



DIRECTORATE-GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT
ECONOMIC AND SCIENTIFIC POLICY **A**



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Interrelation between Financial Stability and Monetary Policy at the Current Juncture

**Monetary Dialogue
March 2015**

COMPILATION OF NOTES



DIRECTORATE GENERAL FOR INTERNAL POLICIES
POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

Interrelation between financial stability and monetary policy at the current juncture

Monetary Dialogue 23 March 2015

COMPILATION OF NOTES

Abstract

The notes in this compilation by key monetary experts discuss the main financial stability threats of unconventional monetary policies in an environment of low interest rates and the interrelation between financial stability and monetary policy at the current juncture.

The notes have been requested by the Committee on Economic and Monetary Affairs (ECON) of the European Parliament as an input for the March 2015 session of the Monetary Dialogue between the Members of the ECON Committee and the President of the ECB.

This document was requested by the European Parliament's Committee on Economic and Monetary Affairs.

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Original: EN

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Manuscript completed in March 2015

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This document is available on the internet at:

<http://www.europarl.europa.eu/committees/en/econ/monetary-dialogue.html>

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INTRODUCTION

Since the advent of the global financial crisis of 2007–08, major central banks in advanced economies - the US Fed, the Bank of England, the Bank of Japan and the ECB - have undertaken monetary policies with a view to keep interest rates low. They have also significantly expanded the monetary base (and their balance sheets) through the adoption of unconventional monetary policies (quantitative easing), although at different times and in different forms.

Several years of unconventional monetary policies and exceptionally low interest have improved banks' health, eased credit conditions and, ultimately, helped supporting the economy. However, these policies may have undesirable side-effects that could put financial stability at risk the longer they are in place. For instance, a prolonged period of low interest rates may encourage banks to roll over nonperforming loans rather than repairing their balance sheets; Long-term yields may rise from their currently compressed levels, resulting in potentially large losses for bond holders.

The notes in this compilation discuss the main financial stability threats of unconventional monetary policies in an environment of low interests rates and the interrelation between financial stability and monetary policy at the current juncture. The main conclusions and policy recommendations are summarised below.

The notes have been requested by the Committee on Economic and Monetary Affairs (ECON) of the European Parliament as an input for the March 2015 session of the Monetary Dialogue between the Members of the ECON Committee and the President of the ECB.

Grégory Claeys, Zsolt Darvas (Bruegel). The ECB should have implemented an extended asset purchase programme earlier. 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, 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 Single Supervisory Mechanism (SSM) and the European Systemic Risk Board (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.

Karl Whelan (University College Dublin). This paper presents evidence on sectorial balance sheets and household asset holdings to explain how low interest rates affect various groups. On average, euro area households are net holders of financial assets and have large holdings of deposits and pension fund wealth. Euro area businesses and government have large net debtor positions. This means that low interest rates will tend to have a negative income effect on households and a positive income effect for businesses and government. Within the household sector, however, most wealth is held by households that likely have lower marginal propensities to consume, so it is unclear whether the direct income effect on consumption spending is negative. In addition, low interest rates change behaviour, encouraging spending and discouraging saving even with constant income. For

these reasons, low interest rates boost spending and have a positive medium-term impact on the economy. Banks usually benefit from periods of low short-term interest rates because these are usually associated with a steep yield curve and a higher net interest margin. The current expectation of low interest rates for an extended period of time, however, means that the yield curve is not steep and so this policy is not benefitting banks. Life insurers and other providers of longer-term fixed liabilities, such as defined benefit pension funds, are negatively affected by low interest rates and an extended period of low rates may threaten the solvency of these institutions. However, at present, the risk of low interest rates provoking a new financial crisis is low. Failures at life insurance and pension funds are unlikely to provoke a systemic financial crisis. Credit growth in the euro area remains negative, though there are some signs that it may be picking up. In the absence of a credit boom, concerns about low interest rates sowing the seeds for a crisis when interest rates rise again seem to be largely unfounded.

Eddie Gerba, Corrado Macchiarelli (LSE). The benefits of unconventional monetary policies on financial markets can translate into implementation risks if the policy is withdrawn prematurely or is not time-consistent. There are financial and real risks of unconventional policy as well. The critical judgment is whether uncertain risks of uncertain magnitude can outweigh the benefits of doing more. In order to avoid such risks, corrective and preventive policy measures shall be distinguished. Corrective measures shall be understood as a natural extension of the central banks' traditional lender of last resort role in a timely and consistently manner (including forward guidance). Additional tools such as government guarantees and bailouts might be needed during this phase. Preventive measures will aim to establish the basis for a healthy recovery, and prevent a similar crisis from reoccurring. A mix of strong micro-and macro-prudential financial policies should be envisaged.

NOTES



DIRECTORATE GENERAL FOR INTERNAL POLICIES
POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

Financial stability risks in ultra-loose monetary policy

Grégory CLAEYS, Zsolt DARVAS

IN-DEPTH ANALYSIS

Abstract

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, which benefit financial stability. But at the same time, these measures pose various risks and may create challenges for financial institutions. By assessing the theoretical literature and the developments in the United States, United Kingdom and Japan, where very expansionary monetary policies were adopted during the past six years, as well as the current euro-area situation, we conclude that financial stability risks in ultra-loose monetary policy of the euro area could be low. Yet 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, like construction.

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EXECUTIVE SUMMARY

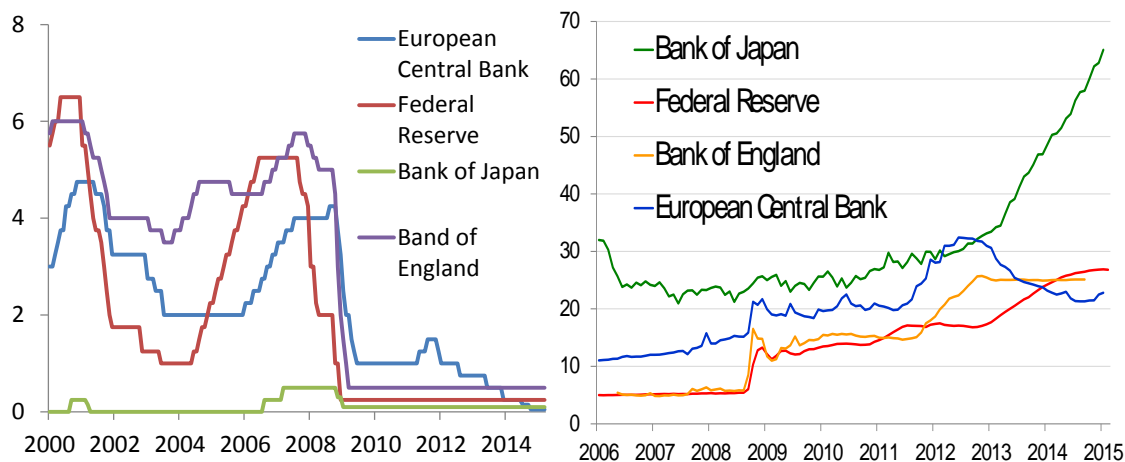
- Cuts that take central bank interest rates close to or even below zero, large-scale asset purchases, long-maturity lending to banks and a new way of communicating intended future monetary policy measures (“forward guidance”) can lead to ultra-loose monetary conditions. These measures can increase inflation 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, i.e. more than what is socially desirable, it may plant the seeds of financial instability. Banking indicators do not suggest substantially increased risk-taking in 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 the respective capital regions. 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, decrease 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.

1. 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.

Figure 1: Central bank interest rates and balance sheets
A: Interest rates (Percent per year)
B: Balance sheets (Percent of GDP)



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

Note: Bank of England balance sheet series is discontinued in 2014 following a change in reporting.

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

In this briefing paper 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.

¹ Full employment is usually defined as a situation when the unemployment rate is low and only people who are changing jobs are jobless, but no one is forced to be unemployed due to the weak economic situation. Price stability is generally defined as a situation when 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%.", see at: <https://www.ecb.europa.eu/mopo/strategy/pricestab/html/index.en.html> .

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 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.

Section 2 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. Section 3 discusses policy options to mitigate financial stability risks. Section 4 offers some brief concluding remarks.

2. 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 levels 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 re-priced 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 from 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, while the category "Others" is our calculation.

2.1. 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.

2.2. 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 used to 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.

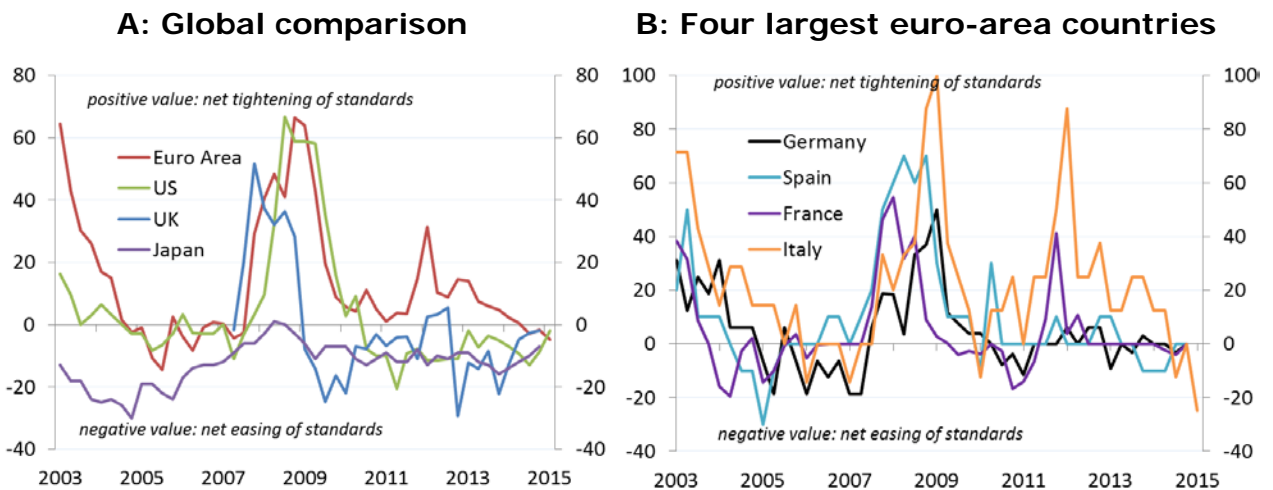
Therefore, whether or not (or by how much) risk taking is increased by various financial institutions cannot be firmly determined by theoretical models. An equally important question is if the possibility of encouraging risk taking should be a concern or instead should be welcomed. According to Lucas (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 of using unconventional policies was insufficient risk taking: there was 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* (2011) 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 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.

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



Source: Bruegel using data from European Central Bank (*Bank Lending Survey, country data from the respective national central bank*), 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, that is, the percentage of banks reporting tightening of lending standards minus those reporting easing 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.

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

2.3. 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.

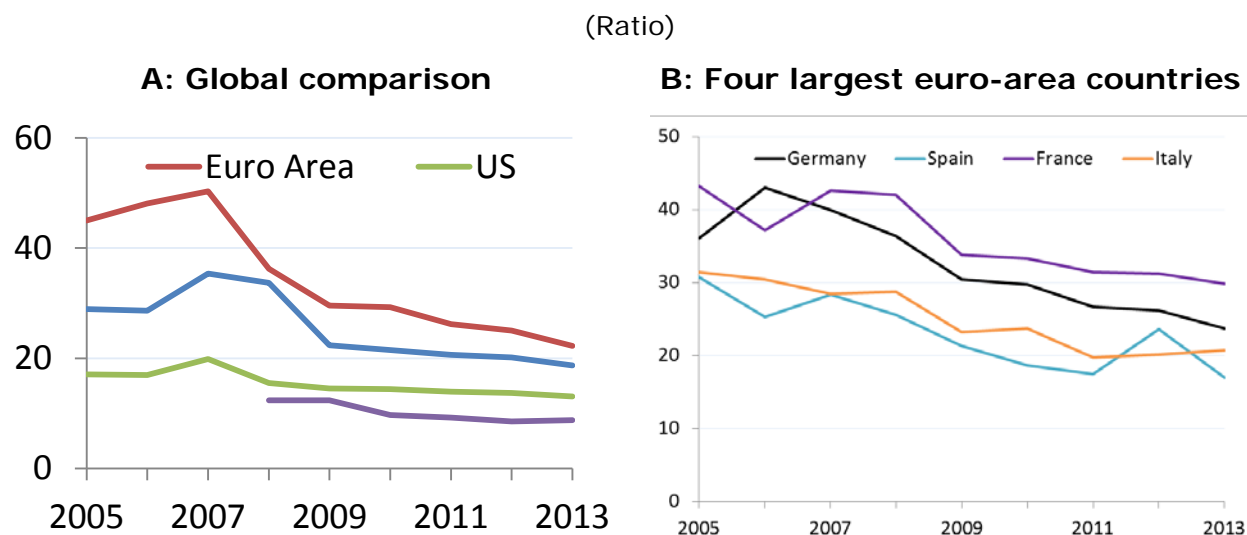
First, as argued by Chodorow-Reich (2014), a decline in the safe interest rate reduces the cost of holding reserves or collateral. Thereby, for banks with binding collateral constraints, a decline in opportunity cost can lead to larger portfolios and higher leverage.

Second, as suggested by Brunnermeier and Sannikov (2014b), 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.

Figure 3: Tier 1 leverage ratio of the largest four banks, 2005 –2013



Source: Bruegel using SNL Financial.

Notes: 4 Largest Banks per country, Tier 1 Leverage Ratio.

2.4. 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, Figure 4

Figure 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

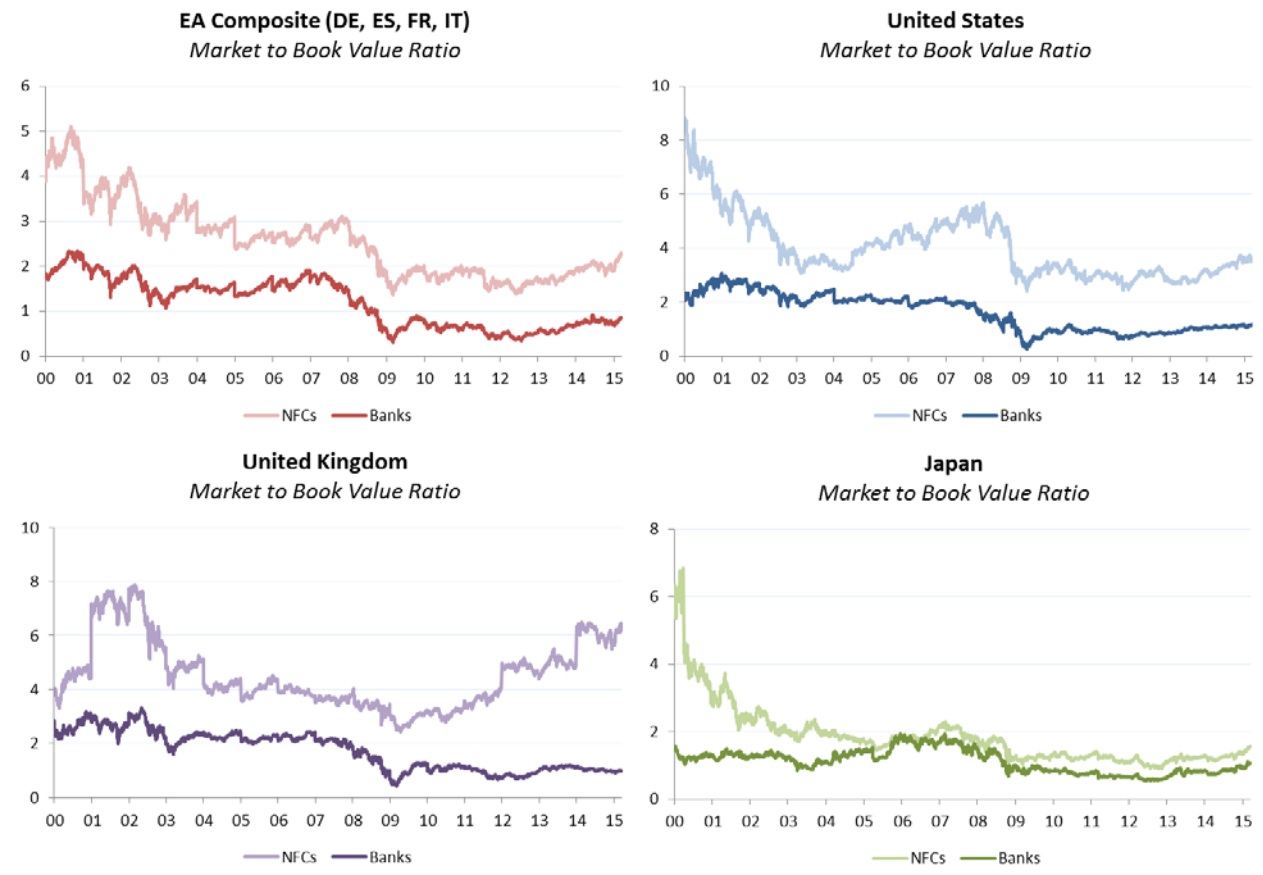
increased above historical averages, which might suggest a slight over-valuation, but not yet a bubble.

Berg (2015) argues that these standard indicators have caveats and considers three other indicators of US equity markets. These are the CAPE ratio (which is the ratio of the S&P 500 index to the average earnings of the past 10-years), the Q-ratio (which is the ratio of the market value of non-financial corporate equities to their net worth) and the Buffett-indicator (which is the ratio of corporate market value to gross national product). These indicators suggests relatively high US equity valuations. While these indicators have caveats too, Berg (2015) concludes that market may 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.

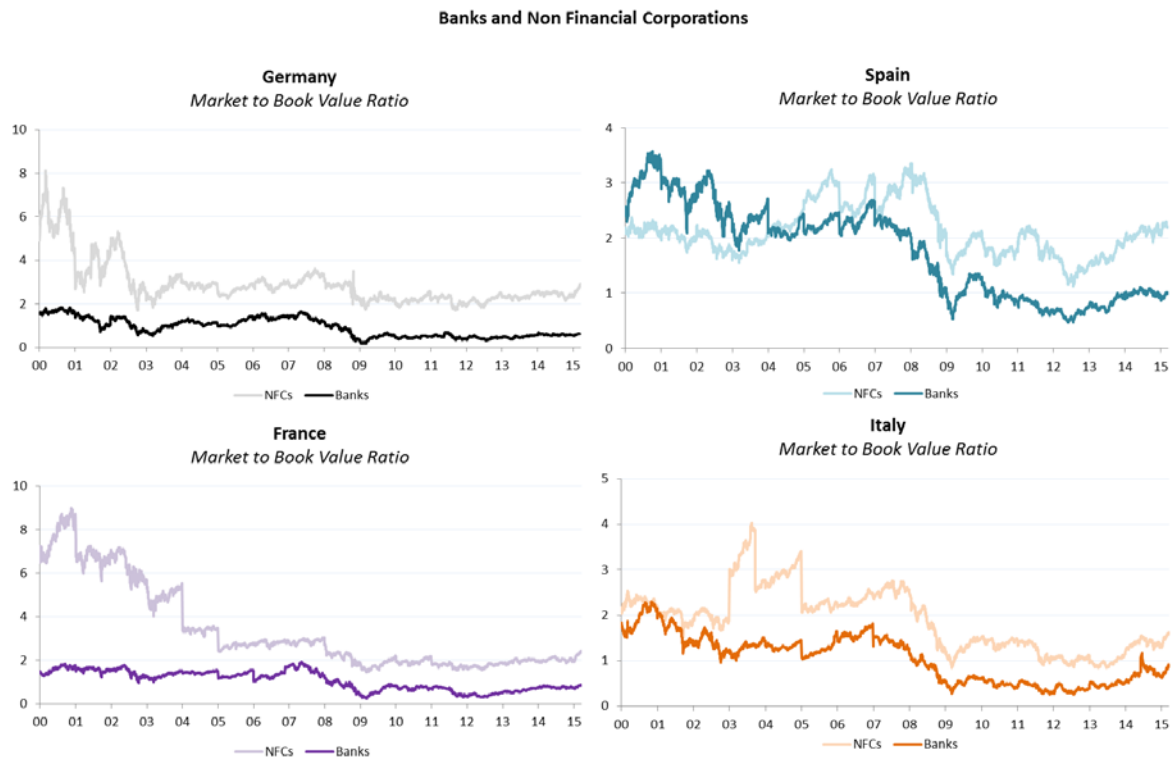
Figure 4: Market to book value ratio (5 largest corporations by sector), 2 January 2000 – 19 March 2015 (Ratio)

A: Global comparison

Banks and Non Financial Corporations

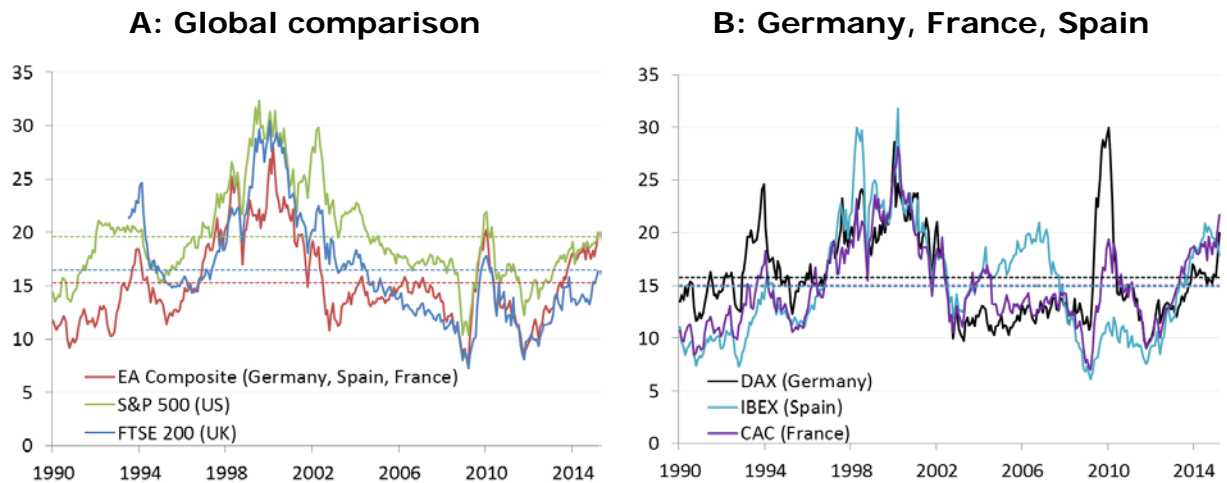


B: Four largest euro-area countries



Source: Thomson Reuters Datastream.

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



Source: Thomson Reuters Datastream.

Note: Dashed lines represent mean average over the period

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).

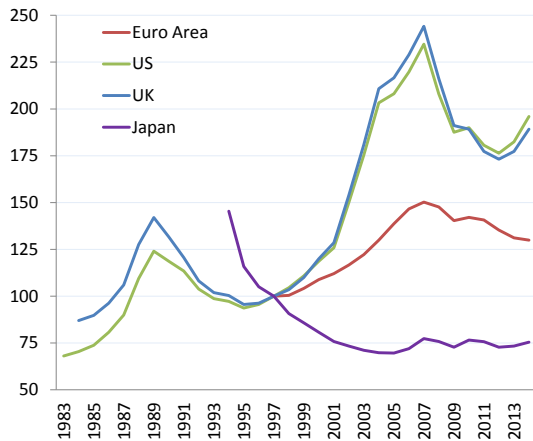
The special developments in these capital cities should be assessed carefully, and in particular, whether they have systemic implications for the financial stability of the UK and US, as we discuss in Section 3.

Figure 6: Real housing prices

(1997=100)

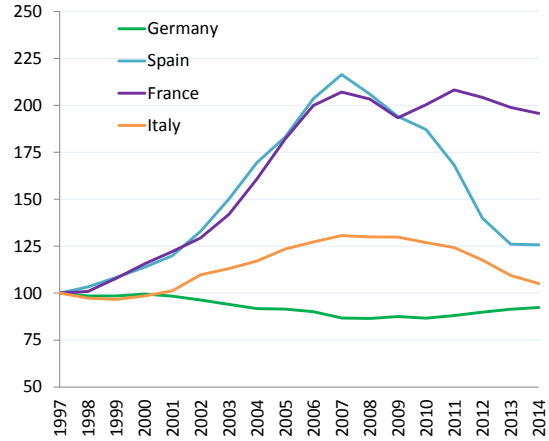
A: Global comparison

1983-2014



B: Four largest euro-area countries

1997-2014

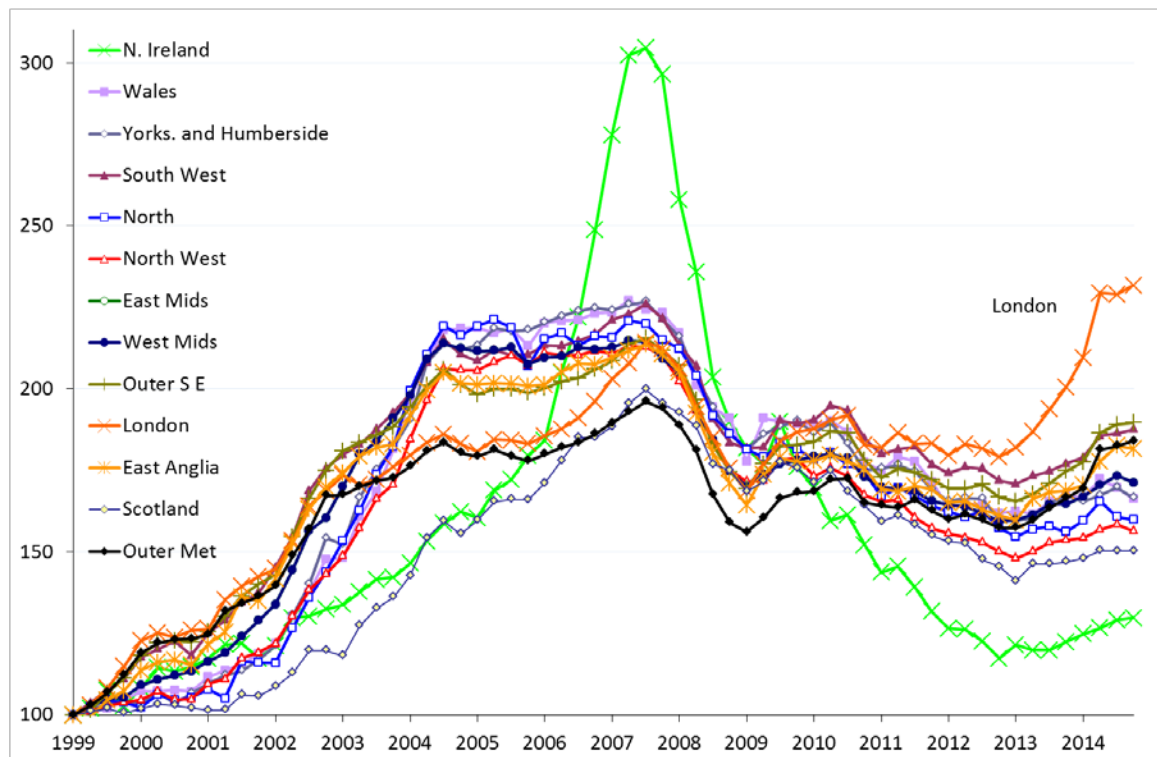


Sources: S&P/Case-Shiller National Home Price Index (United States), Halifax House Price Index (United Kingdom), Japan Real Estate Institute (Japan), European Central Bank and Eurostat (DE, ES, FR and IT), Bureau of Economic Analysis (United States deflator), Japan Cabinet Office (Japan deflator), Office for National Statistics (United Kingdom deflator).

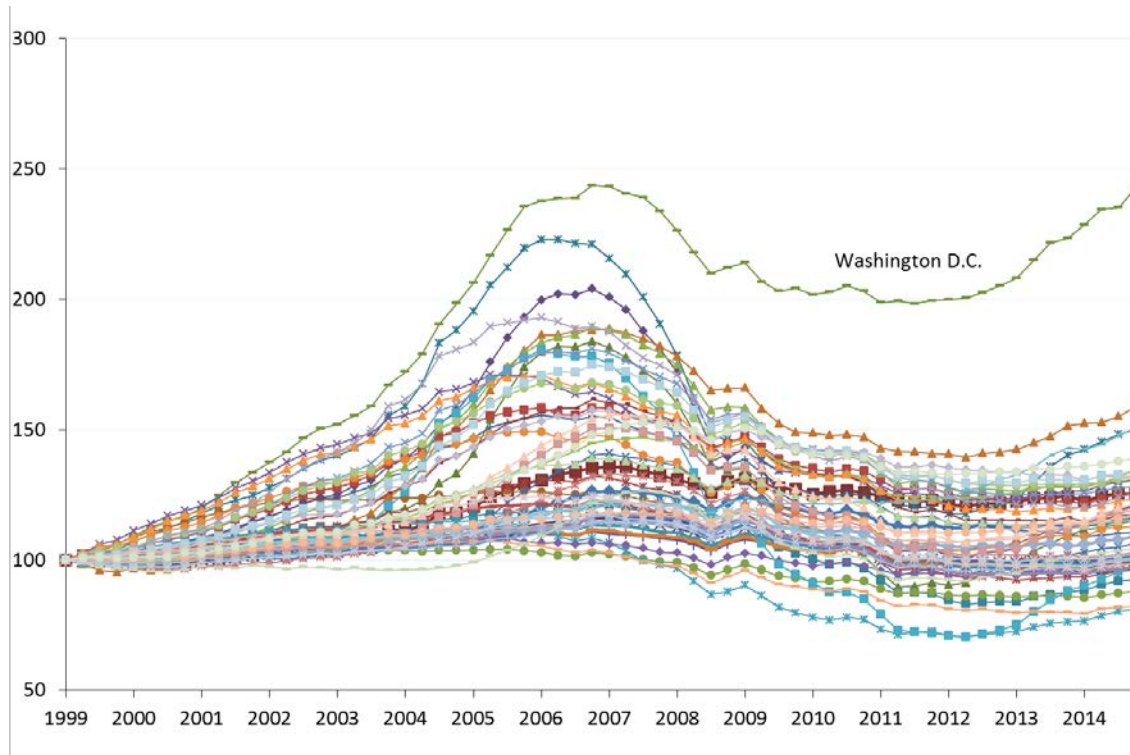
Note: Japan index proxied by Tokyo Metro Area Index. For the four eurozone countries except DE, 2014 data is calculated using data up to 2014 Q3. Unfortunately Eurostat data was not available after 2014 Q1, so Bundesbank data up to 2014 Q2 was used. All indices deflated by the Personal Consumption deflator. Euro Area data is a GDP-weighted average of the 11 largest countries excluding Greece, since more recent data was not available for this country.

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

A: 13 UK regions



B: 50 US states and Washington D.C.



Sources: Nationwide House Price Index and Office for National Statistics and Federal Housing Finance Agency House Price Index and Bureau of Labor Statistics

Notes: Deflated by the CPI

2.5 Negative impact on life insurance companies

Conceptual issues

Banks' liabilities generally have shorter maturity 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 mismatches 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.

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.

2.6 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.

2.7 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.

2.8. 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 short-term and long-term interest rates, decrease 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.

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

3. 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 and Lowe (2002), Crockett (2003) and White (2006), favours a so-called “leaning against the wind” monetary policy. Proponents of this view regard macro-prudential policies as insufficient to address financial cycles and argue that in some situations monetary 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.

3.1. 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).

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.

3.2. 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 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 due to the similarity of their asset portfolios, because of the interconnectedness within 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.

⁸ Various legislative packages (like the Capital Requirements Directive IV and the Capital Requirements Regulation) have been adopted to transpose Basel III recommendations in the EU.

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).

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 set limits to ratios such as the LTV and the DTI could help to tame financial imbalances¹¹.

A potential limit of macro-prudential tools is that they can be subject to regulatory arbitrage, in the same way as financial institutions moved away from micro-prudential regulation towards the shadow-banking sector before the crisis¹². As shown in Table 1, 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 important¹³. In Europe, the creation of the European Systemic Risk Board (ESRB) in 2010 and the delegation of some macro-prudential authority to the ECB by the Single Supervisory Mechanism (SSM) regulation¹⁴ 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.

¹⁰ Blanchard *et al* (2013) also classify a third category: capital controls targeting "hot money" flows (that they call "capital flow management tools"), but since 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 types of instruments are used. Igan and Kang (2011) and Kim (2013) show that LTV and DTI ratios have some impact on prices and transactions when they were implemented in Korea. Jimenez *et al* (2012), focusing on the case of 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 countries panel, show that the DTI ratio had a significant effect on housing credit growth. Finally, Cerutti *et al* (2015) documents the use of various macroprudential policies in a sample of 113 countries over the 2000-13 period. They show that macro-prudential tools can have a significant effect on credit development in the boom phase of the cycle.

¹² Cerutti *et al* (2015) show that the use of macro-prudential policies can be associated with relatively greater cross-border borrowing, suggesting that countries may face issues of avoidance.

¹³ This has already been applied to institutions such as AIG and GE Capital as of July 2013

¹⁴ See http://ec.europa.eu/finance/general-policy/banking-union/single-supervisory-mechanism/index_en.htm.

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) also proposes to add to the financial stability tool kit a countercyclical real estate tax that would not have large implications for tax revenue over the cycle, but that could potentially be powerful in dealing with price swings in the housing sector¹⁵.

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.

¹⁵ Kuttner and Shim (2013) also show that changes in housing-related taxes have a significant impact on house price appreciation.

4. 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.

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NOTES



DIRECTORATE GENERAL FOR INTERNAL POLICIES
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Low interest rates and financial stability

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IN-DEPTH ANALYSIS

Abstract

The ECB's QE announcement has made it clear they intend to keep interest rates in the euro area at very low levels for a long period of time. This policy should help to boost economic growth and move inflation back towards the ECB's target. However, every economic policy produces winners and losers and certain sectors of the economy will be negatively affected by this policy. This paper presents evidence on sectoral balance sheets and household asset holdings to explain how low interest rates affect various groups. It also discusses the impact a prolonged period of low interest rates has on different types of financial institutions. The paper concludes that, at present, the risks of low interest rates provoking a new financial crisis are low.

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EXECUTIVE SUMMARY

- The ECB's QE announcement has made it clear they intend to keep interest rates in the euro area at very low levels for a long period of time.
- This policy should help to boost economic growth and move inflation back towards the ECB's target.
- However, every economic policy produces winners and losers and certain sectors of the economy will be negatively affected by this policy. Debtors benefit from interest rate cuts while creditors lose out. Some types of financial institutions benefit while others lose out.
- This paper presents evidence on sectorial balance sheets and household asset holdings to explain how low interest rates affect various groups.
- On average, euro area households are net holders of financial assets and have large holdings of deposits and pension fund wealth. Euro area businesses and government have large net debtor positions.
- This means that low interest rates will tend to have a negative income effect on households and a positive income effect for businesses and government.
- Within the household sector, however, most wealth is held by households that likely have lower marginal propensities to consume, so it is unclear whether the direct income effect on consumption spending is negative. In addition, low interest rates change behaviour, encouraging spending and discouraging saving even with constant income. For these reasons, low interest rates boost spending and have a positive medium-term impact on the economy.
- Banks usually benefit from periods of low short-term interest rates because these are usually associated with a steep yield curve and a higher net interest margin. The current expectation of low interest rates for an extended period of time, however, means that the yield curve is not steep and so this policy is not benefitting banks.
- Life insurers and other providers of longer-term fixed liabilities, such as defined benefit pension funds, are negatively affected by low interest rates and an extended period of low rates may threaten the solvency of these institutions.
- However, at present, the risk of low interest rates provoking a new financial crisis is low.
- Failures at life insurance and pension funds are unlikely to provoke a systemic financial crisis.
- Credit growth in the euro area remains negative, though there are some signs that it may be picking up. In the absence of a credit boom, concerns about low interest rates sowing the seeds for a crisis when interest rates rise again seem to be largely unfounded.

1. INTRODUCTION

With inflation in the euro area having turned negative, the ECB finally announced its long-awaited Quantitative Easing (QE) programme. This announcement has made it clear to investors that the ECB intends to keep interest rates in the euro area at very low levels for a long period of time. The early signs are that QE is having its intended impact on financial markets: Interest rates have fallen and the euro has declined significantly since the announcement of the programme in January.

These impacts should help to boost economic growth and move inflation back towards the ECB's target and I consider the QE programme to be welcome (in fact, long overdue). However, very few economic policies are of the "free lunch" variety and there are legitimate concerns that a policy of extended low interest rates may lead to unintended negative consequences and perhaps sow the seeds for some future crisis.

This paper addresses these various concerns. Section 2 starts from the observation that lower interest rates clearly do not benefit all and as such can do some harm as well as some good. Debtors benefit from interest rate cuts while creditors lose out. Some types of financial institutions benefit while others lose out. I discuss the implications of low interest rates for various groups, presenting evidence on net asset and liabilities for various sectors of the euro area economy and explaining why the medium-term effects on the economy of the current low interest rate policies will be positive.

Section 3 discusses potential sources of systemic financial risk associated with a sustained period of low interest rates. I conclude that while this phenomenon requires regulators to be careful in monitoring certain kinds of financial institutions, the weak behaviour of credit in the euro area suggests that (as of yet) there are few reasons to be concerned about a systemic financial crisis due to cheap credit.

2. WINNERS, LOSERS AND ECONOMIC IMPACT

It is generally presumed in macroeconomic discussions that reductions in interest rates provide a medium-term boost to the economy as a whole. However, this is far from saying that interest rate cuts benefit everyone. As such, it is useful to consider how different groups are affected and why aggregating over these various effects, this policy is likely to have positive effects on aggregate demand. I discuss these issues in two parts, first focusing on the impact on the household, business and government sectors, then discussing how various types of financial institutions are affected.

2.1. Households, Businesses and Government

A useful source of information that sheds light on who gains and losses from interest rate changes is the ECB's sectorial accounts. These figures show total financial assets and liabilities for the different sectors of the euro area economy, including households, nonfinancial corporations, government and financial institutions.¹ Table 1 on the next page repeats figures describing the position of each of these sectors as of 2014:Q3.

The table shows that the euro area as a whole has financial assets and liabilities that are relatively close to each other, so it's overall net asset position is quite small. Within the sectors, however, households are the only sector with a large positive net financial asset position, with assets of €20.9 trillion and liabilities of €6.8 trillion for a positive net position of €14.1 trillion. Offsetting this are negative net financial asset positions of €9.7 trillion for non-financial corporations and €6.9 trillion for governments.

The table also reports the composition of assets and liabilities for each sector, so we can see the mechanisms through which lower interest rates will affect each sector. Within the households sector, those who contribute to owing €6.1 trillion in loans will benefit, while those who contribute to currency and deposit assets of €7.3 trillion and insurance and pension assets will lose out. (Of course, many people will have positions in all three categories.) Nonfinancial corporations will benefit (and so, indirectly, will those who own these corporations) while governments will also benefit, implying an indirect benefit for taxpayers throughout the economy.

There are also likely to be differences across countries in how low interest rates impact various sectors. For example, popular debate about monetary policy in the euro area has commonly referred to the idea that German households are particularly affected by low interest rates because they adopt a conservative investment strategy and keep most of their money in bank deposits. However, this is not the case.

Figure 1 repeats a graph from a research presentation from Allianz showing bank deposits as a percentage of total financial assets in 2013 across a range of euro area member states.² It shows that deposits were 40 percent of German financial assets in 2013, well behind the figures for Greece and Spain and only marginally ahead of the figures for Portugal and Ireland.

The ECB's 2013 report on its Eurosystem Household Finance and Consumption Survey (HFCS) provides further insights into the pattern of household asset holdings for different European countries. This survey (based on data collected in 2010) estimated that bank deposits accounted for 43 percent of the financial assets of Euro area households with the equivalent figure for Germany being 44 percent.

¹ These figures are published as Table 3.1. in the ECB's Statistical Bulletin.

² Allianz (2014).

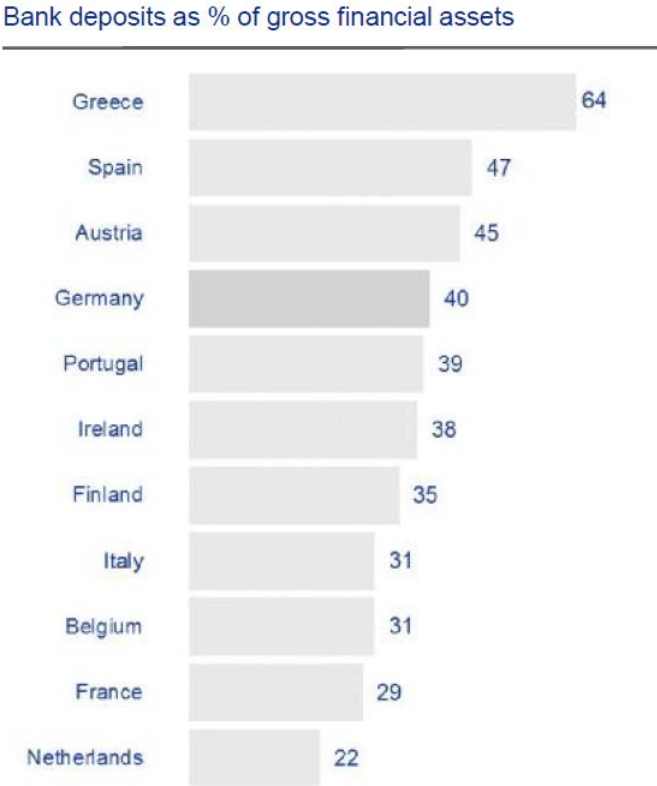
Table 1: Euro Area Sectorial Financial Accounts

Assets	Euro area	Households	Non-financial corporations	MFI	Investment funds (except MMFs)	OFI	ICPF	General government	Rest of the world
2014 Q3									
Opening balance sheet, financial assets									
Total financial assets	105,789	20,891	18,437	31,137	8,051	13,748	8,600	4,925	20,469
Monetary gold and special drawing rights (SDRs)	415			415					
Currency and deposits	22,377	7,294	2,100	9,154	285	1,843	787	913	2,903
Short-term debt securities	1,054	57	50	459	305	93	61	29	588
Long-term debt securities	14,728	1,091	248	5,863	3,155	622	3,308	440	4,591
Loans	22,662	96	3,458	12,600	91	4,658	733	1,026	2,967
Shares and other equity	30,501	5,238	8,691	1,712	3,836	6,146	3,227	1,652	8,411
Listed shares	6,131	844	1,258	355	2,447	544	374	309	.
Unlisted shares and other equity	18,159	2,857	7,062	1,126	120	5,364	491	1,139	.
Investment fund shares (including MMF shares)	6,211	1,538	370	231	1,268	238	2,362	204	.
Insurance and pension schemes	7,188	6,646	202	33	0	1	295	11	437
Other accounts receivable and financial derivatives	6,864	469	3,688	900	380	383	190	854	519
<i>of which: Trade credits and advances</i>	2,991	153	2,681	2	0	80	13	61	221
Total liabilities	107,159	6,814	28,189	31,133	8,256	12,744	8,134	11,890	18,766
Monetary gold and special drawing rights (SDRs)									
Currency and deposits	22,548			22,179				289	2,731
Short-term debt securities	1,421		68	569	3	151	1	629	222
Long-term debt securities	16,262		1,074	4,401	6	3,003	60	7,717	3,057
Loans	21,694	6,156	9,015		70	3,620	358	2,476	3,934
Shares and other equity	31,367	28	14,422	2,743	7,920	5,673	547	33	7,545
Listed shares	5,910		4,604	633	0	522	151	0	.
Unlisted shares and other equity	16,709	28	9,818	1,284	0	5,150	395	33	.
Investment fund shares (including MMF shares)	8,749			827	7,920				.
Insurance and pension schemes	7,626		362	122	0	5	7,022	6	0
Other accounts payable and financial derivatives	6,187	521	3,193	1,064	257	267	147	739	1,195
<i>of which: Trade credits and advances</i>	2,923	167	2,483	44	0	80	13	131	288
<i>Net financial worth</i>	-1,370	14,077	-9,752	4	-205	1,004	466	-6,964	

Source: ECB Statistical Data Warehouse

Furthermore, the HFCS figures show that, contrary to the popular image, the German fraction of assets held in mutual funds and shares is higher than in Greece, Spain, Italy, Portugal, Austria and the Netherlands. Moreover, shares are owned more widely in Germany than in other euro area countries: About 17 percent of German households have investments in mutual funds, compared with 11 percent for the euro area as a whole.³ These figures show it is better to rely on hard figures and analysis rather than anecdotes when discussing the impact of economic policies.

Figure 1: Bank Deposits as a Fraction of Total Financial Assets



Source: ECB Statistical Data Warehouse

Overall, across the euro area, the direct impacts on income flows of a change in interest rates probably sum up to close to zero. However, this does not mean that the effect on consumption or investment spending will be zero.

In relation to household spending, the available evidence suggests that wealth in the euro area is more concentrated among households that are older and have higher incomes. Table 2 on the next page reproduces a table from the ECB’s 2013 report on its Eurosystem Household Finance and Consumption Survey (HFCS).⁴ This shows that average net wealth for households with a reference person aged between 55 and 64 are almost twice those of households with a reference person aged between 35 and 44. Average net assets of those in the top income quintile are over ten times the average net assets for those in the bottom quintile. This ECB report also reports that households in the lower income deciles are more likely to have been turned down for credit (or to have decided not to apply for credit) than households in higher income deciles.

³ See my blog post “The Myth of the Special German Saver” for more details. <https://medium.com/bull-market/the-myth-of-the-special-german-saver-718102ae1fd2>

⁴ ECB (2013).

Taken together these figures show that households with more positive net asset positions are older, have higher incomes, save more and are less likely to be credit-constrained. All of these facts point to these households having relatively low marginal propensities to consume, so the fact that interest-sensitive assets are larger for households than their interest-sensitive liabilities doesn't necessarily mean that the income effect on household consumption is negative. In any case, the income effect on business spending, which tends to be very cyclically sensitive, is likely to outweigh any potential negative effect on household spending.

This analysis only considers the direct impact of income changes on spending. However, low interest rates also affect saving behaviour itself, discouraging saving and encouraging spending by households and businesses. Taken together, these considerations explain why low interest rates will tend to boost aggregate demand.

2.2. Financial Institutions

Just as different sectors of the economy are affected in different ways by low interest rates, it is also the case that impact on financial institutions varies depending on their line of business.

Banks

Traditional conventional wisdom is that banks benefit from low short-term interest rates and a steep yield curve. Bank assets tend to be longer in duration than bank liabilities, so a reduction in interest rates sees tends to see more its liabilities being reset to lower interest rates than its assets, thus boosting profitability. The margin between new longer-term loans and existing loans also usually rises when short-term rates are low and the yield curve becomes steeper.

The low interest rates of more recent years, however, have been different from the scenarios of the past where interest rates were temporarily low during a recession and were expected to rise quickly once the economy had recovered. Due to a combination of economic weakness and policy commitments to maintain low interest rates for a long period, interest rates on many asset categories are now very low right across the yield spectrum. For example, during 2009, in the early days of the ECB's low interest rate policy, the average difference between yields on 10 year AAA-rated euro area government bonds and 1 year AAA-rated bonds (as measured by the ECB's yield curve) was 2.9 percentage points.⁵ As of March 10, after two days of QE purchases, this gap stood at only 0.49 percentage points.⁶

This means that the current environment in which interest rates are expected to be low for a long period is not positive for bank profits. By restraining bank profitability, the low interest environment is perhaps slowing the process by which European banks boost their capital levels as to move towards compliance with Basel 3.

⁵ These data are available at http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=165.YC.B.U2.EUR.4F.G.N.A.SV.C.YM.SR.1Y and http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=165.YC.B.U2.EUR.4F.G.N.A.SV.C.YM.SR.10Y

⁶ See Genay and Podjasek (2014) for a discussion of the negative effects of a flat yield curve on bank profitability in the US.

Table 2: The Distribution of Net Wealth in the Euro Area

Table 4.1 Net wealth by demographic and country characteristics				
	Median Net Wealth (€1,000)	Mean Net Wealth (€1,000)	Share of Total Net Wealth (%)	Share of Households (%)
Euro Area	109.2	230.8	100.0	100.0
<i>S.E.</i>	<i>(1.9)</i>	<i>(4.2)</i>		
Household Size				
1	39.6	134.9	18.5	31.6
2	148.2	279.4	38.9	32.1
3	135.2	246.7	17.7	16.6
4	175.4	285.4	17.5	14.1
5 and More	121.6	307.9	7.5	5.6
Housing Status				
Owner-Outright	241.2	391.3	69.1	40.7
Owner-with Mortgage	171.1	266.6	22.4	19.4
Renter or Other	9.1	49.5	8.6	39.9
Percentile of EA Income				
Less than 20	26.7	89.2	7.7	20.0
20-39	53.2	124.9	10.8	20.0
40-59	104.9	172.5	14.9	20.0
60-79	157.3	226.8	19.7	20.0
80-100	295.3	540.8	46.8	20.0
Percentile of EA Net Wealth				
Less than 20	1.2	-2.8	-0.2	20.1
20-39	27.0	29.4	2.5	19.9
40-59	109.2	111.9	9.7	20.0
60-79	230.6	235.1	20.4	20.0
80-100	506.2	780.7	67.6	20.0
Age of Reference Person				
16-34	16.1	71.3	4.9	15.7
35-44	94.5	191.3	16.2	19.6
45-54	148.3	266.6	22.9	19.9
55-64	186.6	344.4	25.5	17.1
65-74	163.9	283.6	17.8	14.5
75+	126.1	220.9	12.7	13.2

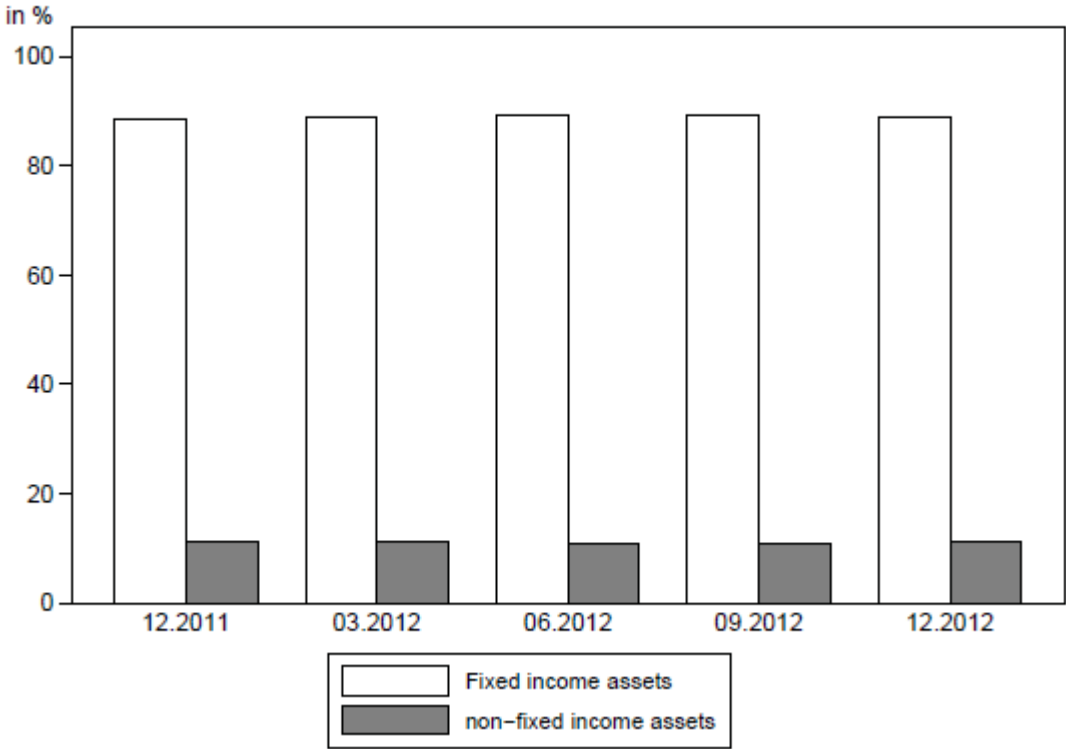
Source: ECB Household Consumption and Finance Network

Life Insurance Companies and Defined Benefit Pension Funds

Other types of financial institutions are more seriously affected by a low interest rate environment. Life insurance companies, defined benefit pension funds and businesses that sell annuities (often also sold by life insurance companies) have long-term liabilities, the costs of which do not adjust downwards when interest rates decline.

Unlike mutual funds or defined contribution pension funds, businesses like life insurance companies and defined benefit pension funds are not focused on “value maximisation”, a strategy that may involve a willingness to take risks in order to generate longer-term returns. Instead, their focus is on investments with limited risk but that can, ideally, allow them to deliver on their legal obligations to make the future payouts that they have committed themselves to. This leads to a relatively conservative investment strategy. So, for example, the figure below (taken from Kablau and Weiss, 2014) shows that the assets of German life insurers are dominated by fixed income assets.

Figure 2: Composition of Assets of German Life Insurance Firms



Given these investment patterns, these companies are being negatively affected by the current low interest rate environment. Kablau and Weiss (2014) argue that a number of German life insurers will fail to meet regulatory solvency requirements if the low interest environment persists. Berends, McMenemy, Plestis, and Rosen (2013) show that, since the global financial crisis, share prices for US life insurance companies have varied inversely with the yield on ten-year Treasury bonds.

3. UNINTENDED CONSEQUENCES OF LOW INTEREST RATES?

The fact that there are winners and losers from an extended period of low interest rates should not on its own be a reason to be concerned about adopting this policy. The evidence still suggests that the benefits of this policy in boosting aggregate demand and moving inflation back towards its target level make this a warranted policy.

But is it possible that a policy of keeping interest rates low for a long time can store up risks in the financial sector that then provokes another crisis? The previous time global interest rates were very low for an extended period of time was last decade. During this period, there were occasional warnings that the monetary policy was contributing to financial sector excesses which could end with a crisis (Borio and White, 2004 and Rajan, 2005, were too well known examples). However, these warnings were largely ignored by policy makers and financial imbalances ultimately triggered the largest global economic crisis since the Great Depression.

My assessment is that the conditions are not yet in place at present for an extended period of low interest rates to be a threat to financial stability in Europe or elsewhere. One reason for this is that interest rates are probably set to rise in the US and UK in recent years, which will limit the global nature of cheap credit. The other reasons, as I outline below, are that the institutions that are currently the source of concern are unlikely to cause a systemic crisis and that credit growth is likely to be weak in the coming years.

To be clear, I am not arguing that a financial crisis in the next decade is out of the question. The outcome of the global financial crisis was that the largest financial institutions now control an even larger share of the global banking market than prior to the crisis, so the too-big-to-fail problem is as big as ever. And Europe's newly developed bank resolution tools are yet to be tested in a crisis so it is hard to predict how the next financial crisis in Europe will play out. But, at present, low interest rates do not appear to be producing the ingredients for a financial crisis.

3.1. Threats from Pension Funds and Insurance Companies

The previous section discussed how an environment of low interest rates could have a negative effect on financial institutions such as life insurance companies and pension funds. In itself, this doesn't trigger a crisis. However, it is possible that weak profitability at these institutions could induce risk taking behaviour that causes problems later.

Rajan (2005) describes this possibility as follows:

"Insurance companies may have entered into fixed rate commitments. When interest rates fall, they may have no alternative but to seek out riskier investments – if they stay with low return but safe investments, they are likely to default for sure on their commitments, while if they take riskier but higher return investments, they have some chance of survival. This phenomenon, known as risk shifting ... tends to induce participants to ignore collective downside risks (including illiquidity) since their attention is focused on the upside, the only circumstances under which they survive."

This suggests that the current period of low interest rates could potentially contribute to a crisis in industries such as life insurance and defined benefit pensions. If they adopted "gambling" strategies, it would be inevitable that some of these firms would be affected by downside risk and become insolvent.

While acknowledging this risk, I think it is unlikely that this scenario could trigger a systemic financial crisis.

One key point is that not all types of institutions are equally important for the global financial system and not all types of financial losses are equally important. For example, many mutual funds and pension funds lost large amounts of money in the “dot com” crash of the early 2000s but there were few knock-on financial consequences. The losses were largely inflicted on better-off households who were able to absorb them and there were no failures of financial institutions that threatened the wider financial system.

In contrast, the housing bust of 2007 onwards caused large losses across a wide range of households and left many with debt burdens they could not afford. This, in turn, affected the health of the banking system, which plays a crucial financial intermediation role in the economy. For this reason, similar-sized losses in two different parts of the financial system can result in very different impacts on the economy.

Based on this comparison, future failures at life insurance companies and pension funds seem less likely to threaten the financial system as a whole than the losses associated with housing debt.

Of course, it is possible that such a crisis could trigger fiscal costs if governments decided to use public money to compensate insurance policy holders or pension scheme members for shortfalls. For this reason, it is important that regulators play close attention to how life insurers and pension funds invest their assets. Sound regulation, increased charges for financial products and a reduction in the generosity of future payouts, rather than a future crisis and government bailouts, are the appropriate approach to these problems.

3.2. Credit Growth and the Next Interest Rate Cycle

The other reason the current period of low interest rates is unlikely to trigger a future financial crisis is the current absence of strong credit growth. Most of the well-known discussions of potential problems due to low interest rates, such as William White’s 2012 paper warning about “unintended consequences”, focus heavily on how low interest rates induce households, business and financial institutions to take on additional debt. These higher debt burdens then become a problem when interest rates start to rise later, leading to financial stress.

The current situation with credit in the euro area is the exact opposite of the low interest rate-fuelled credit boom that is warned about in most discussions of the cyclical build-up of financial risks. Figure 3 shows year-over-year growth in loans to households while Figure 4 shows the corresponding chart for nonfinancial corporations. While there is a sign of a pick-up in recent months, both types have credit have been declining, with business credit falling steadily over the past three years.

There are a number of reasons for the weakness in credit in the euro area in recent years despite highly accommodative monetary policy. Many banks that relied previously on cheap funding from international wholesale markets have had to scale back their operations. Banks are also adopting a more conservative approach to assessing credit risk than prior to the crisis so credit standards have tightened significantly. The banking sector has also been focused on building up capital and reducing risk-weighted assets to meet the requirements of Basel 3. Uncertainty about potential loan losses in the face of the euro area’s long slump have also acted to make debt and equity funding more difficult to obtain for many banks which has also acted to reduce the provision of credit.

In addition to these factors, weak demand for credit for households and businesses that are focused on reducing debt levels has also influenced the contraction in credit supply.

There are a number of signs that this period of extremely tight credit may be coming to an end. The ECB’s comprehensive assessment exercise has improved transparency of the

accounts of Europe's largest banks and made comparisons across countries easier. Banks that were holding back on providing new credit because of concerns about their performance in the comprehensive assessment are now more likely to return to a more normal pattern of lending.

The negative effects of Basel 3 compliance on credit also appear to be tailing off. Figure 5 shows the capital shortfalls of the EU's largest banks (Group 1 are the 40 largest banks, Group 2 are the next 108 biggest.)⁷ The figure shows that, as of June 2014, the shortfalls relative to Basel 3 requirements had been reduced to a relatively small amount. Further capital raising since then likely means that, on average, European banks are ready to comply with this aspect of Basel 3.

Figure 6 shows how capital raising and reductions in risk-weighted assets have combined to increase the capital ratios of the Group 1 set of banks. Risk-weighted assets fell by about 20 percent from June 2011 to December 2013 but flattened out during the first half of 2014.

So there are some signs that bank credit may be set to grow again in the euro area, albeit probably fairly weakly. We are still a very long way away from having a dangerous credit boom. Most likely, if credit did begin to grow at a fast pace again, it would be in the context of an expanding euro area economy in which inflation had returned to target and monetary policy would also be transitioning back to its normal operational procedures.

At present, then, there is little reason to think that the next cycle of interest rate increases is likely to trigger anything like the stress in the household, business or financial sectors that was seen in 2007. Europe's banks are better capitalised than in the past and have adopted a conservative approach to credit provision that is unlikely to have stored up the types of problems that emerged in 2008.

3.3. Zombie Firms

One other concern about extended periods of low interest rates that occasionally gets mentioned, for example by White (2012), is that they may lead to a delay in restructuring of failing firms. This concern stems from evidence reported by Peek and Rosengren (2003), Ahearne and Shinada (2005) and Caballero, Hoshi and Kashyap (2008) on the relationships between banks and firms in Japan.

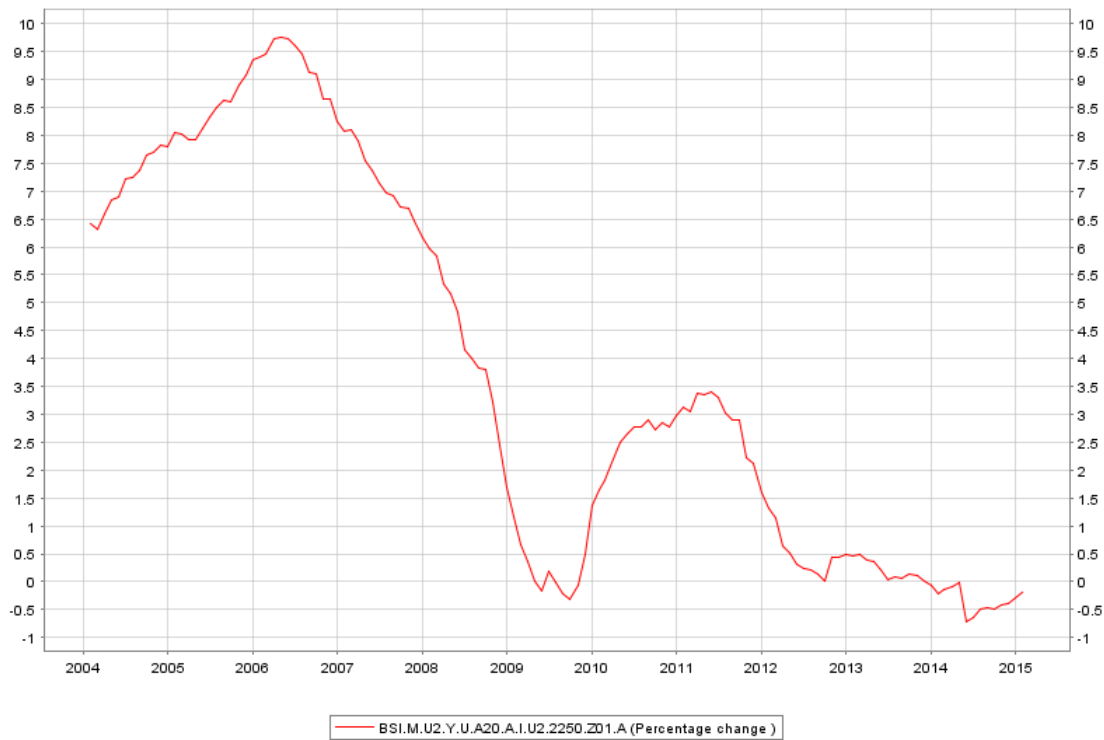
These studies reported that during the 1990s and early 2000s, many Japanese banks had weak capital positions. Thus, rather than admit to having made bad loans to failing firms, the banks would regularly roll over these loans. This "evergreening" process was made easier by the fact that interest rates were so low, so failing firms only had to make very small repayments to maintain the appearance of keeping up with the required repayments. This method of allocating credit slowed down productivity growth and perversely rewarded poorly performing firms over good performers.

This concern does not seem to be a particularly relevant one in Europe today. The Japanese experience in this area was largely related to its particular system of corporate governance which feature "*keiretsu*", large groupings of interrelated businesses that could include banks and this aspect does not translate to Europe today.

Prior to last year's comprehensive assessment, there were grounds for concern about how some banks in Europe were treating non-performing business loans, with different definitions of non-performance being applied across countries. However, the ECB has now introduced standard definitions in these areas and we should expect a strong supervisory approach to recognition of loan losses in the future.

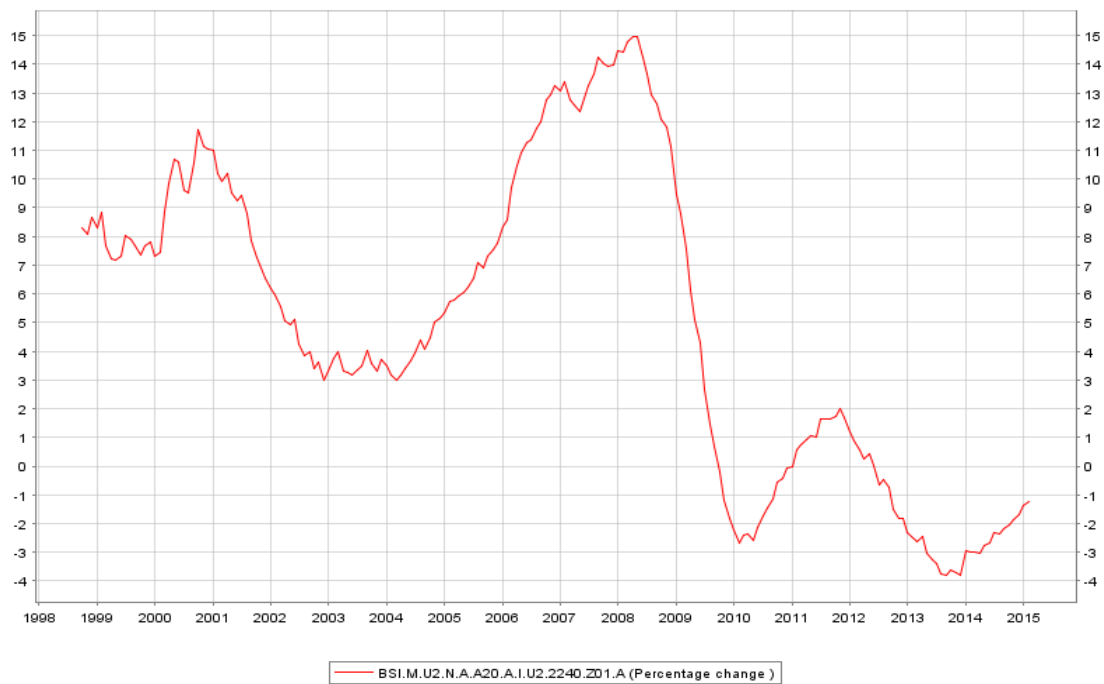
⁷ These figures are from European Banking Authority (2015)

Figure 3: Annual Growth Rate of Loans to Euro Area Households



Source: ECB Statistical Data Warehouse

Figure 4: Annual Growth Rate of Loans to Euro Area Nonfinancial Corporations



Source: ECB Statistical Data Warehouse

Figure 5: Capital Shortfalls at EU's Largest Banks

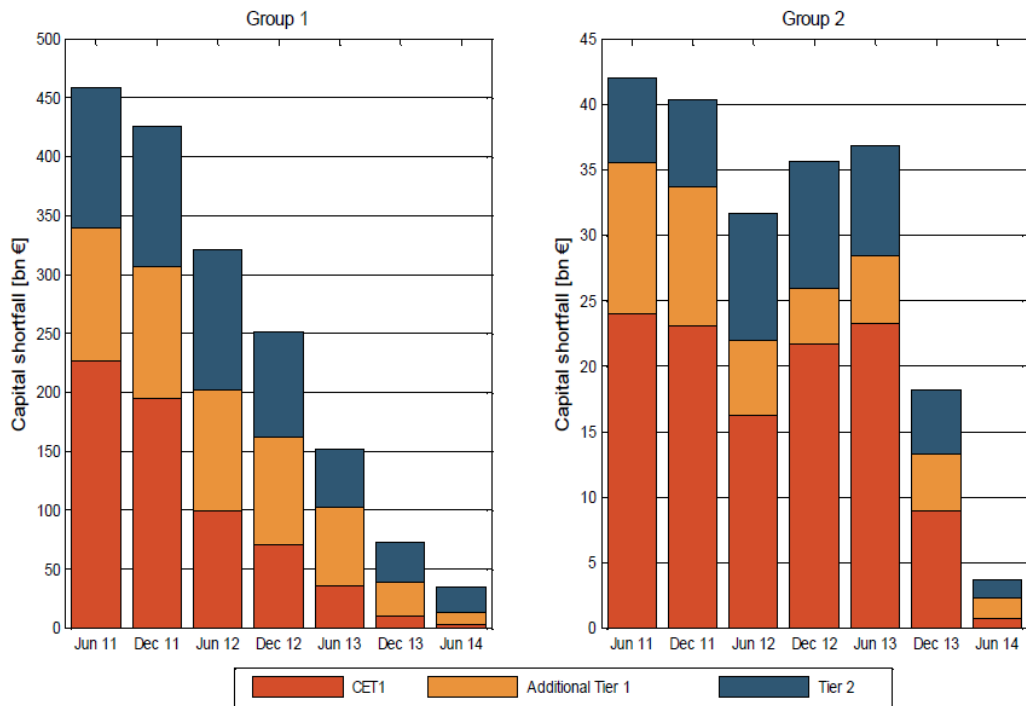
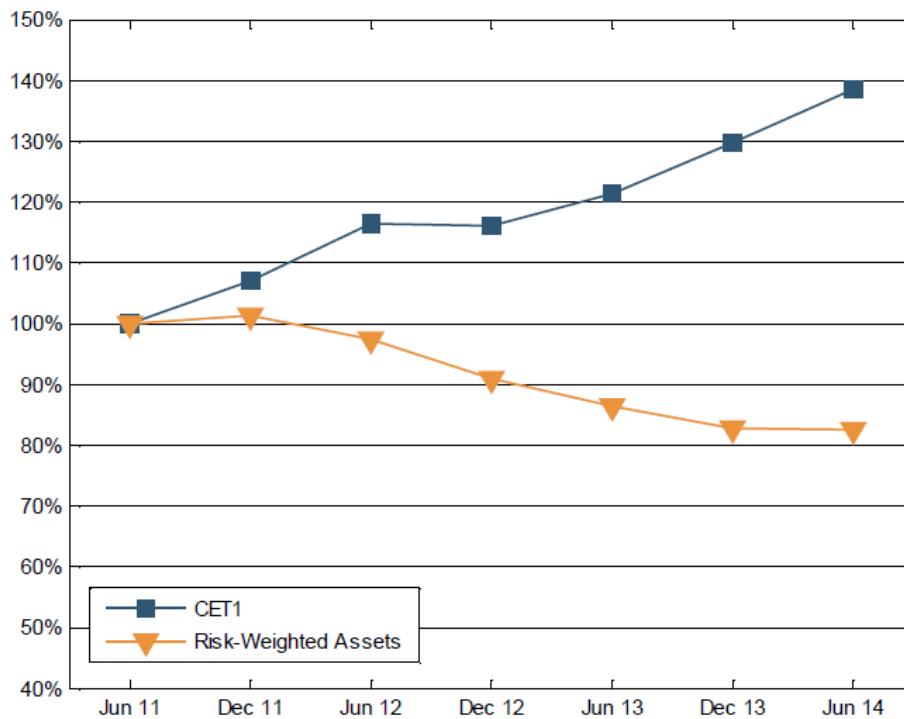


Figure 6: Core Equity and Risk-Weighted Assets at "Group One" Banks



Source: ECB Statistical Data Warehouse

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DIRECTORATE GENERAL FOR INTERNAL POLICIES
POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

Financial (in) stability, low interest rates and (un)conventional monetary policy: Potential risks and policy measures

Eddie GERBA, Corrado MACCHIARELLI

IN-DEPTH ANALYSIS

Abstract

Since the advent of the global financial crisis of 2007–08, major central banks in advanced economies - the US Fed, the Bank of England, the Bank of Japan and the ECB - have undertaken monetary policies with a view to keep interest rates low. They have also significantly expanded the monetary base (and their balance sheets) through the adoption of unconventional monetary policies, although at different times and in different forms.

Several years of unconventional monetary policies and exceptionally low interest have improved banks' health, eased credit conditions and, ultimately, helped supporting the economy. However, these policies may have undesirable side-effects that could put financial stability at risk the longer they are in place.

Against this background, this paper discusses the main threats to financial stability potentially triggered by unconventional monetary policies, especially in an environment of low interest rates, analyse the interrelation between financial stability and monetary policy at the current juncture and briefly assess the viability of specific measures that could prove helpful to contain such risks, given the current institutional framework.

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EXECUTIVE SUMMARY

At the zero lower bound, central banks around the globe (in particular the Federal Reserve, the Bank of England, the European Central Bank and the Bank of Japan) responded by expanding dramatically their traditional role as lenders-of last-resort. This was mostly met with targeted liquidity provision, or restoring financial intermediaries' balance-sheets, by offering a back-stop.

Since in this situation the central bank would commit to unconventional monetary policy beyond the duration that their reaction function would normally call for, the problem with such policies is time-consistency overall. Hence, the benefits on financial markets can translate into implementation risks if unconventional monetary policy is withdrawn prematurely or it is not time-consistently signalled.

This implementation risk can reduce or nullify long(er)-lasting effect of unconventional monetary policies, create adverse selection among borrowers, and increase market volatility (especially against the backdrop of a "premature" withdrawal).

Clearly there are financial and real risks of unconventional policy as well (at home as well as abroad, where emerging markets have long complained that expansionary rich-world policy has caused waves of capital inflows). The critical judgment is whether uncertain risks of uncertain magnitude can outweigh the benefits of doing more.

The (more) obvious financial risks to be discussed are:

- High liquidity and a prolonged period of zero interest rate can result in asset price bubbles.
- Another (highly) probable cost of highly expansive monetary policy is high indebtedness.
- In expectation of central bank intervention, banks might engage in excessive maturity transformation.
- Quantitative Easing (QE), in particular, can cause a notorious shrinkage in market depth. The first signals are already showing up in Treasuries, with crowding out of private investors.
- Property prices might inflate, repeating the mistakes of Spain, Ireland and Portugal prior to the Great Recession.
- Future bank defaults are very likely, both on the equity and the profit side.
- Pension funds, as one of the big losers in the QE environment, might become unsustainably risky as annuity rates continue to fall drastically.
- There are many concerns regarding the true effectiveness of the ECB's public sector purchase programme (PSPP), taking into account the currently very low yields and the high level of securities holdings by some national central banks (NCBs).
- There is also a risk of divergences in interests, which might make the QE very short-lived.
- In addition, QE could have an upward effect on commodity prices.
- At the same time, real rates can rise via an increase of inflation expectations and there may be threat to the reserve currency status.

Less obvious real risks include instead the fact that:

- A fiscal expansion must accompany a monetary one in order for QE to be effective.
- QE creates havoc with international trade. New liquidity can be used by consumers and the government to import goods and services from other countries at a very low marginal cost.
- Institutional differences between US and Eurozone rise scepticism on the effectiveness of transferring liquidity to the real economy.
- The supply-side may suffer due to “capital overhang”, as prolonged monetary accommodation may leave on the market companies which would naturally be driven out by competition, for instance.
- Related to the exit risk discussed before, there is a risk of inelastic demand once the QE ends.
- Monetary easing may benefit regions that have a highly developed financial (and property) market, as the UK example would suggest.

In order to understand what policies should be implemented to prevent the above mentioned risks from materializing, it is important to analytically distinguish between two types of policy measures: corrective and preventive.

Corrective measures shall be understood as a natural extension of the central banks’ traditional lender of last resort role in a timely and consistently manner (including forward guidance). Additional tools might be needed during this phase, mainly on the fiscal side, such as government guarantees and bailouts. This is particularly relevant for some of the real risks discussed before.

Preventive measures, on the other hand, will aim to establish the basis for a healthy recovery, and prevent a similar crisis from reoccurring. Having in mind the current institutional framework, a mix of strong micro-and macro-prudential financial policies should be envisaged, in particular providing the necessary stimulus at the current conjuncture, hence facilitating a healthy recovery.

1. INTRODUCTION

Central banks in the United States, United Kingdom, Japan, and euro area adopted a series of unconventional monetary policies with two broad goals. The first was to restore the functioning of the monetary policy transmission mechanism, hence financial markets and intermediation. The second was to provide further monetary policy stimulus at the zero lower bound (ZLB). As underlined by IMF (2013), these two goals, while related, specifically rely on different tools. The first relies on targeted liquidity provision and private asset purchases, such as asset backed securities (ABS). The second rely on forward guidance and bond purchases. Those measures are likely to affect asset prices differently, hence financial stability.

The extent and timing of phasing-in of the different measures largely varied across countries. In particular, the European Central Bank and Bank of Japan had to cope with a bank-centred structure of their financial systems, differently from the Federal Reserve and the Bank of England. Several years of unconventional monetary policies and monetary policy at the ZLB overall have improved banks' health, eased credit conditions and, ultimately, helped supporting the economy. However, these policies clearly can have undesirable side-effects such as excessive liquidity provision and risk taking that could put financial stability at risk the longer they are in place.

Against this background, this paper discusses briefly the main threats to financial stability potentially triggered by unconventional monetary policies, especially in an environment of low interest rates, analyse the interrelation between financial stability and monetary policy at the current juncture and assess specific policy measures that could prove helpful to contain such risks.

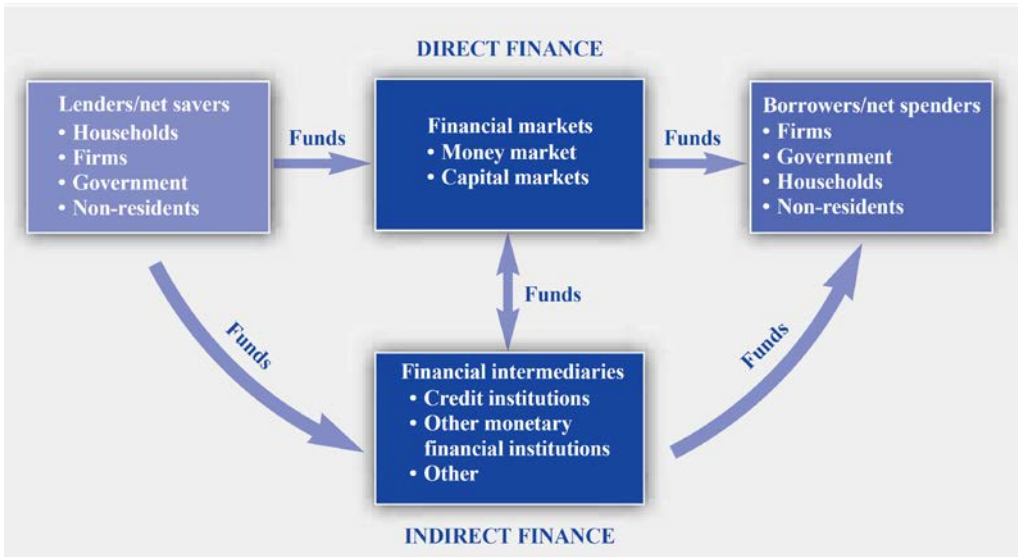
2. (UN)CONVENTIONAL MONETARY POLICY AND FINANCIAL STABILITY

It is well known that conventionally central banks can expand the monetary base in essentially two equivalent ways: buying bonds from the public or lending money to the public. Buying bonds reduces the public’s bond holdings and increases the amount of currency and bank reserves in the economy. This conventional monetary policy can potentially stimulate the economy through different channels. Albeit these channels are several (ECB, 2011), they can be reduced to two main ones: an asset price channels and a credit channels. The “**asset channel**” implies purchases of short-term securities, expanding the monetary base. In this way, the central bank can affect a variety of asset prices, including exchange rates and stock prices. The changes in asset prices will then affect economic decisions and influence banks’ net worth and balance sheets. Such changes in official interest rates will then affect the supply of credit (hence, the “credit channel”).

The definition of those two channels can easily become blurred during crises times, or acute phases of the business cycle. We will return to the point later, but it is worth considering at this stage that, e.g., too low interest rates may boost asset and collateral values, leading both borrowers and banks to accept higher risks via the aforementioned balance sheet channel effect. In addition, low interest rates can make riskier assets more attractive, as agents will search for higher yields. The above effects combined can translate into a softening of credit standards, overall leading to an excessive increase in loan supply (again, via the credit channel).

Prior to the crisis, well-functioning arbitrage ensured that actual and expected standard monetary policy impulses would be transmitted along the yield curve of sovereign bonds and across different asset classes, including bank loans. The severity of the 2007 shock, and ensuing crisis, forced the main central banks around the globe to push their optimal policy rate at the ZLB.

Figure 1: Financial system structure



Source: ECB (2011)

Having nominal rates for most purposes bounded at (or near) zero reduced the scope for further (conventional) policy accommodation. This forced central banks into unconventional monetary policy in order to ease financial disruption and restore the transmission mechanism (Adrian and Shin, 2009).

Financial markets and financial intermediation lessened for three main reasons (IMF, 2013). The first reason relates to the classical problem of (ir)rational runs in which the market can push an economy into a “bad” equilibrium (see also De Grauwe and Ji, 2012), i.e. an equilibrium where it is profitable for investors to run on a sovereign, financial institution or a particular market. The second reason has more to do with a collapse of confidence in certain markets / institutions and the broader fragility of financial systems, because of increased counterparty risk or asymmetry of information. The third reason is the self-reinforcing amplification of asset price cycles and borrowing constraints mentioned earlier. In principle, such an amplification effect works in both directions albeit not necessarily in a symmetric fashion owing to different weights in the policy reaction function. Some comments are warranted in the next sections.

At the ZLB, central banks responded by expanding dramatically their traditional role as lenders-of last-resort. This was met, on the one hand with targeted liquidity provision, or restoring financial intermediaries’ balance-sheets, by offering a back-stop. On the other hand, further monetary policy stimulus was provided at the ZLB. These two goals, while related, undoubtedly rely on different instruments (IMF, 2013). The first relies on targeted liquidity provision and private asset purchases mainly to restore financial market functioning and financial intermediation (indirect finance). The second relied on forward guidance and bond purchases (direct and indirect finance); see Figure 1.

Unconventional monetary policy of the type of bond and private securities purchases—expanding a central bank’s balance sheet (QE) is expected to affect financial markets via three channels. Understanding these channels will help understand the implementation risks of QE. In Section 3 we focus on real and financial risks.

The first channel via which QE affects financial markets is the **signalling channel**. This channel describes a situation where purchases may convince markets that the central bank is committed to a loose policy stance. Simply announcing that policy will remain loose for long(er) may not be credible. Bond purchases support credibility if market participants perceive a rapid exit as either difficult or costly.

The other two channels are the **scarcity** and the **duration channels**. These channels rely on “portfolio rebalancing” (Tobin, 1958) and require frictions — typically preferred habitat or market segmentation (e.g. Kiyotaki and Moore, 2012) — precluding perfect arbitrage between long and expected short rates, allowing at the same time changes in the maturity composition of nominal government debt to affect asset prices. For instance, some investors may prefer to hold or deal with certain assets (e.g., pension funds’ preference for long-term rather than short-term securities) and, in presence of limited arbitrage, asset prices partly reflect the valuations of investors in that particular segment.

3. IMPLEMENTATION RISKS

3.1. Signalling risk

Because the central bank can commit to purchases, e.g. bond buying, beyond the duration that their reaction function would normally call for, the problem with such policies is overall time-consistency. Hence, the channels above can translate into implementation risks if unconventional monetary policy is withdrawn prematurely or it is not time-consistently signalled (see also Borio, 2014). In particular, scarcity and duration would work in reverse if the central bank fails to “signal”.

Outright purchases can in principle help resolve the apparent time inconsistency of a commitment to an announced policy path by changing the central bank’s incentives through its balance sheet. A central bank that purchases a sizable quantity of, e.g., long bonds when long rates are low will see the value of its bond portfolio weaken if such long rates rise. Equally, the value of long-term loans will decline as long-term rates rise (Fawley and Neely, 2013). This implies the effects of central bank’s purchases will depend not only on expectations of the total value of intended purchases, but also on how long the central bank intends to hold them (see also Rogers, Scotti and Wright, 2014). If the central bank buys today but sells tomorrow, clearly there will be little effect on those prices.

Consistency of purchases can also create the danger of inverse selection. Expectations of potentially lower profitability in the future, stemming from an expected change in the monetary policy stance, can discourage potentially creditworthy borrowers from seeking to borrow at all, but they will not discourage fraudulent borrowers who have no intention of repaying. Thus, the pool of firms and individuals seeking loans will become heavily skewed toward fraudulent borrowers. Banks, knowing this, will become increasingly reluctant to make loans. To make large-scale asset purchases programmes (LSAPs) as effective as possible, the Federal Reserve for instance has attempted to communicate the intended path of holdings years into the future.

As underlined by other commentators, **special circumstance of the euro area** in the last few years meant a different stance and pace of monetary policy reaction, compared to other central banks. Under the Securities Markets Programme (SMP), initiated in May 2010, the ECB bought around €220 billion of Greek, Irish, Portuguese, Italian and Spanish government bonds. At the time, the ECB announced that the bonds would be held to maturity and that the purchases were to be entirely sterilised. The intervention was justified in light of the severe tensions in certain market segments that were hampering the transmission of the ECB’s monetary policy. When talking about time-consistency, however, the decision to suspend the sterilisation of the liquidity provided under SMP in 2014 can be seen as falling under this remit, as it represents change of a key parameter of the ECB stance.¹ The ECB has very recently announced a “different” and broader asset purchase programme, public sector purchase programme (PSPP), (M. Draghi, Introductory statement to the press conference, 22 January 2015), started early this March and effectively targeting asset classes beyond the one initially covered by the existing programs (SMP, Covered bonds; see Annex), technically QE. Both positions if evaluated against the backdrop of earlier policy stance may introduce uncertainty about the viability of this and other longer-term ECB commitments (see also Claeys, 2014), raising consistency issues.

¹ With inflation not far from the 2% target, ECB’s actions were guided before then by the Treaty limitations prohibiting the Eurosystem from conducting purchases of sovereign debt that are interpreted as sovereign bailouts (Article 125) or monetary financing (Article 123).

3.2. The risk of “exit”

Before we turn to real and economic risk, let us briefly mention the risk(s) of eventually unwinding unconventional monetary policies. This is in turn related to the signalling problem. The natural assumption would be that monetary policy tightening shocks will have similar effects to that of accommodation via QE, but of opposite sign.² The recent market volatility prompted by heightened expectations of looming tapering in the rate of asset purchases after Chairman Bernanke's testimony on May 22, 2013, and to the FOMC³ meeting on June 19, 2013 appears broadly in line with this belief (see Rogers, Scotti and Wright, 2014). There is a broad consensus in the literature that risks of exit and subsequent spillover effects (some of which related to the next discussion) will again be mitigated if the “signalling channel” is used effectively (e.g. forward guidance).

While beyond the scope of this discussion, it should be finally mentioned that the heterogeneous nature of the recovery across the euro area, US, Japan and the UK, will imply exit strategies will unlikely be synchronised, making cross-country spillover effects on financial markets particularly relevant looking ahead (Bean, 2013).

² Even if, as Rogers, Scotti and Wright (2014) underlines one can imagine reasons why some financial markets might in principle be more reactive to asset purchases than to their subsequent unwinding.

³ Federal Open Market Committee

4. FINANCIAL AND ECONOMIC RISKS

4.1. Financial risks

The merits of unconventional monetary policy are several and the costs of inaction are high.⁴ Moreover, the gains from asset purchases seem to be clearest and largest in the euro area due to its low growth perspectives.

But clearly there are financial and real risks of unconventional policy (abroad as well as at home, where emerging markets have long complained that expansionary rich-world policy has caused waves of capital inflows). The critical judgment is whether uncertain risks of uncertain magnitude can outweigh the benefits of doing more. While we acknowledge that it is difficult to foresee all the risks at this early stage of QE implementation, we will outline some of the concerns currently expressed in the academic as well as policy-making community.

There are serious frictions on the supply-side of sovereign bonds. Michael Leister, strategist at Commerzbank, calculates that 2/3 of the Eurozone sovereign debt market is held by sticky investors. ECB already holds approximately 15% of public government bonds, predominantly in shorter maturities while domestic banks and institutional investors have approximately 40% and may be reluctant to sell given scarcity of similar-yielding investment alternatives. Allianz Global Investors are among holders who have already said they won't sell bonds.⁵

A study based on 10-years trade data shows that only about 38% of the euro area's high rated bonds are freely tradable, while the rest are owned by price-insensitive investors.⁶ As a result of this friction (or the limited amount of bonds that can change hands), distortions are showing up on the European debt markets. More than EUR 1 trillion bonds in the region have negative yields. According to Alexander Duering, "There is actually fairly little high-grade euro debt available for trading."⁷ The risks associated with market drying up from excess demand of high-quality bonds are evident.

High liquidity and a prolonged period of zero interest rate can result in asset price bubbles. Bloomberg strategist Tanvir Sandhu says U.S. and Europe stock indexes are moving back into a trading band that suggests European stocks will outperform. Many others agree there is further upside for European stocks, up 13% and 8% since ECB's January meeting; the balance of fund managers who say Europe is the most favoured region for stocks for next 12 months rose to 51% in Feb. versus 18% in January. In such market conditions, a vast injection of liquidity can easily lead to explosive asset prices, driving them rapidly away from fundamentals.⁸ The negative effects will materialize once the ECB decides to exit the QE. If the central bank does try to avert higher inflation and interest rates when the economy starts growing again, it has to drain the money it has pumped into the banks before. The more money was printed, the more money has to be withdrawn. To the extent that high money creation has boosted asset prices, the opposite occurs if liquidity is withdrawn from the system. The more money has been printed, the

⁴ Albeit estimating the macroeconomic effects of unconventional measures is clearly challenging, they were estimated to be generally effective both in the euro area (see Ciccarelli et al., 2013; Paries and De Santis, 2013; on the OMT, Altavilla, Giannone and Lenza, 2014) and outside (e.g. for the US, see Krishnamurthy and Vissing-Jorgensen, 2010; IMF, 2013).

⁵ Bloomberg (Across the curve). Published on 26-02-2015

⁶ According to Deutsche Bank AG's Alexander Duering

⁷ Bloomberg. Published on 18-02/2015

⁸ Lueder Gerken, director of the Centre for European Policy in Freiburg. The German Finance Minister agrees.

more downward pressure there will be on asset prices if the central bank reverses this process.⁹

Another (highly) probable cost of highly expansive monetary policy is high indebtedness. This could occur through increases in debt and consumption, and decreases in savings and possibly the current account. If these shifts are very large – or vulnerabilities related to overconsumption, over-borrowing, insufficient savings, or large current account deficits continue for very long – they could create a less balanced, less resilient and less sustainable economic growth. This was one of the key causes behind the Great Recession, and repeating it would be highly costly.

The saving rates in the UK are already showing this trend. For the last 48 months, base interest rates have been stuck at 0.5%. The Retail Price Index (RPI) over that period has averaged 3.03%. The average real return is therefore minus 2.53% a year – a swing of 5.38% over the long-term average. British savers have accumulated bank savings of around £1.2tn. However if the long-term real return had remained at the pre-2008 average, the 'lost' interest return has been £65bn a year, or around £2,500 for every family in the land.¹⁰

In expectation of central bank intervention, banks might engage in excessive maturity transformation. It is well understood that ex ante expectation of liquidity provision causes moral hazard problems, and leads to "imprudent behaviour" on the part of financial intermediaries. The problem is not reduced by the "too big to fail" mentality that still prevails in the financial industry. While banks increased their liquidity risk in run-up to the financial crises from 2007 onwards, the risk of this re-occurring is significant when a vast amount of liquidity is injected back into the market via QE.

Low yields in bond markets pushes investors into riskier assets in search for (satisfying) returns. This can only lead to an inefficient allocation of capital and leave certain investors with more risk than they appreciate. An adjustment in asset prices can bring about losses that are difficult to manage, especially if investments were supported by higher leverage possible due to low rates. If these losses were widespread across an economy, or affected systemically important institutions, they could create substantial economic disruption.¹¹ This tendency is not only limited to investors, but stretches to commercial banks. Studies have shown that the new inflow of money into commercial banks from QE (in the US and UK) has encouraged banks to use this extra money to increase returns through greater risk taking. The longer the phase with low interest rate, the greater the danger of consequences in the form of speculative price developments and misallocations. A lengthy academic literature has shown that low interest rates often foster credit booms, an inefficient allocation of capital, banking collapses, and financial crises. Prolonged low-interest phases also present the insurance industry and pension funds with considerable challenges. Careful monitoring in risk expansion is therefore required.¹²

QE can cause a notorious shrinkage in market depth. The first signals are already showing up in Treasuries. Trading may be squeezed further as the ECB attempts to buy more than this year's new supply of sovereign bonds, reducing the amount for investors to own and exacerbating illiquidity. And as the market becomes more controlled by Europe's central bank, it may reduce the incentive for private risk-takers to commit capital according to Alexander Duerig. There is a potential risk that the more the central bank moves yield levels, the higher the probability that the market at some point stops following it.¹³ This

⁹ Bloomberg. Published on 26-02-2015/ECR Research/Kristin Forbes – Speech on 24-02-2015

¹⁰ Kristin Forbes – Speech on 24-02-2015

¹¹ IMF Report on Unconventional Monetary Policies – Recent Experience and Prospects (April, 2013).

¹² ECR Research/Jordan (SNB) – speech on 16-11-2012.

¹³ Christoph Rieger, head of fixed-rate strategy at Commerzbank AG.

can push the market into a situation where there is really no fundamental demand, distorting (or even killing) private investor incentives.¹⁴

Property prices might inflate, repeating the mistakes of Spain, Ireland and Portugal prior to the Great Recession. In a recent NBER study of data spanning 140 years of modern economic history across 14 advanced economies, Jorda et al (2014) analyze the link between monetary conditions, credit growth, and house prices. The long-run historical evidence uncovered in the study suggests that the potentially destabilizing byproducts of easy money (via credit and house prices) must be taken seriously. Throughout the entire 20th century, real estate lending became the dominant business model of banks. As a result, the effects that low interest rates have on mortgage borrowing, house prices and ultimately financial instability risks have become considerably stronger.

More recently in the US, house prices to average earnings remain expensive at 4.47 times the salary (close to the bust levels of 1989 and well above the long term average of 4.08 times). However, the total cost of interest payments relative to income are now close to a 30-year low. As long as monetary policy remains loose, a substantial fall in house prices is unlikely. Further, there have been few repossession during this recession. This is partially due to monetary policy and partially as a result of a deliberate policy to minimise foreclosure. People have acted rationally and re-leveraged. There is no reason to believe that this is different in the Eurozone, where house prices remain high and monetary expansion is comparable in scale to the US.¹⁵

Future bank defaults are very likely. The IMF Global Report from 2013 noted that the markets in the Eurozone, US, UK and Japan are pricing in rising risks of future bank defaults as a result of a surprise monetary easing.

On the equity side, bank prices weren't really moved by surprise central bank actions in the U.S., though they fell in the U.K. and the euro area. However, the risks of future default did rise. Measured by widening spreads between medium-term bank bonds and government bonds, they find that one basis point of surprise easing increases the spreads by between 0.071 and 0.154 basis points. The reason lies on the profit side.

On the profit side, low interest rates keep the revenues on new loans low. But low rates may put banks at risk by giving an incentive to roll over nonperforming loans. "A delay in balance sheet repair could be one reason for the market expectations of an increase in bank default risk over time that was found in the event study," the IMF said.¹⁶

While this does not represent an immediate threat, in the medium-term the delay in balance sheet repair is likely. A future rise in interest rates could cause three difficulties. First, it could hit some banks' government bond holdings. Second, there could be market disruptions caused by central banks selling securities. Finally, there might be difficulties in restarting the interbank lending markets.

Pension funds, as one of the big losers in the QE environment, might become unsustainably risky as annuity rates continue to drastically fall. Annuity rates have collapsed since the onset of expansionary monetary policies (see chart 2 below). In 2000 in the UK, a company would have needed to set aside around £115,000 for each £10,000 for a man aged 65 enjoying an RPI linked pension provision. Today that figure is more than double at £285,000. The annuity rates for that category are around 3.5%. The UK Pension

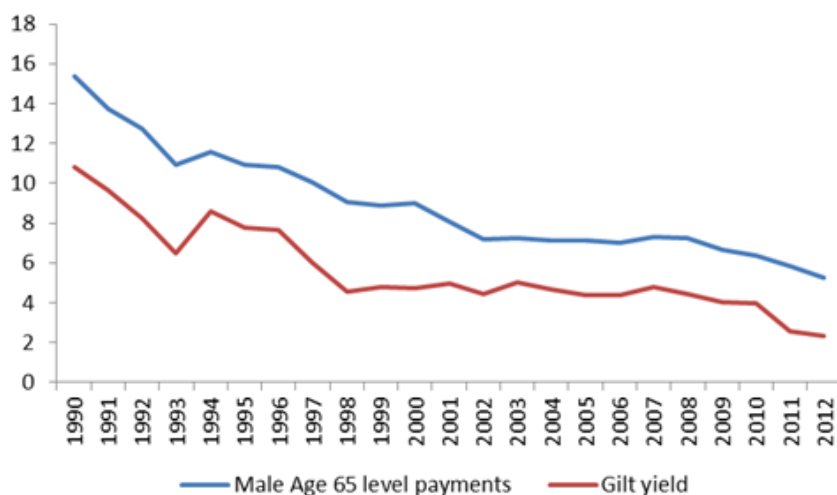
¹⁴ Economist. Published on 14-07-2012/Bloomberg. Published on 18-02-2015

¹⁵ Jorda et al (Dec 2014)/Tim Knox, CPS (March 2013)

¹⁶ IMF Global Financial Stability Report, April 2013.

Protection Fund has estimated that companies saw defined benefit scheme deficits increase by £135bn between 2009-10 and 2011-12, linked directly to the falling annuity rates.¹⁷

Figure 2: Annuity rates of public pension funds and gilt yields



Source: Tim Knox, Centre for Policy Studies, March 2013.

The reason is because the annuity rates of public pension funds are directly related to the gilt yields through the regulatory requirement to hold so-called 'risk-free' security. So companies, instead of directing money towards capital investment, have had to divert earnings into pension schemes, which in turn invest in the supposedly risk-free assets of UK Sovereign Bonds. Similarly those with personal pensions have seen the purchasing power of their funds slashed as annuity rates for a typical 60 year old fell from 8% in 2008 to 5.2% today (for a flat line pension for a male aged 65). An indexed linked pension offers substantially less – closer to £3,500 for each £100,000 invested.¹⁸

There are many concerns regarding the true effectiveness of the PSPP, taking into account the currently very low yields and the high level of securities holdings by some national central banks (NCBs). Analysts at Danske Bank point out that Banco de Espana already holds around EUR58 billion of securities and the amount of 2-32 year SPGB holdings of the NCBs combined is EUR 70 billion. Taking into account the 25%-and 33% rule imposed in ECB PSPP¹⁹, the current high holdings suggests that there is little room for further buying of Spanish government debt, despite the fact that Spanish debt requires heavy re-financing. Recently, Howard Archer, Chief Economist at HIS Global Insight expressed his concerns on the effectiveness of the policy measure, stating: "With bond yields already so low across the Eurozone, it is questionable how effective QE will be in pushing them even lower, especially if QE does actually succeed in pushing up markets' inflation expectations for the Eurozone"²⁰. Figure 3 compares the bond yields in the Eurozone, US and UK. The yields in the Eurozone are currently lower than both in the US and the UK. Since the ECB's promise to do 'whatever it takes to save the euro' in 2012, borrowing costs around the Eurozone have plummeted – Italian borrowing costs fell by almost 4%, Spanish by almost 5% and Portuguese by over 7%. Yet, all of this has not been coupled with an improvement in economic performance or inflation. The economist and

¹⁷ Dr Ros Attman – Speech on 24-10-2013/Kristen Forbes – Speech on 24-02-2015

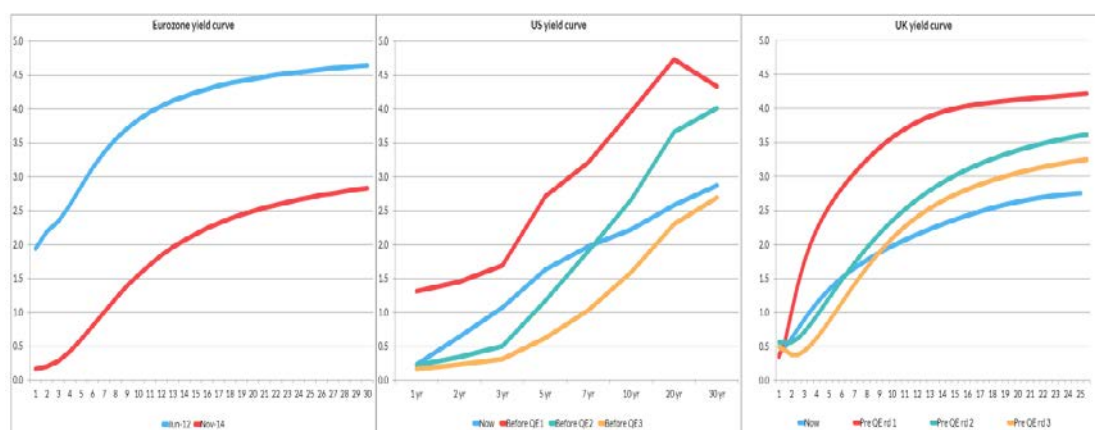
¹⁸ Tim Knox, CPS (March 2013).

¹⁹ See Appendix.

²⁰ As reported by <http://www.mandg.co.uk/investor/news/intelligence/ga-how-will-eurozone-qe-work/>

contributor at Forbes, Raoul Ruparei, believes that there is little reason to think recent ECB QE will be any different.²¹

Figure 3: The yield curves in the Eurozone, the US and the UK following unconventional monetary policies



Source: Raoul Ruparei, Forbes Contributor

Moreover, the environment in which the Fed and BoE launched the QE is very different from the current environment in the Eurozone. Analysts at Nitixis point out that Fed's QE worked because long-term interest rates were very low relative to nominal potential growth when it was launched. However, the Eurozone is faced with very low nominal potential growth, which requires the long-term interest rates to be very low during a sustained period. But this in turn entails other dangers, such as a fall in long-term savings and severe problems for banks and institutional investors.²²

There is also a risk of divergences in interests, which might make the QE very short-lived. In the current set-up, if a NCB does not want to continue to purchase bonds, the ECB cannot stop them from pursuing that route. While this scenario is highly unlikely, it could arise because some NCBs are heavily opposed to the programme and this could be further facilitated if the National Constitutional Court (NCC) ordered the action.²³

QE may have an upward effect on commodity prices. This liquidity will move towards commodity markets, which will push up the prices. As Western countries and Japan have to import a lot of commodities, that inhibits growth. Moreover, latest sequence of depreciations of Euro has made commodity imports more expensive. While at the moment it is not a credible risk - due to the general fall in oil prices) - it might have important effects for the cost-competitiveness of Eurozone firms if liquidity continues to be poor in on commodity markets and the currency keeps depreciating for a sustained period.²⁴

Real rates may rise. Should QE achieve to (temporarily) lift economic growth through higher credit extension, inflation expectations may rise as the same time as money flows into the real economy. In anticipation of this, investors will start selling bonds – the higher the inflation expectations, the more bond price will depreciate. If interest rates rise more than inflation (expectations), real rates would go up, making it increasingly expensive for both the government and the private sector to (re)finance debts, increasing the risks of bankruptcy.²⁵

²¹ Forbes. Published on 19-01-2015.

²² Bloomberg. Published on 18-02-2015.

²³ Raoul Ruparei (2015), Forbes.

²⁴ ECR Research.

²⁵ ECR Research.

Threat to the reserve currency status. The role of the Euro as a reserve currency may also be negatively affected by QE, as major central banks in particular of emerging economies may lose confidence in the euro-area currency as a result of QE. They might feel that these practices reflect an inability by the monetary union to generate real growth and to honor debts. In addition, the emerging economies feel that the West is engaging in unfair currency war. This can in turn make them weary of lending the individual Eurozone countries more money.

4.2. Real risks

In order to get a complete risk mapping, one must also consider risks to the real economy. While their direct effects on financial stability might be small, their indirect effects, via the macro-financial nexus, might be significant. We therefore analyse a few of them, which might have medium- and long-term impacts on financial market stability.

A fiscal expansion must accompany a monetary expansion in order for QE to be effective. This is highly unlikely to occur in the current context of the Eurozone. In a recent contribution, Giavazzi and Tabellini (2015), claim that the success of QE will only be possible if it is coordinated with an equivalent fiscal policy expansion in order to have permanent or long-lasting effects on the size of the central bank balance sheet. As well explained by Buiter (2014), the logic is the following. When a central bank engages in QE it exchanges government debt for money, which is a non-redeemable liability. As a consequence, the intertemporal budget constraint of the government is relaxed. If the debt is held permanently, then the reduction will equal to full amount of the QE. However, if the debt is held temporarily (or not rolled-over), then the reduction will only equal the interest payments. Therefore, a long-lasting expansion can be achieved by purchasing long-term debt, or rolling over the debt acquired.

There are two scenarios. In an economy where Ricardian equivalence holds, we can achieve an expansion in aggregate demand as long as the expected path of future government spending remains unaltered. If, on the other hand, we are in an economy where the consumers are not Ricardian, the expansion of aggregate demand can only occur if the government exploits the additional fiscal space created by QE to run a larger deficit.²⁶

However, the austerity programs that are currently being run in many Eurozone countries go in the opposite direction. In addition, there is very little political will in engaging in tax cuts or spending increases over the foreseeable future in several of the Member States. Therefore, there is a sizeable risk that QE will simply pour liquidity into the financial system, but without the accompanying growth. This can either lead to liquidity being accumulated as bank reserves (thus marginalizing the interbank lending market), or inflate asset prices (but without generating the necessary investments or wealth effects).

QE creates havoc with international trade. New liquidity can be used by consumers and the government to import goods and services from other countries at a very low marginal cost. The problem is that sooner or later other countries end up getting sick of exchanging goods and services for what they feel are worthless sheets of paper. In other words, the value of the importer's currency depreciates, which can discourage exporters. For example, China stopped exporting valuable minerals to the U.S. due to its QE program.²⁷

On the export side, QE is perceived by most emerging market economies as a currency war against their exports. The resulting depreciation from QE makes Western exports cheaper,

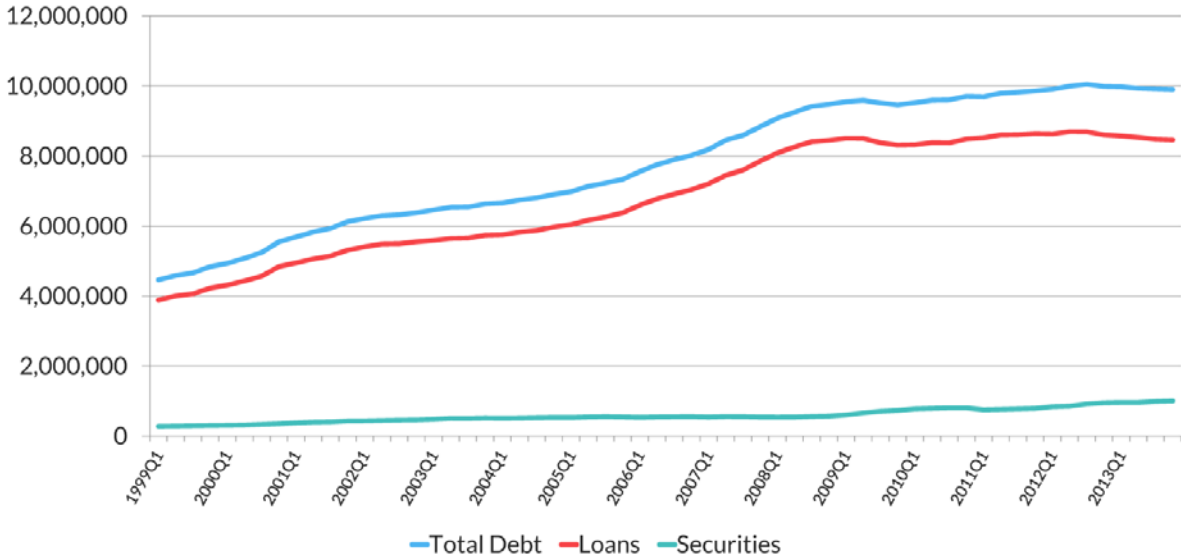
²⁶ Hence, QE can be a powerful tool to stimulate aggregate demand. Just like 'helicopter money', these direct expansionary effects do not rely on portfolio adjustment, liquidity effects, or exchange rate movements. (Buiter (2014), (Reichlin et al, 2013)).

²⁷ See, for instance, Bruno&Shin (2014 a,b), Obstfeld (2012), Schularich&Taylor (2012). See also RBI Monthly Bulletin (May 2014) and Moneycrashers.

reducing the market share exports proceeding from emerging economies. Taking into account that many of them heavily rely on export-driven growth, such strategy has proportionally heavier costs compared to the gains for the Western economies. The consequence is an imbalance in global trade. With time this can result in financial reversals, or crisis.²⁸

Institutional differences between US and Eurozone rise scepticism on the effectiveness of transferring liquidity to the real economy. Bank lending remains the main channel through which QE would pass-through to the real economy. In the Eurozone, 85% of firm financing comes from banks, meanwhile in the US the number is less than half of this. The lack of lending from the broader capital markets means money will not filter through to the real economy anywhere as effectively as in other jurisdictions. Furthermore, the percentage of net household wealth coming from financial assets is much smaller in the Eurozone compared to the US and UK. While the numbers are 82% and 62% in the US and the UK, it is just under 50% in the Eurozone. This means that the boosting asset prices will not feed through to consumers to the same extent.

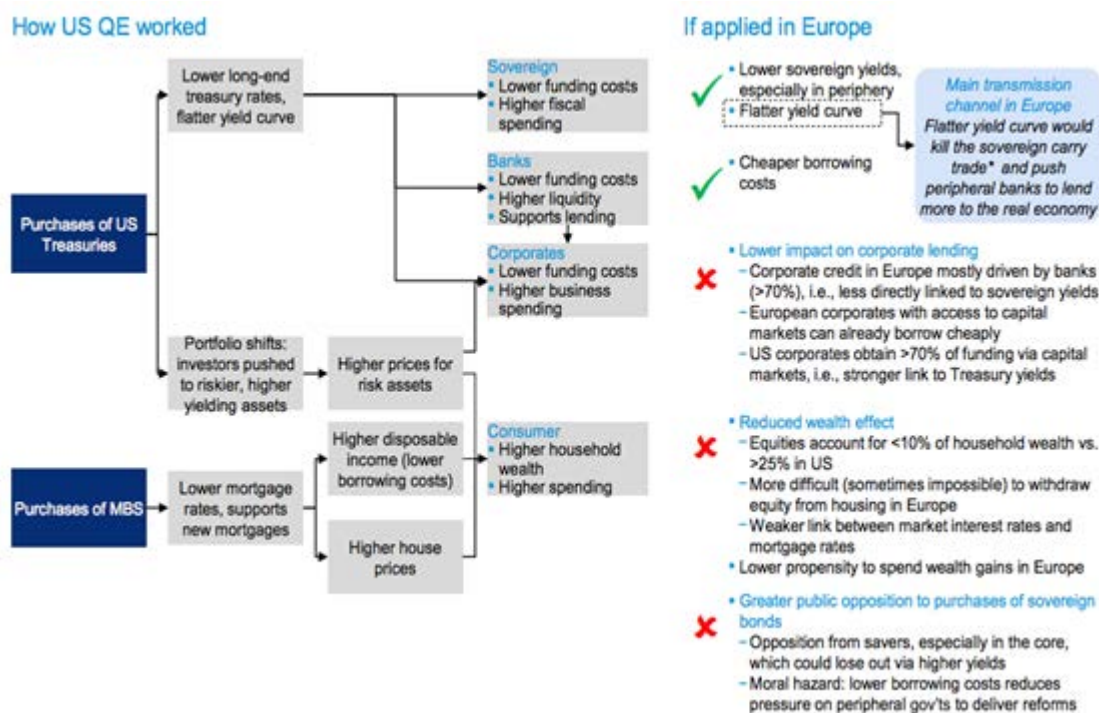
Figure 4: Eurozone non-financial corporations funding (thousands of €)



Source: Raoul Ruparei, Forbes Contributor. Published on 19-01-2015.

²⁸ Global imbalances have been pointed out as one of the causes for the Great Recession. White (2005) analyzed the risk of reversals and disruptions in financial conditions resulting from pre-2008 global imbalances.

Figure : Institutional differences in transmission of a US-type of QE in Eurozone



Source: Deutsche Bank (published on Business Insider on 14-04-2014).

The supply-side may suffer due to “capital overhang”. Following the ZLB and the QE in the UK, BoE launched several studies to examine the effects of unconventional policies on productivity growth. The question is whether a prolonged period of near-zero interest rates is allowing less efficient companies to survive (thus hindering the “creative destruction”) or reduce the incentive within productive companies to carefully assess and evaluate investment projects – leading to a less efficient allocation of capital? The tentative results from the studies confirm this hypothesis. There is currently an excess of capital above the optimal rate, or “capital overhang” given the current business cycle conditions. Under normal circumstances, capital overhang would quickly disappear during recessions as inefficient factories and plants shut down, and new investment slows. However, this process is hindered since excess liquidity and low interest rates do not allow capital to be destroyed. Further down the line, for the financial sector, this may result in an increase in defaults on loans taken by firms as banks’ incentives for due diligence and monitoring decrease under loose monetary conditions.²⁹

Related to the exit risk discussed before, there is a risk of inelastic demand once the QE ends. According to the results of Herrenbrueck (2013), quantities can in principle affect prices, but if demand curves in the economy are inelastic, then open market purchases of illiquid assets can be ineffective, or even counterproductive. This follows from two distinct effects. First, the fact that the central bank is demanding such high quantities of the illiquid assets will most likely crowd out private demand for an extended period (by reducing the stock of household real balances), resulting in a post-QE environment of higher interest rates and slower demand for financial assets. Second, an open-market purchase could potentially direct more money into the hands of households with lower propensity to consume. In that case, those households will hold on to the money longer, reducing the velocity of circulation and, consequently, medium-run expectations of the price level.

²⁹ Kristin Forbes – Speech on 24-02-2015. Peek & Rosengren (2005).

Assuming a fixed flow of public deficits, then the lower velocity of circulation will reduce the medium-term expectations of inflation and may increase real interest rates, reduce capital accumulation, and contract the economy.³⁰

Monetary easing may benefit regions that have a highly developed financial (and property) market. In the case of UK, QE has benefited the South over the North. The new money has disproportionately concentrated to London (via its banking and real estate sectors) with a much smaller regional benefit. Translating this to the case of the Eurozone, and taking into account the high disparities in the degrees of financial (and capital) market deepening amongst the Member States, there is a non-negligible probability that QE will have a highly unequal regional impact, directing money (and distributing wealth) to regions with the best developed financial infrastructure. However, these are not necessarily the regions that need the liquidity the most (or where the output gap is the highest).³¹

³⁰ Herrenbrueck, Dec 2014, SFU Economics.

³¹ Tim Knox, CPS, March 2013.

5. POLICY MEASURES

In order to understand what policies should be implemented to prevent the above mentioned risks from materializing, it is important to analytically distinguish between two types of policy measures: **corrective** and **preventive**.

The key objective of correction measures is to prevent the implosion (or dissolution) of the financial system once a crisis breaks out. The priority of these measures should be to re-instate confidence on the markets. One way of achieving this is to use monetary policy aggressively, through a sharp lowering of the interest rates and actively expanding the central bank balance sheet. The zero-lower bound is an example of the first, meanwhile the ECB Asset Purchasing Programme and PSPP measures are good examples of the latter. As discussed in the previous sections corrective measures shall be understood as a natural extension of the central banks' traditional lender of last resort role in a timely and consistently manner (including forward guidance).³² Moreover, **additional tools might be needed during this phase, mainly on the fiscal side³³, such as government guarantees and bailouts.³⁴ This is particularly relevant for some of the real risks discussed before.**

Preventive measures, on the other hand, aim to establish the basis for a healthy recovery, and prevent a similar crisis from reoccurring.³⁵ The priority for these policies is to repair the balance sheets of the financial and non-financial sectors by preventing excessive accumulation of debt and poor quality assets. During this phase, monetary policy is likely to be less effective than financial policy. The reason is that monetary policy typically operates by boosting borrowing, risk-taking and asset prices. However, in a balance sheet recession the economy already suffers from a high level of debt, too much risk-taking and asset-price inflation. There is therefore a tension between the direction the economy should take and the effectiveness of monetary policy. Coupled with a widespread view that a similar recession should be prevented in the future, a policy that fosters prudent behaviour on the part of the financial sector should be implemented. That is why in the current context, a mix of strong **micro-and macro-prudential financial policies should be envisaged**. Figure 5 depicts the way in which these financial policies interact with monetary in order to generate sustained growth. By maintaining a balanced control over balance sheet expansions of (systemically important) financial institutions (including the shadow banks), a steady flow of liquidity will be provided, and asset price bubbles prevented.³⁶ There is also a role for fiscal policy, such as depository insurance (to prevent bank runs) and control over deficits (to prevent sovereign debt crisis) under this phase.

³² Borio and Disyatat (2010)

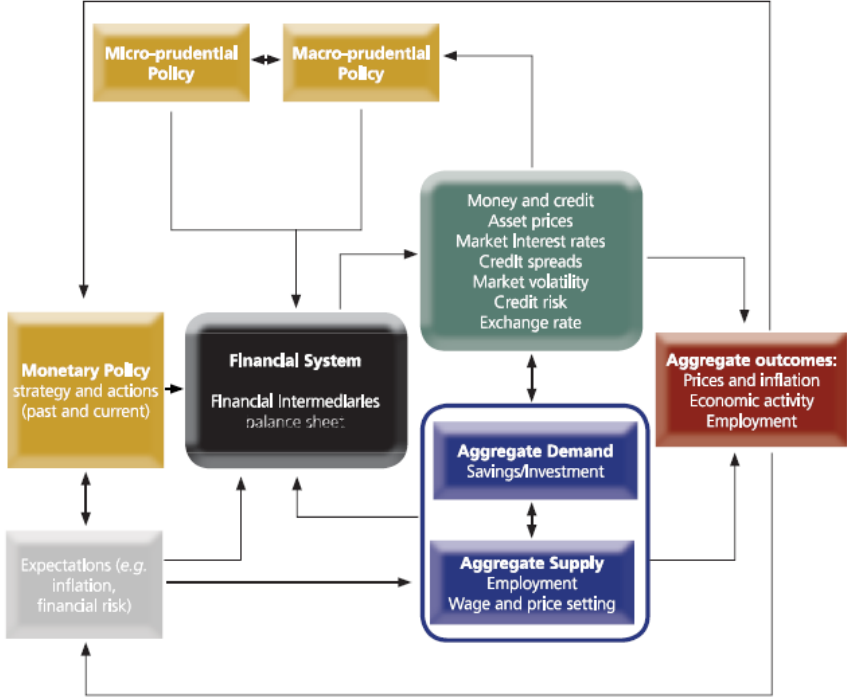
³³ Borio (2014)

³⁴ Nonetheless, government guarantees and bail-outs are highly prone to moral hazard problems whereby financial institutions engage in excessive leveraging in expectation of a future (public) guarantor.

³⁵ In an ideal world, a preventive measure should prevent the economy from experiencing any type of crisis in the state-space. However, from history we know that the probability of achieving that is marginally low, and the probability of a new crisis is strictly positive at any period of time.

³⁶ Gameiro et al (2011)

Figure 5: The monetary transmission mechanism with macro-prudential policy



Source: Gameiro, Soares and Sousa (2011)

However, when designing these policies, we should not forget their asymmetric nature over the business cycle. The risk of policies ‘leaning *with* the wind’ (i.e. to lean *with* financial boom but become excessively aggressive and persistent in financial busts) can end up leaving the authorities with no additional ammunition over subsequent financial (or business cycle) recessions. For that reason, the policies should be implemented yet in an asymmetric manner, ‘leaning *against* the financial boom’, but providing the necessary stimulus during busts.

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APPENDIX

Details of the PSPP as of 11 March, 2015:

- Monthly purchases of EUR 60bn in public and private sector securities, purchases under the public sector purchase programme (PSPP) of marketable debt instruments issued by euro area central governments, certain agencies located in the euro area or certain international or supranational institutions. The purchases of what could eventually amount to about €850bn-worth of government bonds will run until September 2016.
- Purchases of nominal marketable debt instruments at a negative yield to maturity are permissible as long as the yield is above the deposit facility rate.
- The remaining purchases of marketable debt instruments issued by international or supranational institutions located in the euro area will be conducted on behalf of the Eurosystem by the Banco de España and the Banque de France.
- The marketable debt instruments purchased under the PSPP will be made available for securities lending.
- An issue share limit of 25% needed to be applied in order to avoid obtaining a blocking minority in the event of a debt restructuring involving collective action clauses. This issue limit thus also covers existing Eurosystem holdings of sovereign bonds in the context of the Securities Markets Programme (under which the 25% issue share limit was not applied at the time of purchase) and any other portfolios owned by Eurosystem central banks. Likewise, the issuer limit of 33% is a means to safeguard market functioning and price formation as well as to mitigate the risk of the ECB becoming a dominant creditor of euro area governments. To this end, the 33% limit is applied to the universe of eligible assets in the 2 to 30-year range of residual maturity. The 33% issuer limit applies to the combined holdings of bonds under all purchase programmes.
- The ECB will buy up government and corporate bonds in proportion to each country's 'capital key'. This is a measure of a country's size, calculated according to their population and gross domestic product. So it will buy more bonds from bigger countries than smaller ones. The ECB won't buy any more than a third of each country's debt.
- These limits will be based on nominal values.
- There will be no primary market purchases under the PSPP, regardless of the type of security, as such purchases are not allowed under Article 123 of the Treaty on the Functioning of the European Union. The ECB strictly adheres to the prohibition on monetary financing by not buying in the primary market. The ECB will only buy bonds after a market price has formed. This ensures that the ECB does not distort the market pricing of risk.
- There is no duration target for the programme.
- The ECB will also continue purchasing asset-backed securities and covered bonds, which the ECB started last year.
- Unlike earlier ECB bond-buying schemes, the latest programme has been designed to ensure that national central banks take most of the losses from any default or restructuring of their country's debt. The national central banks will do most of the buying, accounting for 92 percent of the purchases, while the ECB itself will account for 8.0 percent.
- Only 20% of the QE money subject to 'risk sharing', where any potential losses would be shared across the Eurozone.³⁷

³⁷ ECB website on PSPP. Published in March 2015 and accessed on 11.03.2015.

CAT: QA-02-16-676-EN-C (paper)
CAT: QA-02-16-676-EN-N (pdf)

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ISBN 978-92-823-9536-3 (paper)
ISBN 978-92-823-9535-6 (pdf)

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doi: 10.2861/739 (pdf)

