overseas participation, have affected sovereign debt crisis dynamics. In some cases, sovereign rollover risk concerns appear to have spilled over to bank funding conditions.

EM economies' more favourable fiscal circumstances have meant that rollover risk concerns have been less acute thus far. However, their financial systems are generally still developing. The high concentration of public debt holdings in domestic banks and limited absorptive capacity of financial systems for capital inflows means that the authorities should remain cognisant of the connections between SDM, monetary conditions and financial stability. This is especially the case currently given the large pressures for capital inflows to EM economies, which are likely to persist for some time.

4.2 Taking account of SDM choices when conducting unconventional monetary policies

In principle, SDM choices could have constrained the ability of central banks to conduct large-scale asset purchases. In practice that seems not to have happened, in part reflecting the institutional arrangements and communication strategies used to avoid such complications, with debt managers emphasising steady and predictable issuance.

As the recovery continues, policy rates of interest will need to rise. Central banks that have engaged in large-scale asset purchases as part of unconventional easing programmes will need to assess the size and composition of the balance sheet to which they want to move over the medium term. When the time comes to sell the purchased assets, central banks will operate on the same side of the market as debt managers. Issuance rates at the time are

likely to be still elevated, even if declining. Communication with debt managers on operational issues may become even more important when both are selling.

Some media and commentators have raised concerns about the independence of monetary policy, including allegations of it being used to facilitate SDM by deliberately inflating away the debt (both sovereign and private) and easing the path of financing for large fiscal deficits. That would not be consistent with the mandates of the central banks concerned and there is no evidence to support such allegations, but if they became popularly accepted credibility problems could result. One obvious mitigant would be a clear intention to sell government bonds acquired under LSAP programmes when policy is eventually tightened.

The economic and financial conditions under which central banks would contemplate selling assets would be different from those under which they purchased assets. The respective effects may not be mirror images. The assets were purchased with market expectations of future policy rate paths bounded close to zero on the downside, whereas there will clearly be no such bound on the upside during sales. This means that, at least for some countries, the scope was limited for the yield curve to shift downwards in the purchasing phase, whereas there would be more scope for the curve to rise during the selling phase. There is therefore some risk of substantial interest rate reactions to central bank selling of purchased bonds.[25] It should also be noted that the effects of central bank asset sales on long-term interest rates under these market conditions are highly uncertain, with few or no precedents for such sales to provide guidance. Much would depend on the expectations already built into asset prices. These expectations might be quite sensitive, since asset sales do not necessarily have to be strongly tied to the path of policy rate increases.[26]

A counterargument is that, as market conditions normalise somewhat and constraints on arbitrage weaken, asset substitutability should increase. And sales need not occur at the same rate as the purchases did. The impact of asset sales might therefore be less concentrated in time, reducing the scope for interactions with SDM. In any case, the respective agencies will again need to communicate their objectives clearly to the public and to each other.

4.3 Main channels for SDM choices to affect financial stability

SDM choices affect financial stability and the propagation of financial stress mainly through their cumulative impact on the maturity structure and other risk characteristics of outstanding government debt. The most obvious example from the crisis episode is sovereign rollover risk, which, when combined with financial institutions' exposures to sovereign debt and fiscal sustainability concerns (including about the fiscal impact of official support for the banking sector), had material effects on private sector funding conditions. The episode shows that yields and spreads on sovereign bonds can strongly drive those on bank credit, creating a potent channel for the spread of financial stress.

In such a context, one strong contribution that SDM can make is to continue to minimise its contribution to financial volatility by spreading maturities and making placement decisions strategically to avoid concentrated impacts on the markets. More generally, several EM

[25] See Bank of Japan (2011, Box 1) and Fujiwara et al (2010) for a study of possible asymmetry in movements of long-term interest rates in major advanced economies.

[26] The US Treasury's 21 March announcement of its plans to sell a USD 142 billion portfolio of mortgage-backed securities acquired during the financial crisis (which is a small portfolio compared to the Federal Reserve's holdings) was followed by a rise in long-term interest rates of a handful of basis points. See eg Braithwaite (2011) for details on the market reaction.

economies' SDM strategies of establishing deep and diversified investor bases, especially for long-duration, domestic currency debt, clearly paid off in terms of financial stability during and after the crisis. Such economies were able to restore regular public and private sector issuance on reasonable terms fairly quickly after crisis-related disruptions.

Maturity choices can affect investors such as pension funds and insurers that generally seek to match durations of assets and liabilities. A reduction in the supply of long-term government debt could induce such investors to look for riskier alternatives or to use derivatives.

4.4 Managing heightened interactions of SDM with monetary conditions and financial stability

How SDM should relate to macroeconomic policy functions depends on their respective objectives, which in turn depends on the institutional context and on economic and financial system circumstances. Economies with a high asset substitutability and general financial market depth have tended to emphasise the separation of policy functions, whereas in more developing systems there has tended to be more coordination of various forms, including the central bank being responsible for some SDM functions or involved in SDM oversight.

Narrow policy remits and operational independence aim to reduce decision lags, distorted incentives and unclear accountability, while coordination aims for a better overall mix of policy (achieving the same overall policy objectives with fewer distortions). Current policy circumstances are exceptionally demanding, raising the question of whether synergies and opportunities for enhanced cooperation might exist.[27]

On the other hand, although SDM and monetary policy operations could theoretically reinforce or conflict with each other, we have found little evidence to suggest that independence between SDM and monetary policy functions at the level of operations has created any material or unmanageable problems so far. Issuance choices made by debt managers have not clearly inhibited monetary policy, even in the cases of central banks using large-scale asset purchases, from having its desired effects on monetary conditions.

The monetary policy risks of modifying, or appearing to modify, operational independence arrangements would appear to be quite high. For example, perceptions of influence on SDM decisions from inside information on interest rate decisions, or on monetary policy and central bank credit decisions from considerations of funding cost minimisation, would be highly damaging to the credibility of the overall framework. There seems no compelling reason at this stage for SDM to depart from its broad focus on minimising risk-adjusted medium-term funding costs and diversifying and deepening government funding markets – which in any case are worthwhile contributions to macroeconomic and financial stability objectives.

None of this means that the strategic, medium-term SDM targets for maturity structure and for the risk characteristics of outstanding debt should be cut off from the broader macroeconomic policy context. On the contrary, such strategy should take a broad view of influences on cost and risk, including macroeconomic influences and the behaviour of other public agencies. Likewise, central banks should keep abreast of SDM activities and their potential impacts on monetary and financial conditions. Regular communication between agencies, subject to the maintenance of independence and accountability for respective roles, is particularly useful in the current context and is consistent with Stockholm Principle 6 articulated in 2010 by the IMF Forum of central banks and debt managers (see Section 2). In so communicating, the agencies would need to be aware of risks to credibility and

[27] See, for example, the discussions in Goodhart (2010) and Reddy (2011).

independence, suggesting that the balance between public and private communications needs to be carefully considered.

Due to the increased macroeconomic strains, a consensus has already emerged to strengthen the emphasis on risk mitigation in SDM. Medium-term maturity structure and risk targets matter to central banks for monetary and financial stability. This is especially true in developing financial systems with less depth in markets, where the connections between policy functions influencing the financial system, and thus the potential for interactions of SDM with monetary policy operations and financial stability, are greater.

The monetary policy and financial stability implications of such SDM choices underscore the importance and utility of close communication among the different agencies, while each agency maintains independence and accountability for its respective role.

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Annex 1:
Summary from IMF and World Bank (2003)
Guidelines for public debt management

1. Debt Management Objectives and Coordination

1.1. Objectives

The main objective of public debt management is to ensure that the government's financing needs and its payment obligations are met at the lowest possible cost over the medium to long run, consistent with a prudent degree of risk.

1.2 Scope

Debt management should encompass the main financial obligations over which the central government exercises control.

1.3 Coordination with monetary and fiscal policies

Debt managers, fiscal policy advisors, and central bankers should share an understanding of the objectives of debt management, fiscal, and monetary policies given the interdependencies between their different policy instruments.

Where the level of financial development allows, there should be a separation of debt management and monetary policy objectives and accountabilities.

Debt management, fiscal, and monetary authorities should share information on the government's current and future liquidity needs.

Debt managers should inform the government on a timely basis of any emerging debt sustainability problems.

2. Transparency and Accountability

2.1 Clarity of roles, responsibilities and objectives of financial agencies responsible for debt management

The allocation of responsibilities among the ministry of finance, the central bank, or a separate debt management agency, for debt management policy advice, and for undertaking primary debt issues, secondary market arrangements, depository facilities, and clearing and settlement arrangements for trade in government securities, should be publicly disclosed.

The objectives for debt management should be clearly defined and publicly disclosed, and the measures of cost and risk that are adopted should be explained.

2.2 Open process for formulating and reporting of debt management policies

Materially important aspects of debt management operations should be publicly disclosed.

2.3 Public availability of information on debt management policies

The public should be provided with information on the past, current, and projected budgetary activity, including its financing, and the consolidated financial position of the government.

The government should regularly publish information on the stock and composition of its debt and financial assets, including their currency, maturity, and interest rate structure.

2.4 Accountability and assurances of integrity by agencies responsible for debt management

Debt management activities should be audited annually by external auditors.

3. Institutional Framework

3.1 Governance

The legal framework should clarify the authority to borrow and to issue new debt, invest, and undertake transactions on the government's behalf.

The organizational framework for debt management should be well specified, and ensure that mandates and roles are well articulated.

3.2 Management of internal operations and legal documentation

Risks of government losses from inadequate operational controls should be managed according to sound business practices, including well-articulated responsibilities for staff, and clear monitoring and control policies and reporting arrangements.

Debt management activities should be supported by an accurate and comprehensive management information system with proper safeguards.

Staff involved in debt management should be subject to a code-of-conduct and conflict-of-interest guidelines regarding the management of their personal financial affairs.

Sound business recovery procedures should be in place to mitigate the risk that debt management activities might be severely disrupted by natural disasters, social unrest, or acts of terrorism.

Debt managers should make sure that they have received appropriate legal advice and that the transactions they undertake incorporate sound legal features.

4. Debt Management Strategy

The risks inherent in the structure of the government's debt should be carefully monitored and evaluated. These risks should be mitigated to the extent feasible by modifying the debt structure, taking into account the cost of doing so.

In order to help guide borrowing decisions and reduce the government's risk, debt managers should consider the financial and other risk characteristics of the government's cash flows.

Debt managers should carefully assess and manage the risks associated with foreign currency and short-term or floating rate debt.

There should be cost-effective cash management policies in place to enable the authorities to meet with a high degree of certainty their financial obligations as they fall due.

5. Risk Management Framework

A framework should be developed to enable debt managers to identify and manage the trade-offs between expected cost and risk in the government debt portfolio.

To assess risk, debt managers should regularly conduct stress tests of the debt portfolio on the basis of the economic and financial shocks to which the government—and the country more generally—are potentially exposed.

5.1 Scope for active management

Debt managers who seek to manage actively the debt portfolio to profit from expectations of movements in interest rates and exchange rates, which differ from those implicit in current market prices, should be aware of the risks involved and accountable for their actions.

5.2 Contingent liabilities

Debt managers should consider the impact that contingent liabilities have on the government's financial position, including its overall liquidity, when making borrowing decisions.

6. Development and Maintenance of an Efficient Market for Government Securities

In order to minimize cost and risk over the medium to long run, debt managers should ensure that their policies and operations are consistent with the development of an efficient government securities market.

6.1 Portfolio diversification and instruments

The government should strive to achieve a broad investor base for its domestic and foreign obligations, with due regard to cost and risk, and should treat investors equitably.

6.2 Primary market

Debt management operations in the primary market should be transparent and predictable.

To the extent possible, debt issuance should use market-based mechanisms, including competitive auctions and syndications.

6.3 Secondary market

Governments and central banks should promote the development of resilient secondary markets that can function effectively under a wide range of market conditions.

The systems used to settle and clear financial market transactions involving government securities should reflect sound practices.

Annex 2:
IMF Forum (2010) "Stockholm Principles": Guiding principles for managing sovereign risk and high levels of public debt

Framework and operations

1.The scope of debt management should be defined in a way that also accounts for any relevant interactions between the nature of financial assets, explicit and implicit contingent liabilities, and the structure of the debt portfolio.

The crisis-related interventions have involved a wide range of debt management operations. In some instances, changes have taken place in the structure and the composition of the debt portfolio. It is important that the debt management strategy takes into account the relevant variables and the policy and financial risk implications.

2. Strategic and operational debt management decisions should be supported by relevant information sharing at the domestic, regional, and global levels.

The crisis has raised the risk of financial stability spillovers, including systemic cross-border contagion. Therefore, the need for information sharing on materially important aspects, at both the regional and global levels, takes on greater significance. This aspect becomes especially important when the investor base comprises both domestic and foreign participants. Information sharing should take place among relevant public authorities, and where appropriate, also with the private sector.

3. Flexibility in market operations should be maintained to minimize execution risk, improve price discovery, relieve market dislocations, and support secondary market liquidity.

In light of the challenges of issuing and managing increased amounts of debt, debt managers should retain sufficient flexibility to adapt the debt issuance format and/or adopt different issuance techniques. They should also be prepared to make timely use of liability management operations to alleviate secondary market impairments. In such cases, the following Principle 5 should also be taken into consideration.

Communication

4. Proactive and timely market communication strategies should be maintained to support a transparent and predictable operational framework for debt management.

Effective communication helps minimize uncertainty and contain costs by providing investors with the necessary information required to form expectations and manage investment decisions. This also facilitates the smooth undertaking of debt management operations, including primary market issuance.

5. Modifications to the operational toolkits of debt managers should be properly explained.

As changes are made, debt managers should communicate them to the public clearly and in a timely fashion. Where appropriate, prior consultation with investors and other stakeholders should be undertaken to garner feedback and support for the planned changes, such as the introduction of a new debt instrument or an adjustment to an existing debt issuance mechanism.

6. Communication among debt managers and monetary, fiscal, and financial regulatory authorities should be promoted, given greater inter-linkages across objectives, yet with each agency maintaining independence and accountability for its respective role.

The higher levels of debt and increased uncertainties regarding fiscal, monetary, and regulatory policies imply the need for close communication among different agencies on all relevant aspects. However, it is important that these agencies retain their functional and operational independence in areas for which they are accountable.

7. A close and continuing dialogue with the investor base should be promoted to keep abreast of its characteristics and preferences.

Understanding the nature of the investor base and shifts in the investment philosophy enables debt managers to identify potential vulnerabilities and new opportunities, and to offer instruments that better match investors' needs. This can have important positive effects in limiting funding disruptions, mitigating adverse funding conditions, and reassuring that investors are being treated equitably.

Risk management

8. Debt portfolio risks should be kept at prudent levels, while funding costs are minimized over the medium to long term.

Given the increased exposure to macroeconomic and financial risks, a stronger emphasis should be placed on risk mitigation than that implied by traditional policy objectives of public debt management. The debt manager should have a framework that helps identify, assess, and monitor the risks associated with debt management operations.

9. When determining medium-term debt management strategies, the range of risk factors considered should be consistent with the broadest definition of the debt portfolio and the associated range of potential scenarios.

The main sources of the risks to which the sovereign balance sheet is exposed should be identified and a clear framework on how these risks are managed should be established. A careful analysis of the debt portfolio should be carried out on the basis of relevant economic and financial stress scenarios, including the costs and risks of alternative strategies.

10. Prudent risk management strategies covering the full range of risks facing sovereign debt managers should be adopted and communicated to investors.

In many cases, the high level of debt is constraining governments' ability to absorb additional risk on their balance sheets. It is important to maintain debt portfolios that reduce the sovereign exposure to a variety of financial risks, including refinancing risk and exposure to contingent liabilities. Debt managers should clearly set out the strategies being adopted to limit these risks and communicate them to the public.

Annex 3:
Quantitative easing programmes in the United Kingdom, the United States and Japan

Bank of England, 2009–

Following the intensification of the financial crisis in late 2008, the UK Monetary Policy Committee (MPC) cut the UK policy interest rate sharply, to 0.5% – the effective lower bound on the rate – in March 2009. The Committee judged that, despite that reduction, there remained substantial downside risks to achieving the inflation target in the medium term, and so, to loosen monetary conditions further, it announced that the Bank of England would begin a programme of asset purchases, focused on UK government bonds, using the Asset Purchase Facility (APF).

The Bank of England Asset Purchase Facility Fund was set up on 30 January 2009 as a subsidiary of the Bank of England. The Fund is fully indemnified by the Treasury from any losses arising out of or in connection with the APF, ensuring that the Bank will not incur any losses arising from the asset purchase programme. The APF was initially authorised to purchase up to GBP 50 billion of private sector assets – corporate bonds and commercial paper – financed by the issuance of Treasury bills and Debt Management Office (DMO) cash management operations, in order to improve liquidity in credit markets that were not functioning normally. The APF's remit was subsequently expanded to be used as a monetary policy tool ahead of the March 2009 MPC meeting. The Committee was given the option to finance purchases under the APF by issuing central bank reserves, and the range of eligible assets was expanded to include gilts.

The overwhelming majority of the Bank of England's GBP 200 billion of asset purchases completed between March 2009 and January 2010 comprised UK conventional (ie nominal) government securities. The emphasis of the quantitative easing (QE) purchases on conventional UK government bonds or gilts reflected the MPC's aim to inject a large amount of reserves into the economy quickly.[28] The gilt market is large and liquid out to long maturities, with conventional gilts outstanding totalling GBP 537 billion at the beginning of 2009, and with an average maturity of 14 years, considerably above the OECD average. Although the Bank of England did purchase a small amount of corporate bonds and commercial paper, the size of these markets is much smaller, and the aim of these corporate purchases was focused on improving the conditions of these markets rather than on expanding nominal demand per se (Fisher (2010)).

The Bank of England's QE purchase programme was initially concentrated on government bonds with residual maturities between five and 25 years, although this was later extended to bonds with residual maturities greater than three years. In targeting its asset purchases towards medium- and long-term bonds, the Bank's intention was to buy mainly from non-banks, and particularly from pension funds and insurance companies. The motivation for this stemmed from the view that portfolio rebalancing was one of the key channels through which QE would have an impact. Asset managers of non-banks would have more money in their portfolios than they desired and therefore be inclined to use this money to invest in other, more risky, instruments such as bonds and equities. This "portfolio rebalancing channel" was thought less likely to be effective for banks, which were deleveraging as a result of the

[28] The design of the Bank of England's asset purchase programme is discussed in Fisher (2010). See http://www.bankofengland.co.uk/publications/speeches/2010/speech453.pdf.

financial crisis and unlikely to use the proceeds of gilt sales to invest in riskier assets.[29] Given that UK banks traditionally hold small amounts of short-maturity debt, the focus of asset purchases on longer-dated gilts, initially over five years' residual maturity, meant that the Bank of England's purchases could be more effectively concentrated on non-banks.

To avoid compounding pressures on UK pension funds, which typically want to match their liabilities with index-linked and longer-dated nominal gilts, the Bank's QE purchases were restricted to conventional government bonds, with the initial purchase range capped at bonds with 25 years' residual maturity. The purchase range was subsequently widened to bonds with residual maturity of three or more years when the purchase programme expanded, but the Bank's purchases remained restricted to conventional bonds throughout the QE period.

US Federal Reserve, 2008–

As part of its response to the worsening economic outlook at the end of 2008, the Federal Open Market Committee (FOMC) reduced the target for the federal funds rate, to a range of 0–25 basis points in December 2008, and at the same time began a new programme of large-scale asset purchases (LSAPs). For much of 2009, the purchases of agency mortgage-backed securities (MBS) and Treasury securities were effectively financed by the run-off of credit provided through various liquidity programmes, rather than an increase in reserves. Subsequently, they were financed through the creation of central bank money. These purchases were not explicitly indemnified by the US Treasury and remained on the Fed's balance sheet, but in practice any losses would effectively be indemnified by the Treasury.

When the US asset purchase programme was first announced in November 2008, it did not include plans to purchase government debt.[30] Initially, the Fed said that it would buy up to USD 100 billion in government-sponsored enterprise (agency) debt and up to USD 500 billion in agency MBS over the next few quarters. But in March 2009, as well as announcing a large expansion of its purchase programme to USD 1,250 billion of agency MBS and USD 200 billion of agency debt, the FOMC also announced that it would purchase USD 300 billion of Treasury securities ("to help improve conditions in private credit markets"[31]). The first wave of the Fed's purchase programme was completed in March 2010. In August 2010, the Federal Reserve announced that it would keep its holdings of securities constant, by reinvesting the principal payments from agency debt and agency MBS into longer-term Treasury securities. And in November 2010, it announced its intention to purchase a further USD 600 billion of Treasury securities by the middle of 2011.

Research suggests that improvements in the liquidity of the Treasury market during 2009 may have been due in part to the LSAP programme.[32]

The emphasis of the Fed's LSAPs on agency-related debt is an obvious difference from the Bank of England's QE purchases of government bonds, although the extent to which the agency debt can be regarded as quasi-public debt is a point of some controversy.[33]

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[29] Joyce et al (2010) conclude that the largest part of the impact of the Bank of England's QE purchases on gilt yields came through a portfolio rebalancing effect.

[30] See http://www.federalreserve.gov/newsevents/press/monetary/20081125b.htm.

[31] See http://www.federalreseve.gov/newsevents/press/monetary/20090318a.htm.

[32] See eg D'Amico and King (2010).

[33] Goodfriend (2010), for example, notes that although MBS and agency securities held by the Fed carry a very strong guarantee from the US Treasury, the Treasury's "credit enhancement" is not the same as the legally binding "full faith and credit" obligation of the US government underpinning US Treasuries.

Nevertheless, if the announced LSAPs are completed as planned, the Fed will have purchased USD 900 billion of government securities, roughly 10% of the current outstanding Treasury market and roughly 6% of nominal GDP, by the middle of 2011. In addition, the reinvestment of MBS and agency debt proceeds into Treasuries adds significantly more to purchases of Treasuries under the programme.

The bulk of the Federal Reserve's government bond purchases have been of bonds with residual maturities between two and 10 years, but the Fed has also purchased a significant amount of shorter- and longer-dated bonds, as well as Treasury inflation- protected securities (TIPS) (see Table 1). In contrast, the Bank of England has not purchased assets with residual maturities of less than a year or inflation-linked securities. And the average maturity of the Bank of England's gilt purchases, at 12–13 years, is more than double that of the Fed.

Table 1

Central bank purchases of government debt by maturity

Federal Reserve

Residual maturity	Current stock held (USD bn)	Current outstanding targeted Treasuries (USD bn)	% of current outstanding targeted Treasuries	All current outstanding Treasuries (USD bn)	% of all current outstanding Treasuries
< 1	82	1,343	6	2,623	3
1–5yr	591	3,696	16	3,696	16
6–10yr	290	1,344	22	1,344	22
11–20yr	62	238	26	238	26
21yr+	55	438	13	438	13
Inflation-linked	52	616	9	616	9

Bank of England

Residual maturity	Current stock held (GBP bn)	Current outstanding targeted gilts (GBP bn)	% of current outstanding targeted gilts	All current outstanding gilts (GBP bn)	% of all current outstanding gilts
< 1	n/a	n/a	n/a	102	n/a
1–5yr	54	209	26	274	20
6–10yr	47	143	33	164	29
11–20yr	41	113	36	113	36
21yr+	36	195	18	210	17
Inflation-linked	n/a	n/a	n/a	157	n/a

Sources: US Federal Reserve; US Treasury; Bank of England; HM Treasury.

Bank of Japan, 2001–06

Quantitative easing in Japan began in March 2001 and ended in March 2006. The Bank of Japan's (BOJ's) QE consisted of three pillars.[34] First, the BOJ provided a large amount of liquidity using current account balances as the operating target. Second, it committed to maintain QE until the CPI inflation rate became zero or higher on a sustained basis. Third, the BOJ increased the amount of outright purchases of Japanese government bonds (JGBs) intermittently as a tool for providing long-term liquidity, rather than for lowering long-term rates.

The target level of the current account balances was gradually raised from approximately JPY 5 trillion in March 2001 to a range of JPY 30–35 trillion in January 2004. This amount significantly exceeded the amount of required reserves, which stood at JPY 4–5 trillion. The BOJ achieved the current account balance target mainly through short-term funds-supplying operations. To avoid undersubscription of these operations, their average term was gradually extended to almost six months.

Outright JGB purchases were increased from JPY 0.4 trillion per month in March 2001 to JPY 1.2 trillion by March 2004. These purchases were governed by the "banknote ceiling principle", by which the total amount of JGBs held by the BOJ was required to remain below that of banknotes issued. This rule exists primarily to ensure that the central bank is constrained from financing the government's debt, so as to preserve monetary policy credibility. Adherence to the rule also helped to keep the BOJ's balance sheet flexible, which smoothed the exit from QE since the purchased JGBs did not have to be sold outright. When QE was lifted in March 2006, the BOJ waited for the funds-supplying operations to run down. Current account balances returned to the normal level within three to four months.

Ugai (2007) surveyed empirical studies on the effects of the QE policy and found that the commitment to maintain QE strengthened expectations that the zero interest rate would persist, thus lowering short- to medium-term yields. He found mixed results regarding whether the changes to the BOJ's balance sheet had led to portfolio rebalancing, with such effects generally being smaller than those stemming from the commitment. Okina and Shiratsuka (2004) and Oda and Ueda (2007) found a similar result, namely that the commitment to maintain the zero interest rate policy until deflation ended had substantial effects on expected future short-term rates, and thereby on current medium- to long-term interest rates, while the latter two authors found no evidence supporting the existence of portfolio balance effects.[35]

[34] See, for example, Ueda (2010) for a concise description of the BOJ's QE during the period 2001–06.

[35] This might be due to the technical difficulty of separating the effects of outright JGB purchases from the rate commitment effects, or to the fact that the remaining maturity of the purchased JGBs was relatively short, as pointed out by Gagnon et al (2010).

Annex 4:
Mandate of the CGFS Study Group on sovereign debt management, monetary policy and financial stability

November 2010

In many economies currently, governments need to fund large and/or rapidly growing fiscal deficits leading to increasing stocks of sovereign debt. In some countries sovereign debt management (SDM) choices are lengthening the average duration of outstanding government debt, while in others they are shortening it. Other choices include whether to index-link the debt and whether to issue in domestic or foreign currency – which in part affects whether the debt is held by domestic or international investors.

Meanwhile, some central banks are purchasing government bonds in large volume as part of unconventional monetary policy operations to stimulate nominal demand via a variety of channels, including, potentially, lower long-term interest rates. SDM and central bank operations might interact in opposite or in reinforcing mechanisms, especially under current conditions of heightened segmentation of financial markets. Also, there is a risk that central bank purchases could be perceived as intended mainly to fund fiscal policy initiatives, undermining the independence of central banks. Finally, SDM choices might also have implications for financial stability, for example through the effect on pension funds and insurance companies.

To contribute to better understanding of these issues, a Study Group will examine the implications of SDM choices for central bank operations and monetary and financial stability in the current environment.

Specific questions to be addressed are:

- What are the consequences of SDM choices for monetary and financial conditions in current circumstances?
- How should central banks take account of SDM choices when conducting unconventional monetary policies?
- What are the main channels through which SDM choices could affect financial stability in current circumstances?

The Study Group is expected to report to the CGFS at its meeting in March 2011.

Annex 5:
Members of the Study Group

Paul Fisher (Chair)	Bank of England
Mike Joyce	Bank of England
Robert Zammit	Bank of England
Jef Boeckx	National Bank of Belgium
Sanjay Hansda	Reserve Bank of India
Michele Manna	Bank of Italy
Jean-Stéphane Mésonnier	Bank of France
Takuji Kawamoto	Bank of Japan
Diego Rodríguez Palenzuela	European Central Bank
Juan Luis Vega	Bank of Spain
Peter Wierts	Netherlands Bank
David Archer	Bank for International Settlements
Tim Ng (Secretary)	Bank for International Settlements