

Developments in the Euro Area Economy

Overview

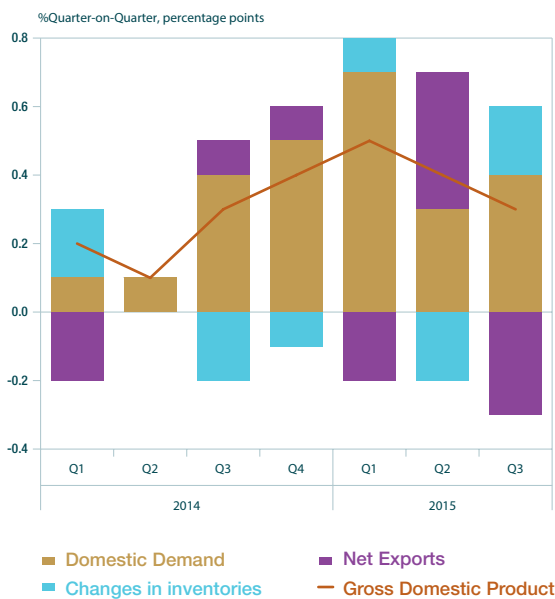
A gradual and timid recovery continues in the euro area amid more challenging external conditions including concerns about the resilience of growth in some emerging market economies and expectations about diverging monetary policies in advanced economies. The recovery continues to be supported by low oil prices, a relatively weak external value of the euro and a very accommodative monetary policy stance. Labour market conditions in the euro area show improvement and recent falls in the unemployment rate and stability in the rate of household deleveraging have underpinned a steady rise in household spending. Business investment, in contrast, has been lagging, despite favourable financing conditions.

Looking ahead, private consumption is projected to remain the main driver of growth in the euro area, supported by rising real wages and employment growth. Investment is expected to pick up over the coming year owing to easing collateral constraints, rising profits and the need to modernise equipment and machinery. As the recovery progresses it should become increasingly broad-based across Member States.

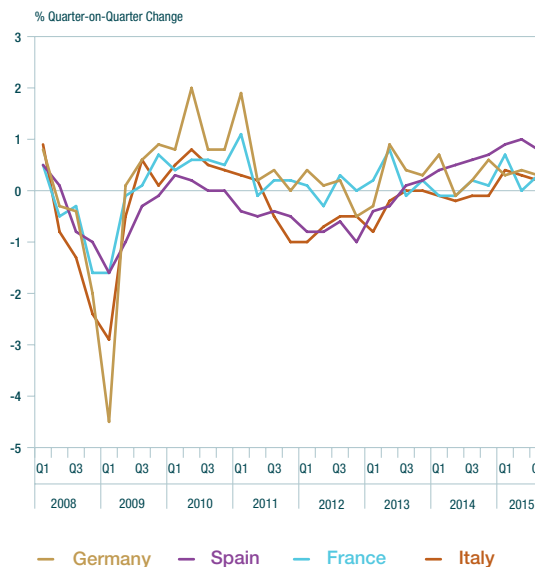
Consumer price inflation is stable around zero and well below the 2 per cent reference rate. While ECB monetary policy has been effective in influencing financing conditions and asset prices, it has yet to fully reach the real economy and inflation. Much of the accommodation from the recent ECB measures may still be in the pipeline. The transmission of monetary policy through the credit channel remains impaired by high levels of non-performing loans, the still significant financial fragmentation and the ongoing deleveraging efforts of businesses and households in some euro area economies.

Developments since the last Bulletin have been characterised by disappointing external demand, notably from large emerging market economies. This remains a downside risk to the outlook, especially in the presence of sluggish commodity markets, tightening monetary conditions of dollarized economies with large external financing needs, and high levels of corporate sector indebtedness. Another potential risk relates to concerns about the resilience of growth in China, the consequences of its ongoing rebalancing, and the global consequences of the depreciation of the renminbi.

These external risks, together with remaining substantial economic slack and very low inflation, were considered by the ECB Governing Council at its December meeting. Quantitative easing measures were expanded up to the end of March 2017 (or beyond if necessary). The decision of the Federal Reserve to raise US interest rates and the communication of possible future gradual increases represent an important divergence in the monetary policy stance among the major advanced economies and reflect different stages in the recovery from the financial crisis.

Chart 1: Contributions to Euro Area Real GDP Growth

Source: Eurostat.

Chart 2: Real GDP Growth in selected Euro Area Economies

Source: Eurostat.

Section 1: Growth and Inflation

Euro Area Growth and Inflation Developments

The outturn for third quarter activity combined with latest hard and sentiment data for the final quarter indicate that the economic recovery in the euro area continues at a moderate pace. Real GDP increased quarter-on-quarter, by 0.3 per cent in Q3, having expanded for two and a half years. The growth drivers have remained largely the same. Private and public consumption, together with changes in inventories, made positive contributions to growth in the third quarter. At the same time, total investment displayed zero growth and net exports subtracted from growth.

The economic recovery has become more broad-based geographically. Germany and France posted gains of 0.3 per cent quarter-on-quarter according to Eurostat's second estimate. Italy has now exited recession and its recovery has been gaining strength while the Spanish economy expanded strongly by 0.8 per cent during the third quarter as did Ireland with 1.4 per cent growth in Q3. However, three

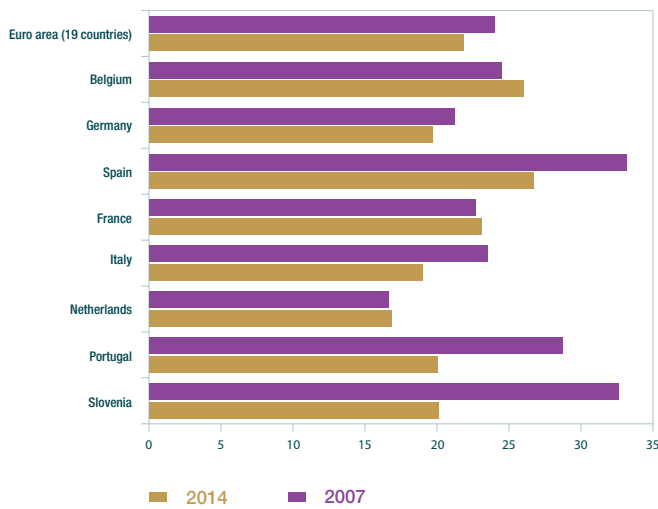
countries – Finland, Greece, and Estonia – recorded negative growth for the quarter.

Since the strong reading in Q1 2015, business investment has remained flat in the euro area, and private investment has not yet returned to its pre-crisis levels. Studies have identified weak demand and profitability, financing constraints, elevated corporate indebtedness and country-specific administrative or regulatory factors as possible determinants.¹ Collateral constraints may also have been playing a role (see Box B). On the other hand, sectoral data up to the second quarter of 2015 suggest that the profits of non-financial corporations are starting to increase after several years of low profitability. Further, the latest responses from the ECB Bank Lending Survey indicate increased loan demand from enterprises during the third quarter (Box A).

The recovery in real GDP is mostly accounted for by private consumption. Consumer confidence is likely to have responded to the recovery in property and equity prices and the improvement in labour markets. Employment increased further by 0.3 per cent, quarter-on-quarter during Q3 and by 1.1 per cent on a

¹ See for example EC 'Investment dynamics in the Euro area since the crisis' (2015)

Chart 3: Investment rate of Non-Financial Corporations



Source: Eurostat.

Note: The gross investment rate of non-financial corporations is defined as gross fixed capital formation divided by gross value added. This ratio relates the investment of non-financial businesses in fixed assets (buildings, machinery etc.) to the value added created during the production process.

year ago. This represents the fastest annual increase since the second quarter of 2008. The unemployment rate for the euro area while remaining elevated, continued the decline that had begun in mid-2013 to 10.5 per cent in November. The job vacancy rate was also down marginally compared with previous quarters.

Inflation rates in the euro area remain very low. According to Eurostat flash estimates, euro area annual HICP inflation was 0.2 per cent in December 2015 unchanged from November and recovering from the negative figure, i.e. -0.1 per cent, of September. The HICP inflation rate excluding energy (see Chart 4) has hovered around 1 per cent since May 2015. Services price inflation has remained around 1.2 per cent since July. The stable inflation rate is partially the result of higher energy inflation and lower unprocessed food inflation. Energy price inflation remained deeply negative at -5.9 per cent as oil prices continued to fall in the fourth quarter of 2015.

Box A: Understanding Credit Developments Through Comparing Firm and Bank Surveys
By David Byrne¹

Across Europe, small and medium-sized enterprises (SMEs) represent 99.8 per cent of firms, 66.7 per cent of employment and 58.6 per cent of value added.² Traditionally, the majority of these firms do not directly access finance through markets and are heavily dependent on bank funding. The ease of access to bank finance for SMEs is therefore an important element of an effective monetary policy transmission mechanism.

In this box, we examine developments in access to credit for SMEs in the euro area from the points of view of firms and banks. Using separate surveys of firms and banks, we can examine the extent to which the perceptions of credit conditions from both parties are aligned. Specifically, we compare firms' reported success rates from applications for credit, and their perceptions of the ease of accessing credit, with banks' reported credit standards for lending to SMEs.

¹ Monetary Policy Division.

² Eurostat, 2011, "Key figures on European business - with a special feature on SMEs", DOI: 10.2785/15193.

Box A: Understanding Credit Developments Through Comparing Firm and Bank Surveys*By David Byrne*

SAFE³ (Survey of Access to Finance for Enterprises) is a bi-annual survey which examines credit market conditions from firms' perspectives. Since its inception in 2009, SAFE has shown that SMEs in the euro area rely primarily on banks for finance, rather than market-based finance or other sources of finance. The most recent edition of SAFE, for the first half of 2015, showed that the most popular type of funding for euro area SMEs was a bank credit line or overdraft, with 37.8 per cent of firms having accessed this source of funding within the last six months. The next most popular sources were longer-term bank loans and leasing or hire-purchase, with 21.2 per cent and 21.1 per cent of SMEs using these sources in the last six months, respectively. SAFE respondents are also asked whether they perceive that the availability of different types of funding has improved, deteriorated or remained unchanged in the past six months. From this we can calculate the net percentage of firms in each country which reported improving standards⁴. In addition, firms are asked for the outcome of credit applications over the last six months, from which we can calculate the percentage of applications which were successful.

To represent banks' perspectives of credit market conditions, we use the quarterly euro area Bank Lending Survey (BLS)⁵. For each country, we average the BLS responses for two quarters to match the half-yearly frequency of SAFE. The BLS asks banks to report changes in their credit standards to SMEs over the preceding quarter, from which we can calculate the net percentage of banks in a given country which tightened standards⁶.

Table 1: SAFE credit application success rates by type and country group:

	Application Success Rate (per cent, SAFE)	
	Stressed	Non-stressed
Credit line or overdraft	57.9	70.7
Bank Loan	57.5	73.7

Our sample covers 10 euro area countries, which we group into "stressed" and "non-stressed".⁷ To provide a benchmark for examining the impact of changes in credit standards between these groups, in Table 1 we show the average success rate of SME applications for credit over the history of the SAFE survey. Firms in non-stressed countries have a greater application success rate for both credit lines and bank loans. Holton (2015) accumulates the quarterly changes in credit standards from the BLS into a measure of the levels of credit standards. She shows that banks in stressed countries had higher levels of credit standards pre-crisis, i.e. that credit standards were tighter in stressed than non-stressed countries. Furthermore, she shows that banks across the euro area tightened during the financial crisis, but that there was relatively more tightening in stressed countries, resulting in the levels of credit standards remaining higher in stressed countries.

3 SAFE began in 2009, covering 11 countries at its inception, and is a collaboration between the ECB and European Commission.

4 This is the difference in the percentage of firms reporting improvement and deterioration.

5 The BLS began in the fourth quarter of 2002. We are unable to match the SAFE and BLS responses for Finland due to confidentiality concerns on the publication of Finnish BLS responses.

6 This is the percentage of banks reporting a tightening of standards less the percentage reporting an easing of standards. The responses are weighted by whether the banks reported that they tightened (or eased) "considerably" or "somewhat".

7 "Stressed" refers to Greece, Ireland, Italy, Portugal and Spain, while "non-stressed" refers to Austria, Belgium, France, Germany and the Netherlands.

Box A: Understanding Credit Developments Through Comparing Firm and Bank Surveys*By David Byrne*

Given that credit standards were already tighter in stressed countries than in non-stressed countries, on the margin if credit standards in the stressed group and non-stressed group tighten by an equal amount, the tightening is proportionately greater in non-stressed countries. We thus expect that, for a given level of tightening, the corresponding decrease in application success and perceived credit availability by firms to be greater in non-stressed countries, everything else equal.

Chart 1 shows the impact of a tightening in credit standards on the success rate of credit applications. For both credit lines and overdrafts and for bank loans, a reported tightening of credit standards from the BLS results in a greater decrease in the application success rate in non-stressed countries. Similarly, Chart 2 shows a negative impact of tightening credit standards on SMEs' perceived availability of credit, with SMEs in non-stressed countries again in both cases being more sensitive to a tightening in credit standards than SMEs in stressed countries.

Conclusion

Small and medium-sized enterprises comprise the overwhelming majority of firms and provide the majority of employment in the euro area. One of the major differences between SMEs and large firms is the reliance of the former on bank finance. Access to finance is thus critical in determining growth in output and employment of euro area SMEs. Comparing responses to the SAFE and BLS surveys, we have shown that there is a positive correlation between firms' and banks' views of credit conditions. Following Holton (2015)⁸, however, we acknowledge the possibility that existing differences in the level of credit standards may have a role to play in assessing the impact of a change in credit standards. We provide preliminary evidence that, for a given change in credit standards, the impact on access to finance for SMEs is greater in non-stressed countries than in stressed countries where credit conditions are already tighter ex-ante. While additional data and outlier analysis could strengthen the conclusions, the available data already suggest that when assessing the impact of changes in credit availability according to the BLS, care must be taken when comparing stressed and non-stressed euro area countries.

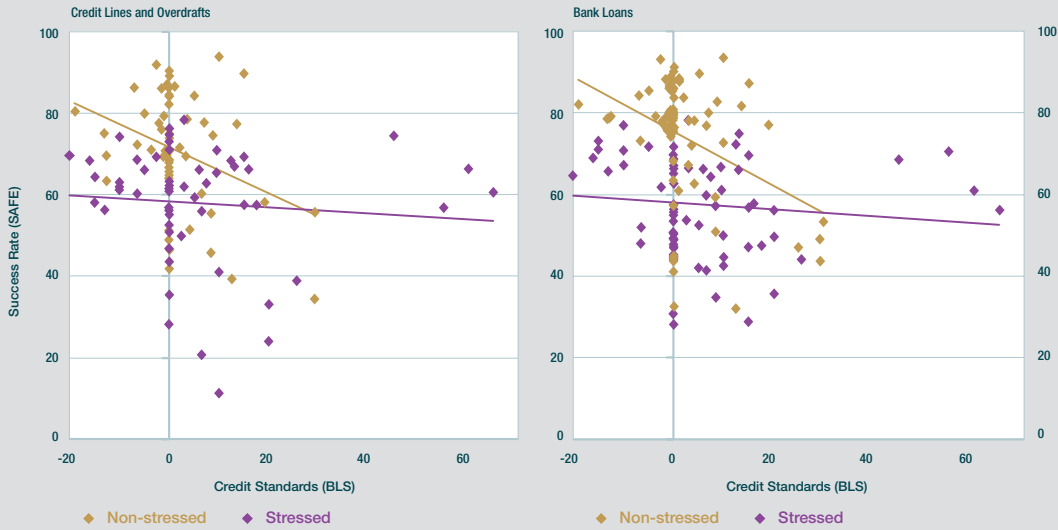
References

Holton, S. (2015) "Trusting the Bankers or the Borrowers? Comparing the credit survey responses of firms and banks", mimeo.

⁸ See Holton (2015) for a detailed examination of the relationship between SAFE and BLS responses, controlling for a range of external factors.

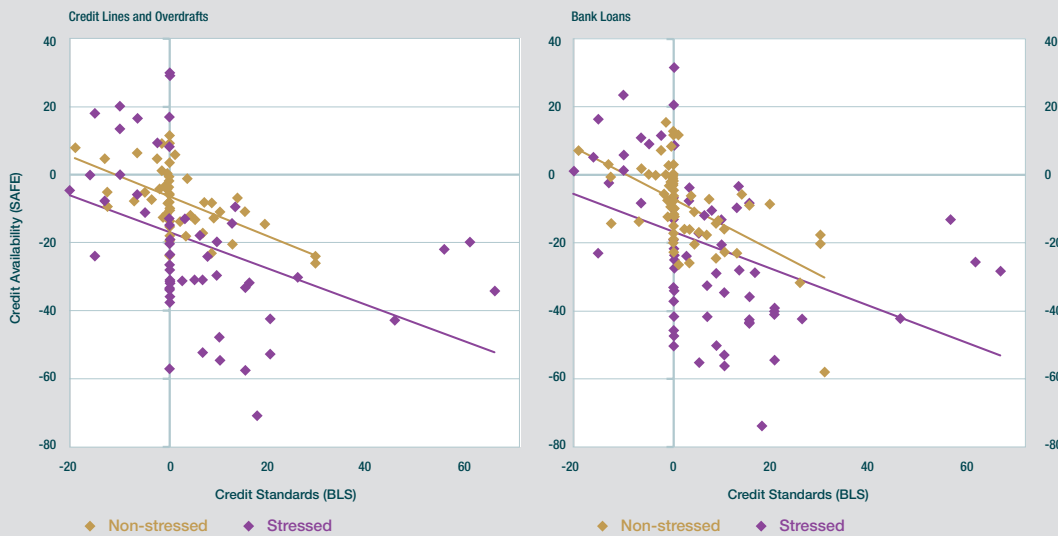
Box A: Understanding Credit Developments Through Comparing Firm and Bank Surveys
 By David Byrne

Box A Chart 1: Application success rates



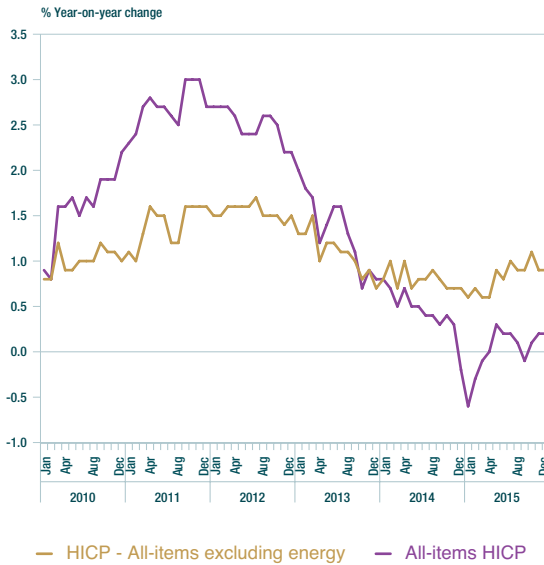
Source: ECB author's calculations.

Box A Chart 2: Perceived credit availability



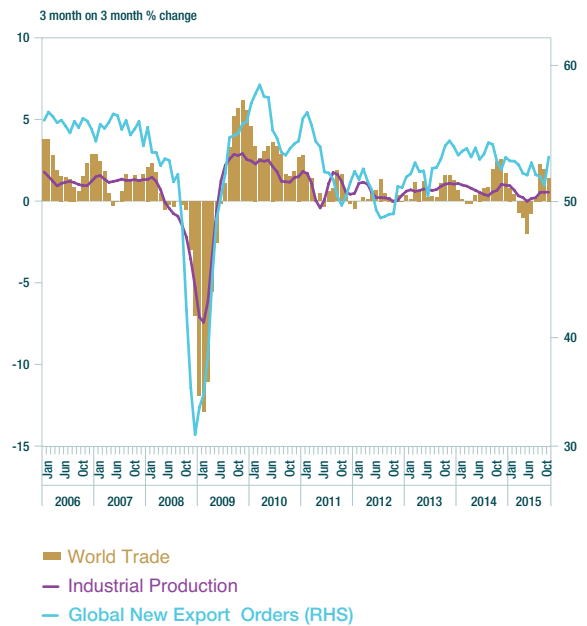
Source: ECB author's calculations

Chart 4: Euro Area Inflation



Source: Eurostat.

Chart 5: Change in World Trade, Industrial Production & Global New Export Orders PMI



Source: Thomson Reuters Datastream and Central Planning Bureau.

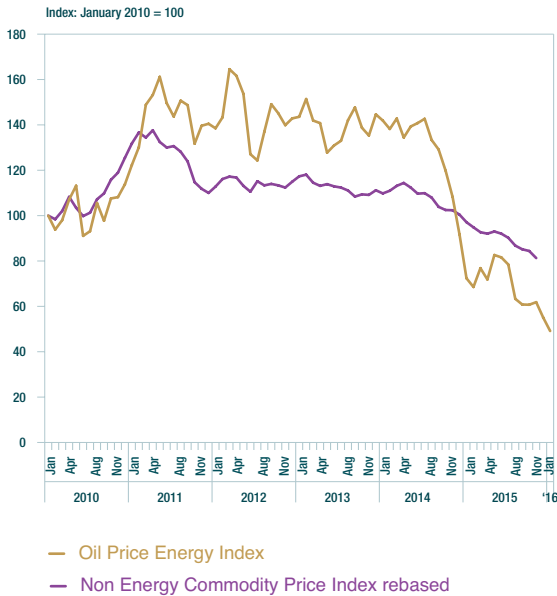
Inflationary pressure from the labour market remains moderate. Wage growth across the euro area slowed in the third quarter of 2015, despite a fall in unemployment, underlining muted price pressures. The annual growth rate in the compensation for employee declined to just over 1 per cent in the third quarter from 1.2 and 1.3 per cent in the previous two quarters respectively.

As regards economic activity in the final quarter of 2015, sentiment indicators point in a positive direction and are in line with the expectation of a continued moderate economic recovery. In December, the economic sentiment indicator (ESI) improved in the euro area by 0.7 points to 106.8 as a result of higher confidence in industry, while confidence in services, construction and among consumers remained broadly unchanged. The composite Purchasing Managers' Index (PMI) also rose from 53.9 to 54.4 in December 2015 and is at its highest level since May 2011. This suggests that quarterly real GDP growth could pick back up to 0.4 – 0.5 per cent in Q4.

Weak external demand represents the biggest macroeconomic development affecting the euro area in the second half of 2015. Over the autumn, Chinese imports of goods, in particular of machinery and transport equipment fell sharply. Commodity-exporting emerging market economies, such as Brazil or Russia, are facing deeper recessions than previously anticipated. Annualised growth in GDP for both countries contracted by -4.5 per cent and -4.1 per cent respectively in Q3.

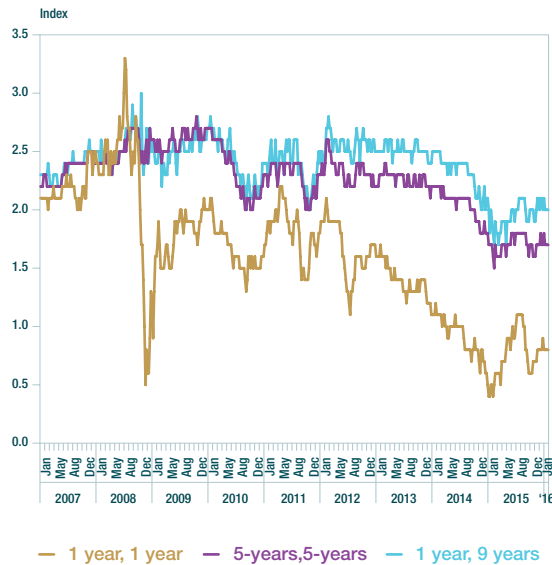
Most macroeconomic models suggest that the impact of lower world oil prices on global growth has been less than expected – not more than 0.5 per cent of global growth, despite the considerable decline in prices over a relatively short period of time.² This reduced impact has been attributed to a larger economic weight of emerging markets: commodity exporters such as Brazil, Mexico or South Africa have suffered from reduced export receipts, while commodity importers such as China and India have changed domestic policies affecting their demand for energy imports.

² See K Rogoff (2015), "Oil Prices and Global Growth" Project Syndicate available at <https://www.project-syndicate.org/commentary/oil-prices-global-growth-by-kenneth-rogoff-2015-12>

Chart 6: Oil and Non-Energy Commodity Prices

Source: IMF and Thomson Reuters Datastream.

Notes: Both indices are constructed using January 2010 as a base and are measured in dollar terms. The non-energy commodity price index comes from the IMF's International Financial Statistics dataset. The oil index is constructed from data on Brent crude oil.

Chart 7: Financial Market's Future Inflation Expectations Based on Implied Forward Inflation Swap Rates

Note: Note: 1 year, 1 year refers to swap rates with a maturity of 1 year beginning in 1 year; 5 years, 5 years refers to swap rates with a maturity of 5 years beginning in 5 years and 1 year, 9 years refers to swap rates with a maturity of 1 year beginning in 9 years.

Source: CBI staff calculations, data extracted from Bloomberg

Relatively weak global trade dynamics, notably in relation to GDP, have been observed since the global financial crisis. Over the period from 2000 to 2008, global trade expanded by 6 per cent per year on average. The rate has fallen to 3-4 per cent in 2010-2015. The underlying reasons and the extent to which this is a cyclical or structural phenomenon remain a subject of debate.³ Some studies have put this down to a levelling off of the trend towards increasing vertical specialisation in manufacturing production, in particular by China and the US. Additional potential factors include the importance of shifting global demand away from advanced economies – which display higher trade elasticities – towards emerging markets with (still) lower elasticities.

Finally, emerging economies are starting to feel the headwinds from the build-up of significant levels of private sector debts, including in US

dollars, notably in the corporate sector and large external financing needs.⁴ These have started to weigh on business decisions as local exchange rates have started depreciating against the US dollar and capital flows have started to reverse back to advanced economies.⁵

Euro area growth and inflation outlook and risks

The latest Broad Macroeconomic Projection Exercise (BMPE), led by the ECB, projects that the GDP growth in 2015 to be at least 1.5 per cent. Annual GDP is projected to increase to 1.7 per cent for this coming year and 1.9 per cent in 2017. Compared with previous forecasts, the prospects for real GDP growth were broadly unchanged. Recently published growth forecasts from the OECD project growth in 2015 and 2016 at 1.5 per cent and

3 C. Constantinescu, A. Mattoo, M. Ruta (2015), "The Global Trade Slowdown: Cyclical or Structural? IMF Working Paper January 2015 available at <https://www.imf.org/external/pubs/ft/wp/2015/wp1506.pdf>; ECB Economic Bulletin, "Understanding the weakness in world trade", Issue 3 2015 available at https://www.ecb.europa.eu/pub/pdf/other/eb201503_article01.en.pdf; and Stratford, K. (2015), "Why has world trade been so weak in recent years? 28 October 2015; in Bank Underground available at <http://bankunderground.co.uk/2015/10/28/why-has-world-trade-been-so-weak-in-recent-years>

4 On the magnitude of US dollar debt of non-financial corporates, see BIS *Quarterly Review* December 2015 "Dollar credit to EMEs".

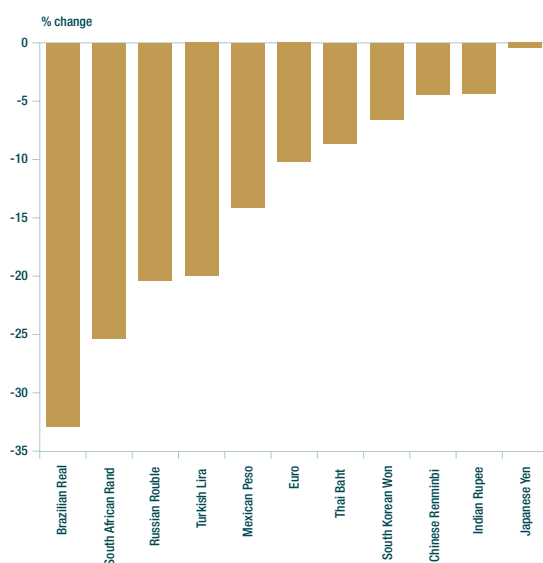
5 See p.18, Bank of England *Financial Stability Report*, December 2015

Table 1: Latest Forecasts of Euro Area Growth in Real GDP

	Date	2015	2016	2017
OECD	November 2015	1.5	1.8	1.9
EU Commission	November 2015	1.6	1.8	1.9
Eurosystem Staff (BMPE)	December 2015	1.5	1.7	1.9
IMF	October 2015	1.5	1.6	1.7

Source: IMF *World Economic Outlook October 2015*; OECD *Economic Outlook 98 November 2015*; European Commission, *Winter Forecast 2015*; ECB December 2015 *Broad Macroeconomic Projection Exercise*

Chart 8: Depreciation of Foreign Currencies Relative to US Dollar



Source: Thomson Reuters Datasream.

Note: Depreciation against the dollar over the period 01/01/15-01/01/16.

1.8 per cent, respectively, while the forecasts for 2017 range between 1.7 per cent and 1.9 per cent (Table 1).

Private consumption expenditure is expected to remain the key positive driver of the euro area economic recovery, supported by accommodative monetary policy, lower cost of energy and ongoing improvements in labour markets. Private consumption in particular is expected to benefit from the recent improvement in the labour market conditions in the euro area and from continuing economic growth. Unemployment is projected

by both the ECB and the EU Commission to fall closer to 10 per cent by 2017 reflecting the downward impact of rising employment, partly offset by a growing labour force. Although lagging private consumption, investment growth is expected to gain some momentum, as capacity utilisation returns to its long-term average and credit supply constraints ease (Box B). The EU Investment Plan and removals of structural rigidities in a number of EU Member States over the past years should also help.

Turning to the inflation outlook, the December Eurosystem staff macroeconomic projections for the euro area were revised slightly downwards with respect to the September ECB staff macroeconomic projections. The annual HICP inflation is expected to reach 1 per cent in 2016 and 1.6 per cent in 2017 downward from 1.1 per cent in 2016 and 1.7 per cent in 2017. Energy prices continue to pose downside risks. However, the depreciation of the euro and the gradual pass through to domestic prices, via import prices, will continue in the forecasting horizon.

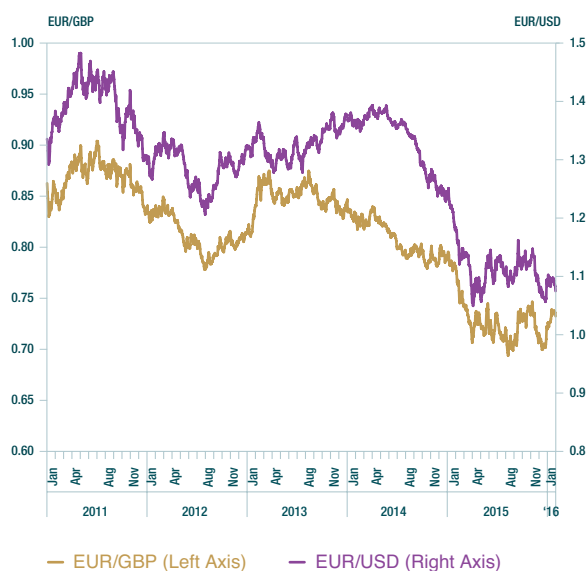
Inflation expectations from the Survey of Professional Forecasters were revised down to 1 per cent from 1.3 for 2016 and to 1.5 per cent down from 1.6 per cent for 2017. However, the longer-term inflation expectations (for 2020) remain at 1.9 per cent. It is important to notice that the survey was conducted between the end of September and the beginning of October, thus not taking into account the further monetary policy expansion announced in December (see below). Measures of market-based inflation compensations remain subdued. Longer-term market-based inflation expectations have

Table 2: Latest Forecasts of Euro Area Inflation

	Date	2015	2016	2017
OECD	November 2015	0.1	0.9	1.3
EU Commission	November 2015	0.1	1.0	1.6
Eurosystem Staff (BMPE)	December 2015	0.1	1.0	1.6
IMF	October 2015	0.2	1.0	1.3

Note: OECD projection covers the euro area countries that are members of the OECD.

Source: IMF *World Economic Outlook* October 2015; OECD *Economic Outlook* 98 November 2015; European Commission, *Winter Forecast 2015*; ECB December 2015 *Broad Macroeconomic Projection Exercise*.

Chart 9: Euro Exchange Rates

Note: A decrease in the above lines corresponds to a depreciation of the euro.

Source: Thomson Reuters Datastream.

recovered in the run-up to the December Monetary Policy Council Meeting, but fell back afterwards. The five-in-five inflation swap rate slid from a peak of 1.8 per cent in December to 1.65 per cent in early January (see Chart 7).

Turning to fiscal policies, the government deficit and debt ratios are also expected

to decline over the projection horizon, on account of the cyclical improvement in the EA economy and declining interest expenditure. According to the ECB projections, the fiscal stance is expected to provide a mildly positive contribution to demand for the next two years, while the EU Commission considered the euro area fiscal stance as broadly neutral for 2016.

Overall, while recent estimates by international institutions, point to a somewhat smaller negative output gap, they still suggest a sizeable amount of slack in the EA economy which is only expected to close gradually in the coming years.

Commodity prices remain a source of uncertainty in 2016. As a lingering risk to the euro area growth outlook, the latest fall in oil prices could indicate renewed weakness in global demand and could further strain commodity exporters. In Europe, the risks from weak commodity prices seem more balanced. While dampening headline inflation may be creating concerns about the impact of persistently low inflation on inflation expectations, the delayed boost to growth and European demand could be stronger than expected.

The economic impact of the refugee crisis on the euro area is anticipated to be relatively small.⁶ In the short run, the main impact on GDP comes from the additional public expenditure needed to support the refugees. An additional positive impact on growth could

⁶ See Eurosystem Staff Macroeconomic Projections for the Euro Area, "The impact of the influx of refugees on the euro area economy", Box 2 pp.5-6, December 2015 and European Commission Economic Forecast, Autumn 2015, "A first assessment of the macroeconomic effects of the refugee influx" p.48-52 available at <https://www.ecb.europa.eu/pub/pdf/other/eurosystemstaffprojections201512.en.pdf?f59090e90a0780de9ac58e51e954d48d> and http://ec.europa.eu/economy_finance/publications/eeip/pdf/ip011_en.pdf respectively.

be expected in the medium term from the increase in labour supply, provided the right policies are in place to facilitate access to the labour market. For the EU as a whole, the growth impact is anticipated to be small, but it should be more sizeable in some Member States, particularly Germany.

Despite the support to exports from the depreciation of the euro, the euro area remains vulnerable to external turbulences and, looking ahead, this is perceived to be one of the main risks to the outlook. A renewed weakening of the US economy could significantly impair the euro area growth outlook. Rising global risk aversion, in particular following the start of US policy normalisation, reversal of capital flows and pressure on foreign exchange markets of emerging markets could in turn risk a disorderly unwinding of excess leverage and other global imbalances. Despite China's sizable buffers in the form of foreign exchange reserves, slower GDP growth there has introduced considerable uncertainty as regards the future of global trade. Accordingly, euro area foreign demand is subject to further downward risk.

Section 2: Euro Area Monetary Policy Developments

Governing Council members recognised the positive effects on the economy of the quantitative easing (QE) measures introduced in January 2015. However, they also acknowledged that the changes in the external conditions since the summer, such as the weakening of emerging market economies and a series of downward revisions in inflation projections, required the recalibration of the policies to sustain the return of inflation to the target of below, but close to, 2 per cent over the medium term. At its December 3 monetary policy meeting, the ECB Governing Council decided to ease further the monetary policy stance by adopting a combination of conventional and unconventional monetary policy tools.

The Governing Council decided to extend the €60 billion-a-month asset purchase programme (APP) until the end of March 2017, or beyond, if necessary. Moreover, policy makers decided to reinvest the proceeds of the securities currently purchased under the APP as they mature for as long as necessary, and to expand the eligibility under APP to regional and local governments located in the euro area.

Furthermore, the interest rate on the deposit facility was cut by 10 basis points to -0.30 per cent while the interest rate on the main refinancing operations and on the marginal lending facility were left unchanged at 0.05 per cent and 0.30 per cent respectively. Finally, the main refinancing operations will be conducted as fixed rate tender procedures with full allotment for as long as necessary, and at least until the end of the last reserve maintenance period of 2017.

While the ECB decided to extend the expansionary monetary policy, on December 16 the US Federal Open Market Committee (FOMC) raised the target range of the federal funds rate by 0.25 percentage points, bringing the upper range from 0.25 to 0.5 per cent and ending a seven-year period of near-zero policy rates. Although inflation continues to run below target and measures of market-based inflation remain low, US labour market conditions have shown significant improvements over the past few months. Since March, the FOMC has communicated that further improvements in the labour market and the confidence that inflation would return to the 2 per cent objective over the medium run are the conditions for an interest rate hike. However, at the press conference, Federal Reserve Chair Janet Yellen emphasised that the FOMC expects economic developments to warrant only gradual increases in the federal funds rate.

Elsewhere, the Monetary Policy Committee (MPC) of the Bank of England at its meeting ending on December 9 decided to maintain the Bank Rate at 0.5 per cent fearing downside risks due to external factors. However, in its

communication the MPC provided guidance that, when the UK economic conditions have stabilised, the Bank Rate will be increased “only gradually and to a lower level than in recent cycles”.

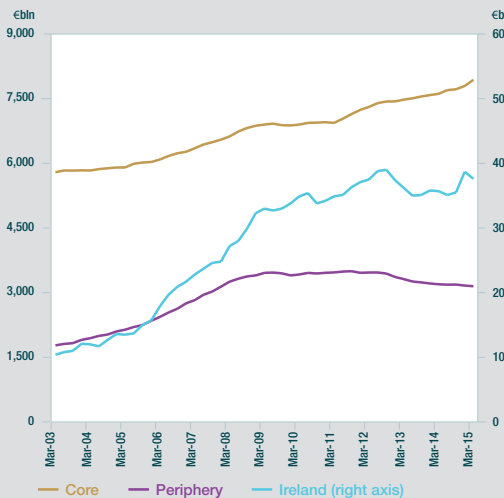
While the ECB expanded further the quantitative easing measures till the end of March 2017 (or beyond if necessary), the

widely-expected decision of the Federal Reserve to raise interest rates and the communication of the MPC of a possible future gradual increase in the interest rates represent an important divergence in the monetary policy stance among major economies. This reflects different stages in the recovery from the recent financial crisis.

Box B: Non-Standard Monetary Policy, Corporate Lending, and the ‘Balance Sheet Channel’ By Giuseppe Corbisiero¹

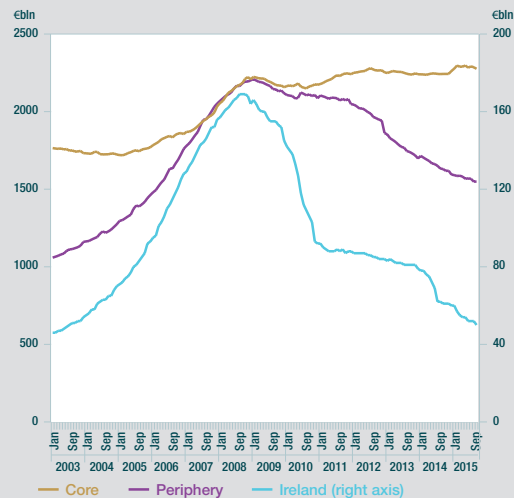
With the main refinancing rate reaching 0.05 per cent on September 2014 but still inflation remaining well below 2 per cent, in March 2015 the ECB launched the expanded Asset Purchase Programme (APP).² Even before the APP, the ECB introduced a wide range of non-standard measures to counteract financial system impairments, so providing a large amount of liquidity at low cost. Nevertheless, credit flows particularly by the banking sector have remained anaemic, notably in ‘periphery’ countries (Charts 1 and 2).³

Box B Chart 1: Total Credit to Euro Area’s NFCs



Source: BIS Statistics.

Box B Chart 2: Euro Area Bank Lending to Domestic NFCs



Source: ECB Statistical Data Warehouse.

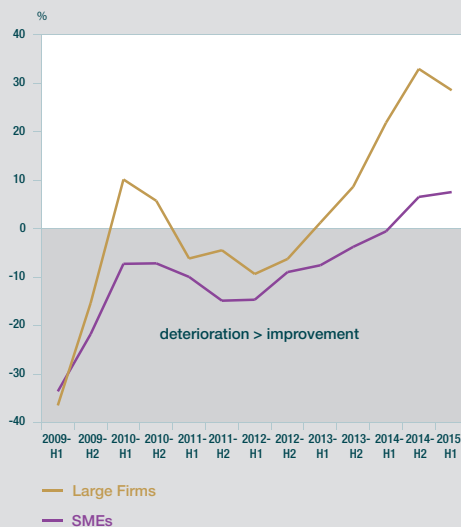
- 1 Monetary Policy Division.
- 2 The APP encompasses purchases of asset-backed securities (ABSPP), covered bonds (CBPP3), and public sector bonds (PSPP) for an amount of €60 billion per month until March 2017 (or beyond, if necessary).
- 3 Austria, Belgium, Finland, France, Germany, and Netherlands are included in the ‘core’; Greece, Ireland, Italy, Portugal, and Spain are included in the ‘periphery’.

Box B: Non-Standard Monetary Policy, Corporate Lending, and the ‘Balance Sheet Channel’
 By Giuseppe Corbisiero

The survey on the access to finance of enterprises (SAFE) suggests that credit constraints, mainly involving small and medium enterprises (SMEs), have stood behind the bank lending reduction: until the first semester of 2014, SMEs constantly reported deterioration, on average, in the availability of bank loans (Chart 3). These facts suggest that pre-crisis credit conditions have not yet been restored and support the implementation of the APP. At this early stage a precise quantification of the effects of the APP is not yet possible. However, it is still useful to describe the theoretical mechanisms through which the programme is expected to stimulate the real economy, not least to have a benchmark against which to evaluate actual outcomes.

A recent article (Dunne et al. 2015) discussed the channels through which the APP is expected to work. This box elaborates further on how the programme can affect corporate lending via the ‘balance sheet channel’ (Kyotaki and Moore 1997, Bernanke and Gertler 1989), a mechanism related to the wealth effects of the portfolio rebalancing channel (see Dunne et al. 2015, pp. 66-68). Specifically, through this channel monetary policy would affect real investment beyond the usual cost-of-capital effect of a lending rate reduction, stimulating particularly credit constrained firms.

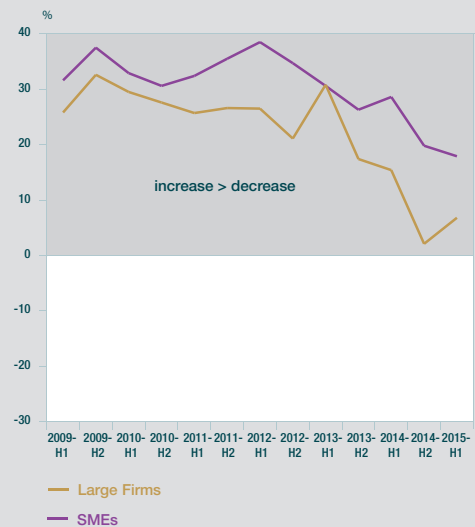
Box B Chart 3: SAFE: Change in the Availability of Bank Loans



Source: SAFE, ECB.

Note: The vertical axis value represents the difference between the percentage of entrepreneurs reporting an improvement in the availability of bank loans and those reporting a deterioration over the previous six months. In the shaded area, the percentage of firms reporting a deterioration in the availability of bank loans exceeds the percentage of firms reporting an improvement.

Box B Chart 4: SAFE: Change in Collateral Requirements



Source: SAFE, ECB.

Note: The vertical axis represents the difference between the percentage of entrepreneurs reporting an increase in collateral requirements for bank loans and those reporting a decrease over the previous six months. In the shaded area, the percentage of firms reporting an increase in collateral requirements exceeds the percentage of firms reporting a decrease.

In the euro area, this channel may be particularly relevant in the current juncture to the extent that the recent macroeconomic downturn has generated higher uncertainty about firms’ future liquidity and solvency, leading to increases in collateral requirements for bank loans. Chart 4 provides evidence in this direction: since 2009, particularly SMEs constantly registered, on average, increases in collateral requirements.

Box B: Non-Standard Monetary Policy, Corporate Lending, and the 'Balance Sheet Channel'

By Giuseppe Corbisiero

The following simple model allows us to consider the monetary transmission mechanism according to the balance sheet channel. Firms' production requires fixed capital, a machinery, to transform working capital into goods. Purchases of working capital (*Working capital*₁) cannot exceed internal cash flows carried over from the previous period (*Revenues*₀ minus pre-existing debt, *Debt*₀, repaid at the gross interest rate *R*₀) plus new debt (*Debt*₁):

$$\text{Working capital}_1 \leq \text{Revenues}_0 - R_0 \text{Debt}_0 + \text{Debt}_1. \quad (1)$$

In good times, cash flows from the previous period are sufficiently high and new borrowing needs (*Debt*₁) are low; therefore the firm can employ the amount of working capital that will maximize profits ("unconstrained regime").

In bad times, previous cash flows are low, and the desired amount of working capital requires high new debt. However, banks are uncertain about the firm's future solvency and require the machinery, which can be liquidated in case of no repayment, as loan collateral. Hence, the gross amount of debt granted by banks cannot exceed the value of the machinery:

$$R_1 \text{Debt}_1 \leq \text{Value of Machinery}_1 \text{ (collateral-in-advance constraint).}$$

Substituting it in the firm's budget constraint (1), we obtain the amount of working capital that the firm can employ in the "constrained regime":⁴

$$\text{Working capital}_1 \leq \text{Revenues}_0 - R_0 \text{Debt}_0 + \frac{\text{Value of Machinery}_1}{R_1}$$

This equation allows a consideration of the multiple ways through which monetary expansions can stimulate real investment by increasing debt capacity of credit constrained firms, as well as reducing their dependence on external finance. First, by increasing demand,⁵ monetary expansions can increase firms' cash flow carried over to the next period, *Revenues*₀, and reduce firms' borrowing needs. Second, an interest rate reduction decreases the cost of carrying existing debt, *R*₀ *Debt*₀, and firms' borrowing needs; moreover, it reduces the prospective payment on new debt, *R*₁, so relaxing the collateral-in-advance constraint and allowing a higher debt capacity. Finally, monetary policy can affect asset prices ("*Value of Machinery*"). During a macroeconomic downturn, fire sales can depress asset prices and debt capacity of other industry participants. A monetary expansion, by easing investment, can reduce episodes of forced liquidation, and also increase asset demand. Asset prices will raise and firms' debt capacity increase.⁶

Recent empirical works show the relevance of collateral constraints in several US industries during the crisis and its aftermath. Benmelech and Bergman (2011) show that bankruptcies raise an industry's cost of capital by deteriorating collateral market conditions. Ortiz-Molina and Phillips (2014) find that collateral market liquidity reduces firms' cost of capital. Adelino et al. (2015) find that the recent real estate boom-and-bust affected employment in small businesses through the collateral channel.

Although insufficient to assess the mechanisms highlighted above, Charts 5 to 8 provide evidence in this direction. The recent increase in demand has likely increased firms' revenues and reduced their borrowing needs; the reduction in lending rates and the positive trend in the stock price index (a proxy for collateral price dynamics) have possibly increased firms' debt capacity. All together, these features have possibly contributed to the recent recovery in the industrial production of consumer goods.⁷

⁴ See Bernanke et al. (1996) for a more detailed solution of the model.

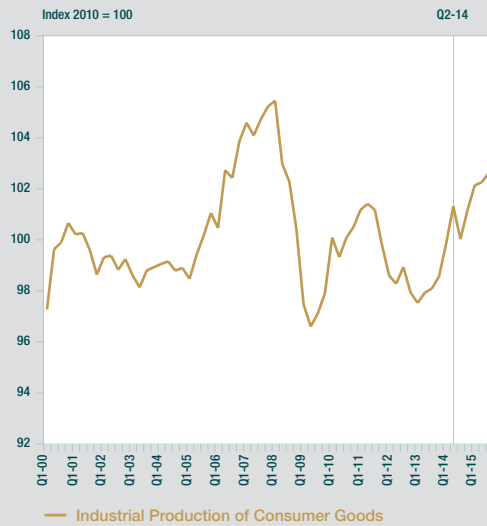
⁵ Via the 'signalling channel' (see Dunne et al. 2015), expectations and confidence can expand domestic demand; currency depreciation can expand foreign demand for domestic goods.

⁶ Similar theoretical mechanisms are described by Shleifer and Vishny (1992) and Benmelech and Bergman (2012).

⁷ Starting in Q2-14 (vertical line in Charts 5-8), several measures have substantially increased the ECB's monetary policy stance: the targeted longer-term refinancing operations (TLTROs) and outright purchases in the ABS market (announced in June 2014); the ABSPP and the CBPP3 (September 2014); the PSPP (January 2015).

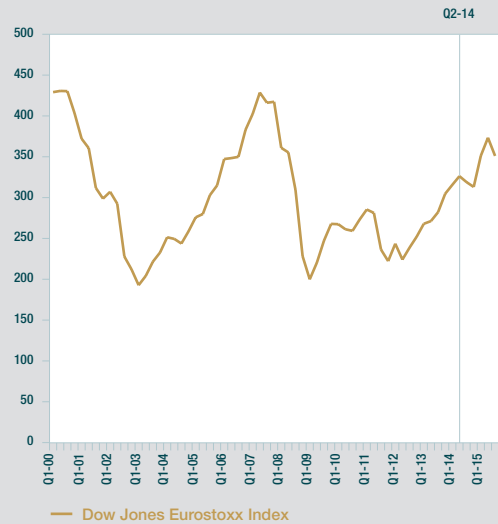
Box B: Non-Standard Monetary Policy, Corporate Lending, and the 'Balance Sheet Channel'
 By Giuseppe Corbisiero

Box B Chart 5: Euro Area Industrial Production of Consumer Goods



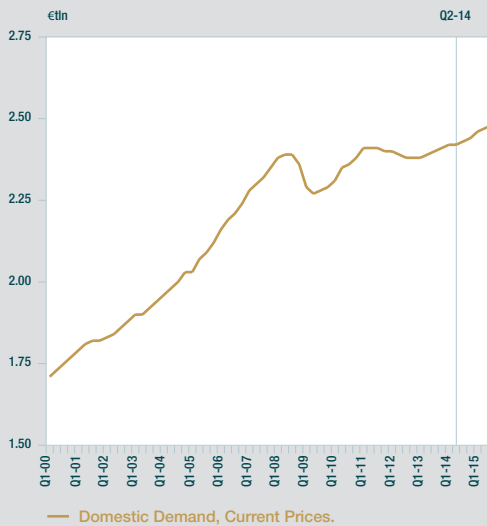
Source: Bloomberg.

Box B Chart 6: Euro Area Stock Prices



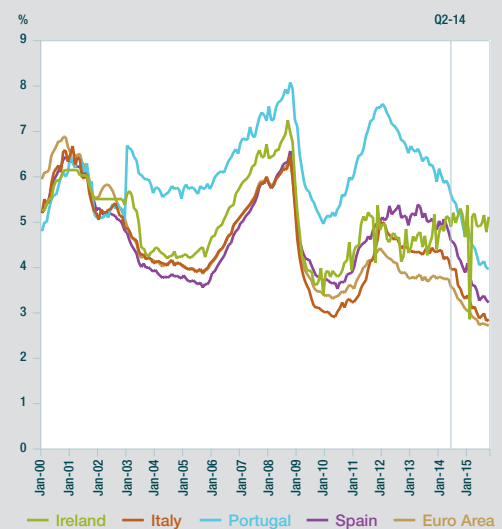
Source: Bloomberg.

Box B Chart 7: Euro Area Domestic Demand



Source: Bloomberg.

Box B Chart 8: Bank Lending Rates to NFCs (up to €1 mln)



Source: ECB Statistical Data Warehouse.

To conclude, the balance sheet channel can play an important role in the monetary transmission, to the extent that firms' debt capacity in the euro area has been constrained by low collateral values. As smaller and less wealthy firms are more likely both to lack valuable collateral and to rely on bank lending, these mechanisms highlight the ways that the APP can stimulate those suffering the most from the crisis. Empirical analysis aiming at quantifying and identifying the impact of monetary policy can miss important channels by neglecting collateral effects, whose quantification can be instrumental to evaluate whether the policy measures will succeed in stimulating the agents who would benefit the most from them.

Box B: Non-Standard Monetary Policy, Corporate Lending, and the 'Balance Sheet Channel'*By Giuseppe Corbisiero***References**

Adelino, Manuel, Antoinette Schoar, and Felipe Severino (2015), "House Prices, Collateral, and Self-Employment," *Journal of Financial Economics*, 117(2): 288-306.

Benmelech, Efraim, and Nittai Bergman (2011), "Bankruptcy and the Collateral Channel," *Journal of Finance*, 66(2): 337-78.

— (2012), "Credit Traps," *American Economic Review*, 102(6): 3004-32.

Bernanke, Ben, and Mark Gertler (1989), "Agency Costs, Net Worth, and Business Fluctuations," *American Economic Review*, 79(1): 14-31.

Bernanke, Ben, Mark Gertler, and Simon Gilchrist (1996), "The Financial Accelerator and the Flight to Quality," *Review of Economics and Statistics*, 78(1): 1-15.

Dunne, Peter, Mary Everett, and Rebecca Stuart (2015), "The Expanded Asset Purchase Programme – What, Why and How of the Euro Area QE," *Quarterly Bulletin 03/July*, Central Bank of Ireland, 61-72.

Kiyotaki, Nobuhiro, and John Moore (1997), "Credit Cycles," *Journal of Political Economy*, 105(2): 211-48.

Ortiz-Molina, Hernan, and Gordon Phillips (2014), "Real Asset Illiquidity and the Cost of Capital," *Journal of Financial and Quantitative Analysis*, 49(1): 1-32.

Shleifer, Andrei, and Robert Vishny (1992), "Liquidation Values and Debt Capacity: A Market Equilibrium Approach," *Journal of Finance*, 47(4): 1343-66.