

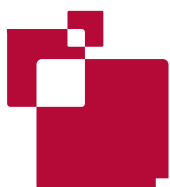
THE FINANCIAL STABILITY RISKS OF ULTRA-LOOSE MONETARY POLICY

GRÉGORY CLAEYS AND ZSOLT DARVAS

Highlights

- Ultra-loose monetary policies, such as very low or even negative interest rates, large-scale asset purchases, long-maturity lending to banks and forward guidance in central bank communication, aim to increase inflation and output, to the benefit of financial stability. But at the same time, these measures pose various risks and might create challenges for financial institutions.
- By assessing the theoretical literature and developments in the United States, United Kingdom and Japan, where very expansionary monetary policies were adopted during the past six years, and by examining the euro-area situation, we conclude that the risks to financial stability of ultra-loose monetary policy in the euro area could be low. However, vigilance is needed.
- While monetary policy should focus on its primary mandate of area-wide price stability, other policies should be deployed whenever the financial cycle deviates from the economic cycle or when heterogeneous financial developments in the euro area require financial tightening in some but not all countries. These policies include micro-prudential supervision, macro-prudential oversight, fiscal policy and regulation of sectors that pose risks to financial stability, such as construction.

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GRÉGORY CLAEYS AND ZSOLT DARVAS, MARCH 2015

EXECUTIVE SUMMARY

- Cuts that take central bank interest rates close to or even below zero, large-scale asset purchases, long-maturity lending to banks and a new way of communicating intended future monetary policy measures ('forward guidance') can lead to ultra-loose monetary conditions. These measures can increase inflation and output, which benefit financial stability. However, ultra-loose monetary policies pose certain challenges to financial institutions and might endanger financial stability through various channels.
 - Ultra-loose monetary policies can support the economy by encouraging more risk-taking at a time when risk-taking in the financial system is less than socially desirable. However, when risk taking is excessive, ie more than what is socially desirable, it might plant the seeds of financial instability.
 - Banking indicators do not suggest substantially increased risk-taking in the US, UK, Japan or the euro area during the past six years, while bank leverage has generally declined, which should reduce the risks to financial stability. Bank regulation, stricter supervision and market pressure might have played a role in limiting financial-sector leverage.
 - While stock market indices are high throughout the world, simple equity valuation indicators do not suggest any obvious bubbles. Recent house price increases in the US and UK are moderate compared to historical increases, even though house prices increased much faster in London and Washington DC. Housing prices remained almost unchanged in Japan despite massive monetary easing.
 - Life insurance companies typically have longer-maturity liabilities than assets and are thereby exposed to declines in interest rates. In the euro area, German, Austrian and Lithuanian life insurers are most exposed to this risk.
- Non-life insurance providers are expected to perform well in the coming years, which might compensate for the declining returns in life insurance.
- Emerging countries might be adversely impacted by ultra-loose monetary policies in advanced countries because of the consequent large and volatile capital flows, which in turn could have negative feedback effects on financial stability in advanced countries. Nevertheless, emerging economies continue to thrive and their outlook has not changed substantially compared to the pre-crisis period.
 - Ultra-loose monetary policies benefit public debt sustainability by reducing interest rates, increasing inflation, improving the economic outlook and increasing central bank profits, which is positive for financial stability.
 - Exit from the current mix of 'loose' conventional and unconventional policies could increase interest rates, reduce stock, bond and housing prices, reduce risk-taking, weaken public debt sustainability and create volatility in emerging markets. Therefore, the end of asset purchase programmes and the reversion of interest rates to higher levels should be carefully managed at a time when the economy has strengthened and inflation is expected to increase towards the central bank's target in the medium term. In our assessment, the Federal Reserve and the Bank of England were able to conclude their asset purchase programmes without any lasting negative impacts on financial stability, and seem so far to be exiting smoothly from ultra-loose interest rates. In the euro area, the smoothness of the eventual exit will likely depend on inflationary and output developments in the coming years, and on the duration of loose monetary policies.
 - Price stability does not ensure financial stability. The last boom-bust cycle was very costly in terms of output and unemployment in many advanced countries, in particular in Europe. Now

a broad consensus has emerged on the need to address financial stability issues *ex ante*.

- There is no consensus on the role of monetary policy in supporting financial stability. In our view, monetary policy is not well suited to tame financial excesses when the financial cycle deviates from the economic cycle or when financial cycles in euro-area countries differ. Monetary policy should focus on its primary mandate of area-wide price stability.

- Micro-prudential supervision, macro-prudential supervision, fiscal policy and regulation should play key roles in mitigating financial stability risks. It is still too early to judge the effectiveness of the new European frameworks for micro- and macro-prudential supervision. The literature assessing these tools in other jurisdictions has produced some encouraging results, but the complex European set-up could make their implementation less effective.

INTRODUCTION

Following the intensification of the global financial and economic crisis in 2008, central banks in advanced countries cut policy rates to close to (or even below) zero and implemented various unconventional measures. Large-scale asset purchases were implemented early on in the United States, United Kingdom and Japan and have been introduced more recently in the euro area. Long-maturity lending to banks was especially significant in the euro area. These unconventional operations led to major expansion in the size of central bank balance sheets (Figure 1). A new approach to communication, known as forward guidance, has also been adopted by several central banks to provide forewarning of expected monetary policy measures in the medium-term. Such unconventional measures can result in a very expansionary monetary policy that we call ‘ultra-loose’ monetary policy.

The close-to-zero short-term interest rates were unable to ensure full employment and price stability¹. The main aims of the various unconven-

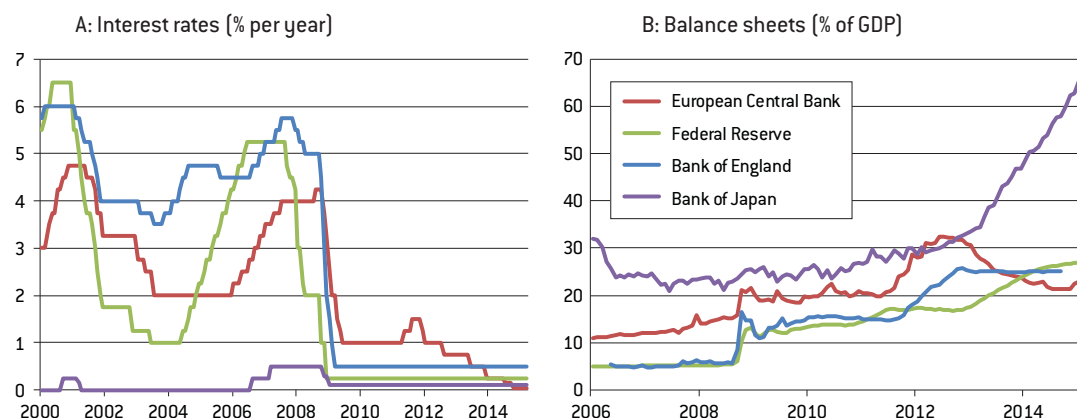
tional measures were to regain price stability and stimulate growth at a time when short-term nominal interest rates reached the zero lower bound. Such measures have different implications for the monetary stance and can influence growth and inflation in various ways (Claeys *et al*, 2014). Some unconventional measures also aimed at supporting financial stability.

We do not discuss the merits and drawbacks of various unconventional measures and low interest rates to stimulate inflation and growth, but focus on their possible positive impacts and side effects on financial stability. The definition of ‘financial stability’ we use is that given by Svensson (2012): “Financial stability can be defined as a situation where the financial system can fulfil its main functions [of submitting payments, transforming saving into financing, and providing risk management] with sufficient resilience to disruptions that threaten these functions.” We also discuss policy options to mitigate related risks to financial stability, with a focus on the euro area.

We aim to draw lessons from the theoretical and

1. Full employment is usually defined as a situation in which the unemployment rate is low and only people who are changing jobs are jobless, but no-one is forced to be unemployed because of the weak economic situation. Price stability is generally defined as a situation in which inflation is low. For example, the European Central Bank’s definition is: “Price stability is defined as a year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the euro area of below 2 percent.” See <https://www.ecb.europa.eu/mopo/strategy/pricestab/html/index.en.html>.

Figure 1: Central bank interest rates and balance sheets



Sources: Bruegel based on European Central Bank, Federal Reserve, Bank of England, Bank of Japan.

empirical literature and from the experiences of the United States, United Kingdom and Japan, where central banks adopted aggressive monetary easing early on during the crisis. Certainly, the financial systems of these countries differ in a number of aspects from that of the euro area, and developments in the financial sector have been influenced by other policy measures, such as approaches to bank restructuring, changes in financial regulation and fiscal policy. Asset purchases were introduced in these countries during the early part of the crisis, when interest rates in the US and UK (but not Japan) were much higher than they were in the euro area at the time asset purchases were started. Asset purchases pushed government bond yields below zero for several euro-area governments – this did not happen in the US, UK or Japan. But even considering these differences, useful lessons can be drawn from the experiences of the three countries.

The next section discusses conceptual issues around the possible impacts of ultra-loose monetary policy on financial stability and assesses these impacts in the light of the recent experience of the US, UK and Japan and the current and prospective situation in the euro area. We then discuss policy options to mitigate financial stability risks, before offering some brief concluding remarks.

ULTRA-LOOSE MONETARY POLICY AND FINANCIAL STABILITY: CONCEPTS AND EVIDENCE

Ultra-loose monetary policy can have various impacts on financial stability in terms of its direct impact on the financial sector and indirect impacts through other domestic sectors and the rest of the world.

It is useful to distinguish the impacts of unconventional measures at their introduction and during their implementation, from the impact at the point of exit from these measures, because the impacts can be different at different times. For example, cuts in central bank interest rates to close to zero lead to increases in stock and bond prices (or smaller price declines than otherwise), which initially benefit all asset holders and thereby contribute to financial stability. Subsequently, as variable interest rate deposits are repriced and as investors wish to make new fixed-income investments or to roll-over maturing debt securities, low interest rates reduce the return for savers. This may induce them to search for riskier higher-yielding assets and increase their leverage, which may amplify the risks to financial stability. At the time of exit from low interest rates and unconventional policies, the effects might be opposite to those seen at the introduction of these measures, and might have a negative impact on financial stability. We deal in turn with the effects at each stage.

It is useful to put the importance of different types of financial institutions into perspective. Table 1 shows that credit institutions accounted for about half of the euro-area financial sector in the third quarter of 2014, even if their combined balance sheet has shrunk since 2008. Insurance and pension corporations together account for 14 percent and experienced a rapid expansion in balance sheet in the past six years. Investment funds account for 15 percent, money market funds for 1 percent, while other financial institutions account for 22 percent of the euro-area financial sector.

Table 1: The size of the financial sector in the euro area (€ billions)

	2008Q4	Share	2014Q3	Share	% change, 2008Q4 to 2014Q3
Credit institutions	30,556	57%	30,259	49%	-1%
Insurance corporations & pension funds	6,159	12%	8,773	14%	42%
Investment funds	4,461	8%	9,147	15%	105%
Money market funds	427	1%	461	1%	8%
Others	11,836	22%	13,739	22%	16%
Total	53,440	100%	62,379	100%	17%

Source: European Central Bank for the first four items; Datastream for total, 'Others' is our calculation.

Impact through improved general economic conditions

Ultra-loose monetary policies should improve the economic outlook, increase the profitability of non-financial corporations and reduce unemployment. Financial institutions should benefit from these general improvements. For example, the proportion of bad bank loans should be reduced, demand for insurance should be higher and financial investments should increase. All of these effects improve financial stability.

Impact on risk taking

Conceptual issues

Lower long-term real interest rates (which result from various unconventional monetary policy measures) can lead to more risk taking, as Chodorow-Reich (2014) argues, using a simple theoretical model.

Riskier corporate investments will be made and, given the role of the financial system in mediating between savers and borrowers, the financial sector will be exposed to greater risk. Moreover, several financial institutions will actively reach for yields that Chodorow-Reich (2014) defines as “*risk taking by financial institutions beyond what ultimate holders of risk would prefer*”. Such risk taking might increase financial stability risk. However, as Lucas (2014) points out, from a theoretical point of view the effect of lower yields on risk taking is indeterminate.

Both Lucas (2014) and Standard and Poor’s (2015) argue that low short-term interest rates and smaller spreads between short-term and long-term interest rates might on the contrary reduce risk taking by banks. Reduced risk taking by banks is a consequence of the reduction of the term premium between long- and short-term interest rates. Since the duration of bank assets used to exceed that of their liabilities, banks profit from the spread between long- and short-term interest rates. But when this spread is small, the incentive for banks to lend at longer maturities is reduced and their lending volume should diminish. Symmetrically, the incentive to borrow short-term is reduced.

Therefore, whether or not (or by how much) risk taking is increased by various financial institutions cannot be firmly determined by theoretical models. An equally important question is if, in general, the possibility of encouraging risk taking should be a concern or should be welcomed. According to Lucas (2014) and Standard and Poor’s (2015), encouraging more risk-taking, and thereby more lending, was a key aim of quantitative easing in the US, and therefore more risk taking should be regarded as a success of monetary policy. The key concern at the time unconventional policies were used was insufficient risk taking: a fear that financial institutions, which aimed to rebuild their capital after the losses suffered during the crisis, would exhibit greater risk aversion than what was socially desirable.

Evidence

Measuring risk taking by financial institutions is difficult. However, two recent papers using different identification strategies, Jimenez *et al* (2014) and Ioannidou *et al* (2009), show that monetary policy affects the composition of the credit supply and that lower interest rates tend to spur risk taking in bank lending, especially by lower-capitalised banks.

Banking surveys conducted by central banks also include a useful indicator in this regard, namely the change in credit standards, which shows the share of banks that tighten/ease credit standards. The left panel of Figure 2 on the next page shows that credit standards were tightened substantially in the euro area, the United States and the United Kingdom in 2007-09. Subsequently, credit standards were eased in early 2009 in the UK and late 2010 in the US, an easing in which ultra-loose monetary policies might have played a role. However, the magnitude of easing does not look extraordinary considering the 2007-09 tightening and the specific measures to clean-up the banking system and the economic recovery (which was much stronger in the US and UK than in the euro area) should have also played a significant role in the banks’ ability and willingness to ease credit standards. Therefore, the experience of the US and UK does not suggest that ultra-loose monetary policies have led to excessive risk taking by banks.

The right panel of Figure 2 shows the same data for the four largest euro-area countries. While the monetary stance was significantly tighter in the euro area than in the US and UK, the European Central Bank adopted a wide-ranging set of measures to promote lending, such as a relaxed collateral policy, 3 and 4-year maturity lending, a low and, more recently, negative deposit rate for banks, among others. However, these measures were not able to encourage banks to ease credit standards substantially, even in Germany, where there is no private debt overhang problem. In the first quarter of 2015 there was a sizeable easing in Italy, but this came after the largest tightening among the four countries considered in the time period we consider. Euro-area banks still seem to be rather cautious in supplying credit and there-

fore we do not see an immediate danger to financial stability should credit conditions be eased.

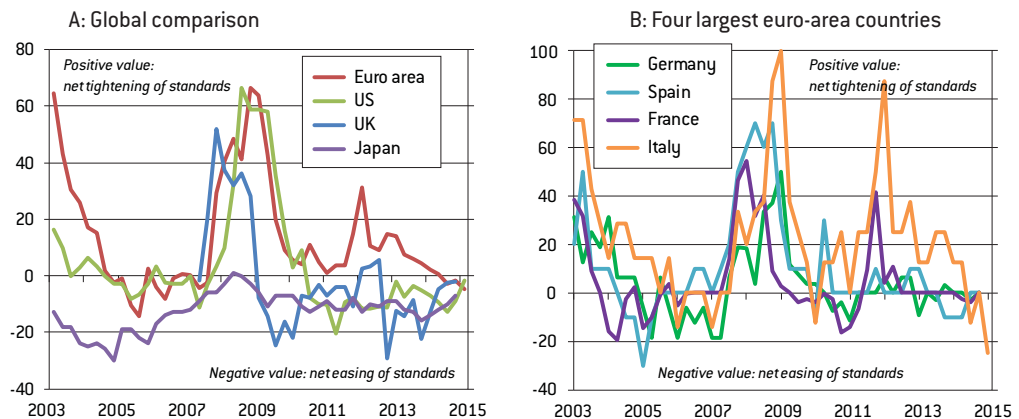
Increasing leverage

Conceptual issues

High leverage is a major source of vulnerability for the financial sector. Two main mechanisms suggest that ultra-loose monetary policy might lead to increased leverage in the financial sector.

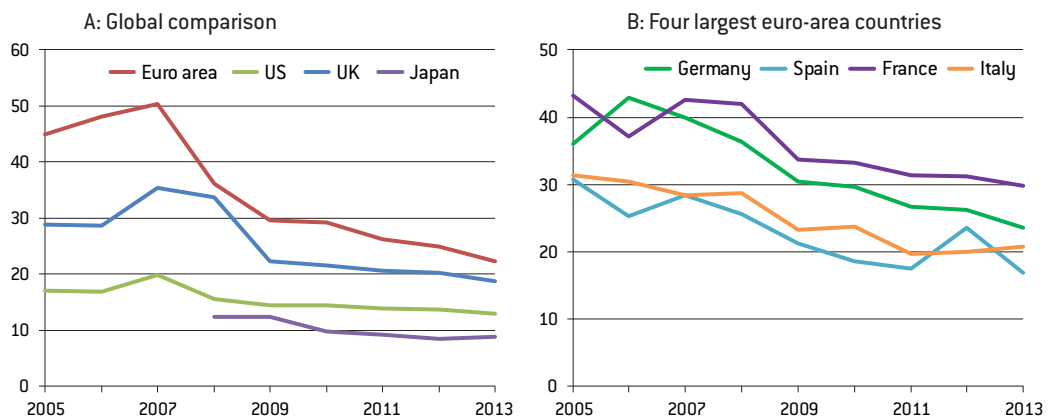
First, as argued by Chodorow-Reich (2014), a decline in the safe interest rate reduces the cost of holding reserves or collateral. For banks with binding collateral constraints, a decline in opportunity cost can lead to larger portfolios and higher leverage.

Figure 2: Banks' net tightening of credit standards applied to new loans (% of banks)



Source: Bruegel using data from European Central Bank (Bank Lending Survey), Federal Reserve System (Senior Loan Officer Survey), Bank of England (Credit Conditions Survey), Bank of Japan (Senior Loan Officer Survey). Note: Data is represented as a net percentage: the percentage of banks reporting tightening of lending standards minus those reporting easing of credit standards that are applied to new loans. A value of zero implies credit standards have not changed from one period to the next. A positive value represents tightening credit compared to the previous period, and a negative value represents easing relative to the previous period.

Figure 3: Tier 1 leverage ratio of the largest four banks, 2005-13 (ratio)



Source: Bruegel using SNL Financial. Note: Tier 1 Leverage Ratio.

Second, as suggested by Brunnermeier and Sannikov (2014c), the low interest rate environment might lead to low volatility, which in turn feeds back into banks' value-at-risk models and encourages increases in leverage.

Evidence

Data for the largest banks shows that banking-sector leverage continuously declined from 2007-13 (euro area and UK) or declined during the crisis and remained at a relatively low level (US and Japan), despite expansionary monetary policies (Figure 3). It is likely that regulatory changes, stricter supervision and market pressure played roles in this development.

Increasing asset prices

Conceptual issues

Unconventional monetary policies reduce long-term interest rates and increase bond and stock prices. Bond prices increase because of falls in interest rate and also possibly because of falls in risk premiums. Stock prices increase because of the effects of portfolio rebalancing from bonds to stocks, and also because of improved corporate profits, the reduction in the equity risk premium and the lower discount rate used to calculate the present value of future profits.

Increases in bond and stock prices benefit asset holders, including financial institutions, a phenomenon referred to as "*stealth recapitalisation*" by Brunnermeier and Sannikov (2014a). Such benefits improve financial stability when unconventional monetary policies are put in place and continue to be implemented.

However, asset prices could increase excessively and bubbles might even emerge, especially if unconventional measures are maintained for long periods. Such bubbles might pose a future threat to financial stability.

Evidence

Using two standard indicators of equity valuation, the market-to-book value ratio and the price-to-earnings ratio, Figures 4 and 5 suggest that in the

US and Japan, the expansionary monetary policies of recent years did not lead to excessive equity prices. In the UK, banks' market-to-book ratios and the price-to-earnings ratio convey the same message and only the market-to-book ratio of non-financial corporations might signal a too-rapid increase in prices. In the euro area, market-to-book ratios are not excessive either, while the price-to-earnings ratios recently increased above historical averages, which might suggest a slight over-valuation, but not yet a bubble.

Berg (2015) argues that these standard indicators have caveats and considers three other indicators of US equity markets. These are the CAPE ratio (the ratio of the S&P 500 index to the average earnings of the past ten years), the Q-ratio (the ratio of the market value of non-financial corporate equities to their net worth) and the Buffett indicator (the ratio of corporate market value to gross national product). These indicators suggest relatively high US equity valuations. While these indicators have caveats too, Berg (2015) concludes that the US equity market might quickly turn from tranquil to turbulent. He also notes that the current situation differs in many ways from the period preceding the global financial and economic crisis and the financial stability implications of an eventual market correction could be moderate.

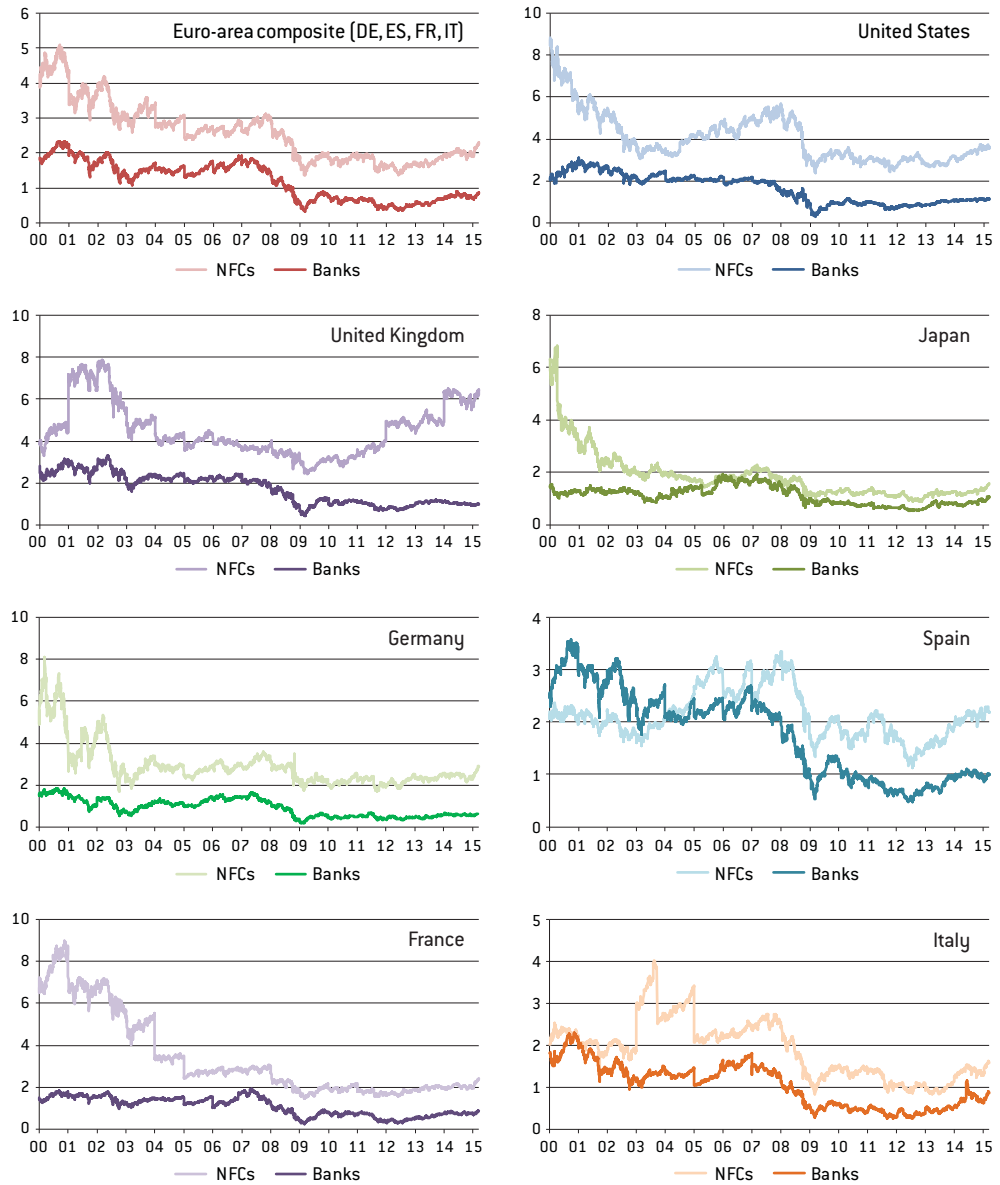
Housing price developments do not suggest an emerging boom either in the US, UK and Japan, despite aggressive monetary policies (Figure 6). There was some increase in housing prices in the UK and US in recent years, but this was not extraordinary in light of the developments of the past three decades. Regional developments within the UK and US suggest that housing prices increased rather rapidly in London and Washington DC, but not elsewhere (Figure 7). The special developments in these capital cities should be assessed carefully, and in particular, whether they have systemic implications for the financial stability of the UK and US, as we discuss in the section on policies to mitigate financial stability risks.

Negative impact on life insurance companies

Conceptual issues

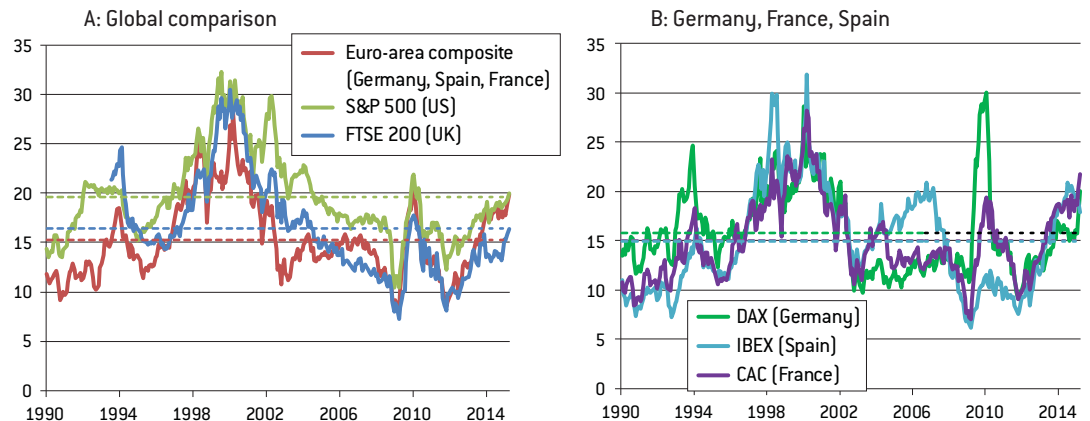
Banks' liabilities generally have shorter maturity

Figure 4: Market to book value ratio (5 largest corporations by sector), 2 Jan 2000 – 19 Mar 2015



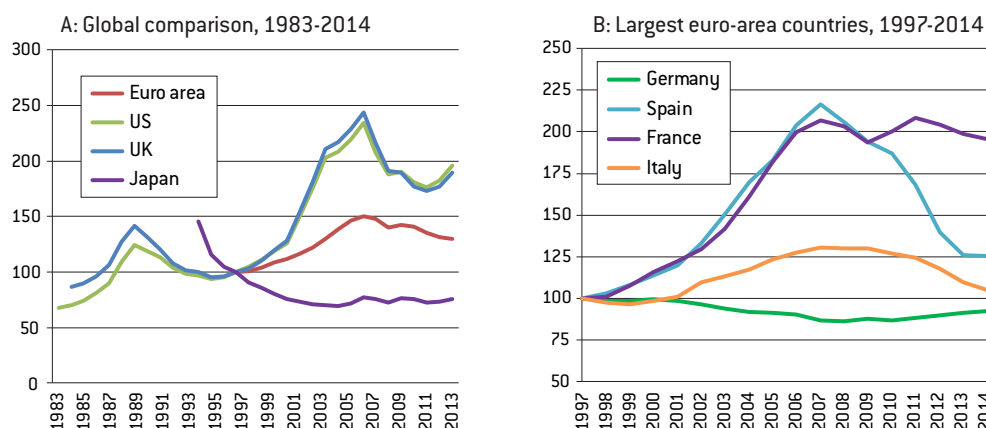
Source: Thomson Reuters Datastream.

Figure 5: Price per earnings ratio, 2 January 2000 – 19 March 2015 (ratio)



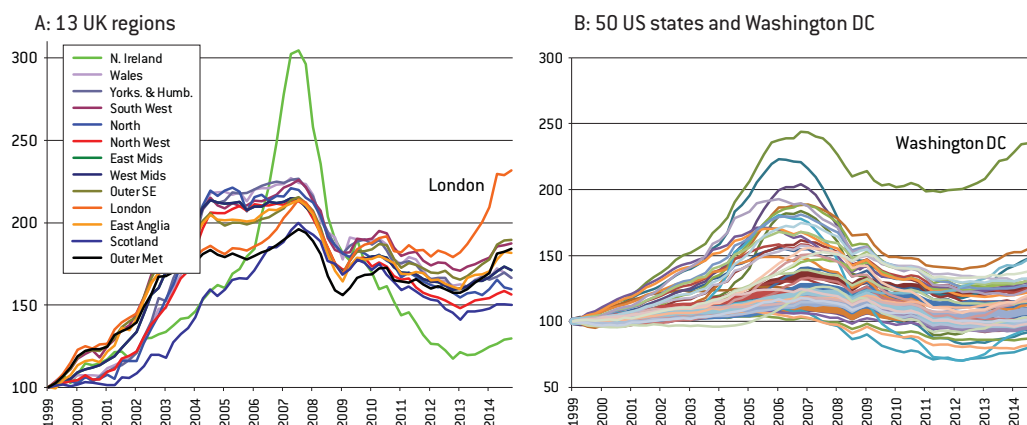
Source: Thomson Reuters Datastream. Note: the same-colour horizontal dashed lines indicate the 1990-2015 averages

Figure 6: Real housing prices (1997=100)



Source: Bruegel based on S&P/Case-Shiller National Home Price Index (United States), Halifax House Price Index (United Kingdom), Japan Real Estate Institute (Japan), European Central Bank and Eurostat (DE, ES, FR and IT), Bureau of Economic Analysis (United States deflator), Japan Cabinet Office (Japan deflator), Office for National Statistics (United Kingdom deflator). Note: Japan index is proxied by Tokyo Metro Area Index. For the four euro-area countries except Germany, 2014 data is calculated using data up to 2014 Q3. For Germany, Eurostat data was not available after 2014 Q1, so Bundesbank data up to 2014 Q2 was used. All indices deflated by the personal consumption deflator. Euro-area data is a GDP-weighted average of the first 11 members of the euro area.

Figure 7: Regional real housing prices in the UK and US, 1999-2014 (2009Q1=100)



Source: Bruegel based on Nationwide House Price Index and Office for National Statistics and Federal Housing Finance Agency House Price Index and Bureau of Labor Statistics. Note: Deflated by the CPI.

than their assets. But life insurance companies are typically characterised by the opposite maturity mismatch. Whenever the liabilities have much longer duration than assets and the return on liabilities is fixed or guaranteed, unexpectedly low interest rates can challenge profitability and solvency. According to the European Insurance and Occupational Pensions Authority (EIOPA) (2014), Moody's (2015) and Standard and Poor's (2014), the life-insurance industry in several euro-area countries is exposed to such risks. Most life insurers' liabilities have long maturities with a guaranteed minimum return.

However, other (non-life) insurance products are typically not characterised by such duration mis-

matches and guaranteed returns and these segments of the insurance industry might not face major risks arising from persistently low interest rates.

Evidence

The mismatch between the duration of liabilities and assets held by life insurance companies is estimated by EIOPA to about 10 years in Germany, Austria and Lithuania. In all other euro-area countries, the mismatch is smaller – about five years in Finland, France, Luxembourg and the Netherlands, while in southern Europe (Greece, Italy, Portugal and Spain) it is below two years. Therefore, Germany is particularly exposed to unexpectedly low

interest rates, which is a concern for financial stability. According to both Moody's (2015) and Standard and Poor's (2014), German life insurers have some options for mitigating the negative impacts of declining investment returns, such as reducing expenses or investment returns to policyholders, diversifying their portfolios towards new asset classes, such as infrastructure and real estate, and re-pricing new sales. Stress tests conducted by EIOPA underline the vulnerability of German life insurers to a prolonged period of low interest rates. Recent EU (Solvency II) and specific German regulatory changes affecting life insurance providers should improve the long-term stability of the sector, but the transition during the next few years could pose special challenges if interest rates stay low.

However, both Moody's (2015) and Standard and Poor's (2014) are positive about the outlook for non-life insurance products. For insurers that are present on both life and non-life markets, non-life insurance returns can compensate for reduced profits from life insurance. It is difficult to obtain data on the relative weight of life and non-life insurance, so we collected data from SNL Financial on the sum of life and health premiums as a share of total premiums for the largest 20 insurance companies in each country. The shares are 57 percent in Germany, 68 percent in France, 73 percent in Italy and 34 percent in Spain. Therefore, life and health insurance together account for a bit more than half of total insurance in Germany, so the compensating impact from non-life insurance can be sizeable². In France and Italy the shares of life and health insurance are higher than in Germany, but in these countries life insurers are not characterised by such a large duration mismatch as German life insurers.

Adverse feedback from emerging countries

Conceptual issues

It has long been established that monetary loosening/tightening in the US and other advanced countries can have profound effects on emerging markets (see eg Eichengreen and Mody, 1998). During the recent global financial and economic crisis, several emerging-country policymakers accused the Federal Reserve of ignoring the

unfavourable global spillovers from its quantitative easing policy. Quantitative easing and low interest rates in the US boost capital outflow from the US to emerging countries, which can find it difficult to cope with the consequences of capital inflows (appreciating exchange rates and reductions in interest rates). During the recent global crisis, several emerging countries introduced various capital control measures and in the context of excessive capital inflows, talks about 'currency war' intensified³. Excessive and volatile capital inflows to emerging countries can destabilise these countries, which could weaken their economic performance or even provoke financial crises, with adverse feedback effects for advanced countries and their financial stability.

Evidence

Despite all the media attention surrounding 'currency wars' and volatile capital flows resulting from ultra-loose monetary policies in advanced countries, emerging economies continue to thrive and their outlook has not changed substantially compared to the pre-crisis period, as shown by various vintages of the IMF World Economic Outlook. The increased resilience of emerging countries can be attributed to their better macroeconomic policies. For example, excessive current account imbalances are rare and public debt tends to be rather low in these countries.

Impact through public finances

Ultra-loose monetary policies also impact public finances by reducing borrowing costs, increasing inflation, improving the economic outlook (which in turn increases tax revenues) and through increased transfer of profits from central banks to the government (see Claeys *et al*, 2015). These factors improve the sustainability of public debt, and reduce the likelihood of a sovereign debt crisis and the associated financial instability.

Exit from unconventional monetary policies

Exit from the current mix of 'loose' conventional and unconventional monetary policies could potentially reverse the effects that arose at the introduction and during the implementation of such policies. For example, exit can increase

2. Furthermore, note that not all life insurance policies offer guaranteed returns. For example, the returns from unit-linked and index-linked policies depend on investment performance.

3. See Darvas and Pisani-Ferry (2010) for a discussion of the currency war debate.

short-term and long-term interest rates, reduce stock, bond and housing prices, reduce risk-taking, weaken public debt sustainability and create volatility in emerging markets. Therefore, the ending of asset purchase programmes and the reversion of interest rates to higher levels should be carefully managed at a time when the economy has strengthened and inflation is expected to increase towards the central bank's target in the medium term. It is also crucial that the move away from ultra-low interest rates is adequately pre-announced. In our assessment, the Federal Reserve and the Bank of England were able to stop their large-scale asset purchase programmes without any lasting negative impact on financial markets and seem so far to be exiting smoothly from ultra-loose interest rates. In the euro area, the smoothness of the eventual exit will likely depend on inflationary and output developments in the coming years, and on the duration of loose monetary policies.

POLICIES TO MITIGATE FINANCIAL STABILITY RISKS

The global financial crisis has demonstrated that price stability in itself is not sufficient to ensure financial stability. Bubbles and boom-bust credit cycles emerged that eventually led to very high costs in terms of reduced output and unemployment in several advanced countries. A broad consensus has emerged that financial stability issues should be addressed *ex ante*.

As summarised by Smets (2013), three views now coexist on how financial stability should be achieved:

- The first view, held for instance by Svensson (2012, 2014), considers that only minimal changes to the inflation-targeting regime put in place by most central banks since the 1990s are necessary, as long as micro- and macro-prudential policies are implemented forcefully.
- The second view, developed by various researchers from the BIS long before the crisis, such as Borio & Lowe (2002), Crockett (2003) and White (2006), favours a so-called “*leaning against the wind*” (*sic*) monetary policy. Proponents of this view regard macro-prudential policies as insufficient to address financial cycles and argue that in some situations mon-

etary policy should be tightened more quickly or beyond what inflation forecasts would call for in response to financial stability concerns.

- The third view, held for instance by Brunnermeier and Sannikov (2014b), calls for a more radical rethink of monetary policy on the basis that price stability and financial stability policy are indistinguishable.

Should monetary policy target financial stability explicitly?

As we argued in the previous section, monetary policy interacts strongly with potential drivers of financial instability. Financial instability can have large negative feedback effects on price stability through a credit crunch, but also on the conduct of monetary policy itself, as the recent global financial and economic crisis demonstrated. When monetary policy is constrained by the zero lower bound, it has to resort to unconventional tools with less-clear effects. Also, in the bust phase of the financial cycle, central banks will have to play the role of lender of last resort for banks to save solvent financial institutions from collapsing in case of a liquidity crisis.

The EU Treaty makes price stability the primary mandate of the European System of Central Banks (ESCB, ie the ECB and national central banks)⁴, but it also requires the ESCB to “*promote the smooth operation of payment systems*”⁵ and to “*contribute to the smooth conduct of policies pursued by the competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system*”⁶.

Do the interactions between price and financial stability and the specific provisions of the EU Treaty mean that financial stability has to be taken into account in ECB monetary policy decisions?

The use of interest rates to prevent the build-up of financial imbalances appears to be ineffective. As shown by Posen (2009), it is difficult to find a clear relationship between interest-rate tightening and the growth rate of asset prices. Indeed, in episodes of bubbles in 17 countries in the period preceding the crisis, increases in the policy rate that were implemented at the time did not seem to have any clear and rapid impact on asset prices.

4. Article 127.1 of the Treaty on the Functioning of the European Union (TFEU).

5. Article 127.2 of the TFEU.

6. Article 127.5 of the TFEU.

For the United Kingdom, which experienced a major housing bubble before the crisis, Bean *et al* (2010) estimated that additional increases in the Bank of England's main rate by several percentage points would have been needed to stabilise house prices. Such interest rate increases would have reduced inflation to levels significantly below the Bank of England's 2 percent target, and would have had significant negative effects on output.

A further problem in targeting financial stability with monetary tools is that monetary policy tightening might not actually have the desired effect of reducing financial imbalances. As pointed out by Svensson (2014), Swedish monetary policy at the beginning of the 2010s provides a bad example of a central bank trying to implement an aggressive "*leaning against the wind*" policy to address some financial stability issues, which led to high costs in terms of economic activity and a major undershooting of its inflation target. Faced with a rising household debt-to-income ratio, the Riksbank increased its policy rate from 0.25 percent in July 2010 to 2 percent in July 2011. As a result, inflation fell quickly and was around zero for more than two years, well below the 2 percent target, ultimately forcing the central bank to reverse its actions⁷. However, although the Riksbank initially aimed to ward off the threat to financial stability from household over-indebtedness, the household debt-to-income ratio was not affected by the 2010-11 policy of tightening and in fact the ratio continued to increase in real terms because of the very low or even negative inflation rates.

Monetary tightening for reasons of financial instability may have other unintended effects, especially in open economies. An increase in capital inflows because of higher interest rates can partially offset the dampening effect on credit of higher rates. Higher interest rates might also lead to a currency appreciation. Both capital inflows and/or currency appreciation could accentuate the shift from the tradable to the non-tradable sector that often takes place when there is a real-estate boom. Or, as shown by Nelson *et al* (2015), a monetary tightening can also cause a migration of activity from the regulated banking sector to the shadow-banking sector.

To summarise, the various issues we have reviewed show that the main monetary policy instrument, the interest rate, is too broad an instrument, and ultimately quite ineffective in dealing with the build-up of financial imbalances. More generally, it makes little sense to assign the same instrument to two objectives: price and financial stability. Sometimes the implications of these two objectives coincide, but a trade-off between them emerges when business and financial cycles are desynchronised. As shown by Drehmann *et al* (2012), this could often be the case given that financial cycles are much longer than traditional business cycles. Moreover, in the case of a monetary union like the euro-area, a "*leaning against the wind*" monetary policy could be even more difficult to put in place because financial cycles in different countries are often desynchronised, as argued by Darvas and Merler (2013) and more recently by Merler (2015).

Policies to foster financial stability

More targeted and suitable measures should be used to deal with financial-stability risks. We list four specific policies.

Micro-prudential policy

The goal of micro-prudential policy is to ensure the soundness and to prevent the failure of financial institutions. There are several market failures that can lead to the underestimation of risk at the bank level, which is a reason for strict regulation and supervision. Market failures include asymmetries of information, negative externalities for the wider economy that result from the failure of a financial institution and which are often not internalised, or even moral hazard problems arising from the 'too big to fail' problem or the existence of other public policies such as deposit insurance or the lender-of-last-resort policy of central banks.

Micro-prudential regulation and supervision were insufficient to prevent the build-up of financial vulnerabilities in the pre-crisis period. As a consequence, regulation of financial activities was tightened globally, including in the EU. In particular, new regulations⁸ require higher and better quality capital ratios commensurate with the risks to which banks are exposed, more conservative

7. The Riksbank has not just cut its deposit rate to a deeply negative value (-1 percent), but also cut its repo rate (at which banks can borrow funds from the Riksbank for a period of seven days) to a negative value, -0.25 percent, in March 2015.

8. Various legislative packages (such as the Capital Requirements Directive IV and the Capital Requirements Regulation) were adopted to transpose Basel III recommendations into EU law.

liquidity ratios, such as the Liquidity Coverage Ratio and the Net Stable Funding Ratio, and limits on leverage.

Various new authorities⁹ have been set up, but the most significant EU institutional development was the set-up of the Banking Union. In the euro area (and countries outside the euro area wishing to join) the Single Supervisory Mechanism (SSM) will enable the ECB to supervise large financial institutions in order to ensure a uniform regime that is less subject to political capture, and to avoid cross-border externalities previously caused by national supervision. Since November 2014, the ECB has supervised significant credit institutions and is therefore responsible for various tasks aimed at fostering a stable financial framework. Such tasks include authorising banks to operate and assessing their assets and liabilities to ensure compliance with the regulations on exposure limits, leverage, liquidity, transparency of information, risk management processes, internal control mechanisms and remuneration practices.

Macro-prudential policy

Healthy individual financial institutions are a necessary but not sufficient condition to ensure stability of the financial system. Indeed, another market failure needs to be corrected: the underestimation of system-wide risk arising from the interconnections between institutions that is not internalised by them. These interconnections arise because financial institutions have correlated balance sheets because of the similarity of their asset portfolios, because of the interconnectedness of networks that creates the potential for quick contagion, and finally because of potential fire sales taking place during stress episodes.

Macro-prudential policy has two main goals in respect of these potential systemic effects: to increase the resilience of the financial system and to tame the financial cycle with more targeted tools than monetary policy. More specifically, as suggested by Smets (2013), macro-prudential policy should have four intermediate targets: mitigate and prevent excessive credit growth and leverage, mitigate and prevent excessive maturity and liquidity mismatch, limit excessive exposure concentrations and finally limit bail-out expectations.

In order to perform these tasks, macro prudential tools can be roughly divided into two main categories, as suggested by Blanchard *et al* (2013): tools seeking to influence lenders' behaviour, such as time-varying capital requirements, leverage ratios or dynamic provisioning, and tools focusing on borrowers' behaviour, such as ceilings on loan-to-value ratios (LTVs) or on debt-to-income ratios (DTIs)¹⁰. These tools have the advantage of allowing the regulator to target a particular sector affected by financial imbalances, for instance the real-estate sector. Moreover, these measures have the additional advantage that they can be tailored to country-specific circumstances, which is especially important in a heterogeneous monetary union.

It is still difficult to judge the effectiveness of macro-prudential instruments in increasing the resilience of the financial system and dampening the financial cycle. Even though their use was advocated as early as the beginning of the 2000s by the BIS, they have only gained some relevance since the financial crisis. Macro-prudential policies are new and mainly under construction, especially in advanced economies, so evidence of their effectiveness is still limited. However, the recent literature assessing these measures has produced some encouraging results. They show in particular that carefully setting limits on ratios, such as the LTV and the DTI, could help to tame financial imbalances¹¹.

A potential limitation of macro-prudential tools is that they can be subject to regulatory arbitrage, either by provoking greater cross-border borrowing (Cerutti *et al*, 2015) or by migration of activities from banks to the shadow-banking sector. As Table 1 shows, the size of non-banks in the total euro-area financial sector has increased in recent years. Given that the shadow-banking sector has become one of the main sources of systemic risk, one of the main challenges in the next few years will be to find instruments that have an impact on the banking activities of non-banks. For instance, in the US, the 2010 Dodd-Frank Act widened the remit of the Federal Reserve, allowing supervisors from the newly created Financial Stability Oversight Council to oversee non-bank financial institutions that they deem to be systemically important¹². In Europe, the creation of the Euro-

9. The European Banking Authority (EBA), the European Insurance and Occupational Pensions Authority (EIOPA), the European Securities and Markets Authority (ESMA), the Joint Committee of the European Supervisory Authorities (ESAs).

10. Blanchard *et al* (2013) also classify a third category: capital controls targeting 'hot money' flows (which they call "capital flow management tools"), but because capital controls are not allowed in the EU, we do not consider these tools.

11. Borio and Shim (2007), building on the early experiences of 15 countries, show that macro-prudential policies can slow down a credit expansion. Lim *et al* (2011), using case studies, show mixed results, with macro-prudential instruments effective in some countries but not in others depending on what type of instrument is used. Igan and Kang (2011) and Kim (2013) show that LTV and DTI ratios had some impact on prices and transactions when they were implemented in Korea. Jimenez *et al* (2012), focusing on Spain before the crisis, show that dynamic provisioning have reduced *ex-post* losses but were not effective enough to avoid the bubble. However, this could be due to the lowering of the ceiling of the dynamic provision funds at the beginning of 2005, which resulted in a lower flow of provisions at the bank level and in a drop of the stock of provisions as a percentage of total loans. Kuttner and Shim (2013), with a 57-country panel, show that the DTI ratio had a significant effect on housing credit growth. Finally, Cerutti *et al* (2015) document the use of various

pean Systemic Risk Board (ESRB) in 2010 and the delegation of some macro-prudential authority to the ECB by the Single Supervisory Mechanism (SSM) regulation¹³ was beneficial, in our view. However, possibly because of diverging national interests, macro-prudential supervision is shared between the ECB and national authorities. As argued by Darvas and Merler (2013), the ECB can only apply those tools in order to seek to influence lenders' behaviour, as categorised by Blanchard *et al* (2013), but cannot apply tools aimed at controlling borrowers' behaviour, such as LTV and DTI ratios. The ECB's limited remit might well be the weakness of the institutional arrangement, but the practice of macro-prudential policies will show if this limitation is severe or if cooperation between the ECB and national authorities, under the watch of the ESRB, ensures the proper implementation of the various macro-prudential tools.

Fiscal policy and regulation of bubble-prone sectors

Certain national policies can amplify financial instability and thereby weaken the impact of improved micro-prudential supervision and the new macro-prudential frameworks. For example, subsidies and favourable tax treatment of housing, including mortgages, can foster credit and housing booms. Therefore, fiscal authorities should cooperate with the authorities responsible for financial stability and design a joint action plan to tame financial excesses. For instance, Posen (2009) proposes to add to the financial stability toolkit a countercyclical real estate tax that would not have significant implications for tax revenue over the cycle, but that could potentially be effective in dealing with price swings in the housing sector. In their empirical study Kuttner and Shim (2013) also show that changes in housing-related taxes had significant impacts on house-price appreciation.

Another possible measure is the regulation of bubble-prone sectors, such as construction. Excessive construction booms (which are characterised by a sizeable expansion of this sector) tend to end in painful correction. Certain limitations on the construction industry, like curtailing the number of building permits, or tightening the leverage of construction firms, can complement a

concerted response against emerging bubbles. Such regulation would not prevent a price bubble occurring, and in fact might lead to an even larger increase in housing prices if the supply of houses is limited. Nevertheless, a pure house-price bubble is less dangerous than a construction bubble, which also involves the suboptimal redirection of the factors of production to the construction industry, which typically leads to painful correction during the bust.

CONCLUDING REMARKS

We believe that the ECB should have implemented an extended asset purchase programme earlier (Claeys *et al*, 2014), but it is better late than never and the launch of such a programme in March 2015 is welcome. There is a clear downward trend in headline and core inflation and a dangerous decline in inflation expectations. The ECB is not fulfilling its price-stability objective. Too-low inflation makes the relative price adjustments needed between the euro-area core and the periphery, as well as public and private sector deleveraging, more difficult. It also runs the risk of a Japanese scenario with persistently low inflation.

The new extended asset purchase programme, combined with all the other non-conventional monetary policy measures implemented since 2008 to avoid a full-scale liquidity crisis in the banking sector and the break-up of the euro area, will contribute to an ultra-loose monetary policy stance that should stimulate growth and bring inflation back towards the 2 percent threshold.

Ultra-loose monetary conditions could also have adverse consequences for financial stability. However, in our assessment, the benefits of ultra-loose monetary conditions outweigh their potential risks to financial stability. The ECB should nevertheless be aware of the financial stability consequences of its monetary policy actions. Micro and macro-prudential policies, to which the ECB will now contribute via the SSM and the ESRB, should constitute the first line of defence to address financial stability concerns and avoid the build-up of financial imbalances in the euro area.

macro-prudential policies in a sample of 113 countries from 2000-13 and show that they can have significant effects on credit developments in the boom phase of the cycle.

12. This was already applied to institutions such as AIG and GE Capital as of July 2013.

13. See http://ec.europa.eu/finance/general-policy/banking-union/single-supervisory-mechanism/index_en.htm.

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