

What impact does the ECB's quantitative easing policy have on bank profitability?

Maria Demertzis and Guntram B. Wolff

Executive Summary

QUANTITATIVE EASING (QE) affects banks' profitability in three main ways.

1. First, as QE drives up bond prices, banks holding such bonds see their balance sheets strengthened.
2. Second, QE reduces long-term yields and thereby reduces term spreads. With this, the lending-deposit ratio spread falls, making it harder for banks to generate net interest income on new loans.
3. Last, QE improves the economic outlook, which should help banks exposed to the economy find new lending opportunities and should reduce problems with non-performing loans. The effects of QE on bank profitability are therefore not one directional. If anything, the immediate effect should be positive.

BANKS THEMSELVES HAVE been quite negative about the impact of QE on their net interest income, but they have also acknowledged its positive impact on capital gains (ECB Bank Lending Survey).

WE SHOW THAT lending-deposit spreads for new lending have fallen significantly. Looking at actual bank profits, net interest income has been stable. Moreover, bank profitability has increased mostly as a result of efforts to clean balance sheets of impaired assets (at least until the end of 2015). This is consistent with a reduction in non-performing loans (NPLs), particularly in countries where NPL levels were abnormally high.

MOREOVER, WE SHOW that bank profitability in some countries has been a concern for many years now, starting well before the QE programme. The main drivers of low profitability have been non-performing loans, legal risks and other problems unrelated to net interest income, which has remained fairly stable.

OVERALL, WE CANNOT yet see any major bank profitability issue arising out of the ECB's QE programme.

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1. Introduction

European Central Bank policy is and remains controversial. Since the start of the crisis, the ECB's balance sheet has doubled. The quantitative easing (QE) programme that started in the second quarter of 2015 increased the size of the ECB's balance sheet by just over 9 percentage points to 28 percent of GDP¹. Beyond the risks arising from sovereign bond holdings, the debate on QE mainly centres on **four** aspects. The first is the question of whether the programme actually contributes to inflation. The second is the question of when is the right moment to end it, irrespective of whether it actually works. Third, there is an important debate about whether QE unduly 'dispossesses' savers. Finally, there is the question of whether QE should be ended earlier because of its impact on financial stability and, in particular, the profitability of banks and insurers. Depending on the weight given to each of these four aspects and how they are assessed, different conclusions have been drawn regarding ECB policy. This paper focuses on the fourth aspect and in particular the impact on banks². In the introduction, we briefly review a few arguments around the first three aspects.

There is a surprisingly broad consensus about the effectiveness of the ECB's QE programme. Studies have documented the positive impact on prices of assets and the reduction and flattening of yield curves, and have also cautiously found support for a positive impact on investment and consumption (see, for example, German Council of Economic Advisors, 2016; Praet, 2016; Draghi, 2016; Demertzis and Wolff, 2016)³. And indeed, since the announcement and start of QE, growth has picked up, the main contributors being gross capital formation and household expenditure (see charts in the Annex).

There is less consensus on the right moment to exit the programme. The German Council of Economic Advisors (2016) argues that the ECB should taper its Asset Purchase Programme (APP) and that the current monetary policy position is no longer appropriate for economic conditions. Inflation measures such as the Harmonised Index of Consumer Prices (HICP) might provide an inaccurate picture because of volatile energy prices and, moreover, financial stability risks are high. By contrast, the latest CFM⁴ survey results show that 77 percent of macroeconomists disagreed or strongly disagreed with the view that *"...exceptionally loose monetary policy by the European Central Bank is no longer appropriate"*. Figure 1 illustrates that HICP and core inflation remain very low compared to the ECB's inflation goal, so that further monetary support is warranted.

There is less of an academic debate on the *"expropriation of savings"*⁵ because this is a mostly politically driven issue. By its very nature, monetary policy will have an impact on the relative wealth of savers and investors. An unexpected decrease in the interest rate is an effective policy tool for the ECB because it does make savings less attractive and investments more attractive. This question therefore ultimately becomes a question of why nominal yields are relatively low and whether the ECB has reacted to that low-yield environment or is the

1 See Figure A1 in the Annex. The APP/PSPP (Asset Purchase Programme, Public Sector Purchase Programme) share in the balance sheet amounts to just over 9 percentage points. The Corporate Sector Purchase Programme (CSPP) amounts to very little by comparison. Nevertheless, the corporate sector has responded to the programme and the issuance of corporate bonds has picked up.

2 The European Parliament requested that the study focus on the impact on banks.

3 See Marx *et al* (2016) for a comprehensive summary of the latest attempts to quantify the effects. Efforts to quantify the impact show that effects are material. Andrade *et al* (2016) estimate a maximum effect on inflation of 0.35 percent and 0.6 percent on the level of GDP (original APP only ie early PSPP). Cova *et al* (2015) are more optimistic, with the effects being 0.8 percent and 1.4 percent on inflation and the level of GDP respectively. Praet (2016) and Draghi (2016) evaluate all QE up to the time of writing to have had an impact of 0.5 percent on average annual inflation for the period between 2015 and 2018. The cumulative effect on GDP for the same period is 1.6 percent. See also Claeys and Leandro (2016) for an early assessment.

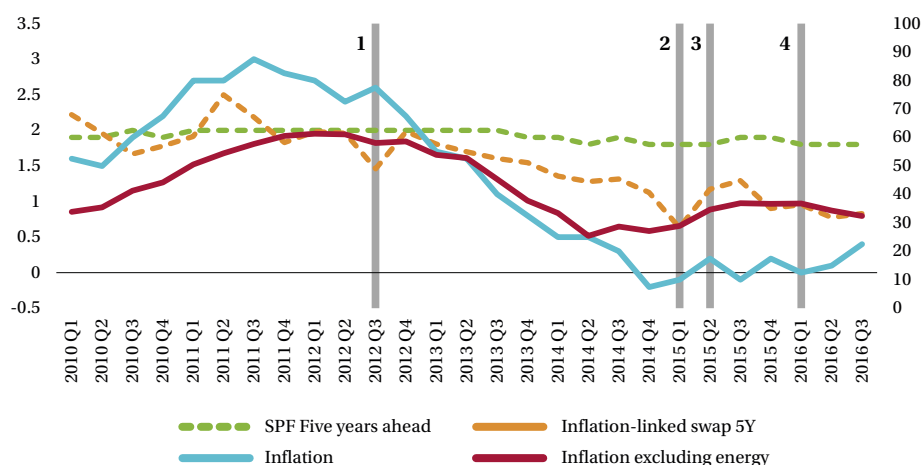
4 <http://cfmsurvey.org/>. The latest thinking of European macroeconomists [German Council of Economic Experts' view of ECB policy](#) Monday, November 7, 2016.

5 Term used in German media (see for example Bindseil, 2015)

primary driver of it. The recent increase in long-term yields is one sign that political decisions, the amount of public investment and the expectations of market participants can quickly increase long-term yields, despite continued central bank action. We have argued elsewhere that perhaps more important than continuous central banking activity are structural and investment policies that lift long-term growth prospects and thereby drive up real returns (Wolff, 2015; Claeys, 2016)⁶.

On the impact of monetary policy on bank profitability and bank balance sheets, there is an increasing literature on the channels at work and the empirical evidence⁷. Three theoretical channels can be identified: the impact of monetary policy on net interest income, on non-interest income and on loan loss provisions. There are good arguments that both the level and the shape of the yield curve can have a major impact on interest margins. In addition, QE has an immediate effect on bond prices, supporting banks that hold sovereign bonds. Finally, there are various macroeconomic feedback channels because QE should support the economy, thereby reducing NPL rates and reducing the need for provisioning. It would go beyond the scope of this briefing to discuss all the channels in detail, but a summary is provided in the Annex.

Figure 1: Inflation and inflation expectations (%)



Source: European Central Bank and Bloomberg. Measures of expectations: Survey of Professional Forecasters and 5-year Inflation Linked Swap rates. Notes: 1) 'Whatever it takes'⁸; 2) Announcement of PSPP; 3) Start of PSPP; 4) CSPP and expansion of PSPP.

2. Assessing the effects of monetary policy on bank profitability in the euro area

The spread between long- and short-term bond yields is important for bank profitability as banks engage in maturity transformation. This spread should have narrowed following the start of QE (PSPP), but it should be acknowledged that it is also influenced by forward

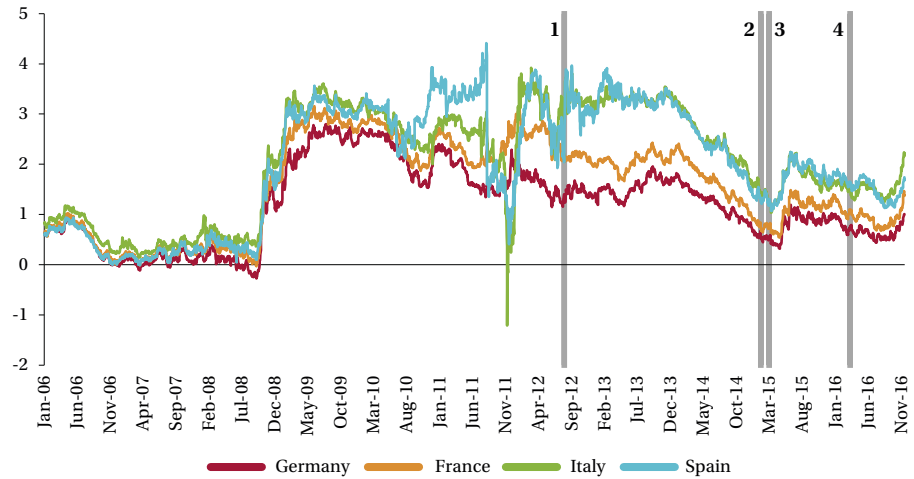
⁶ Available at <http://bruegel.org/2015/11/schriftliche-stellungnahme-bundestagsanhörung-niedrigzinspolitik-der-ezb/> and <http://bruegel.org/2016/09/low-long-term-rates-bond-bubble-or-symptom-of-secular-stagnation/>.

⁷ See for example, Agur and Demertzis (2015) for a summary of the literature; Alessandrini and Nelson (2012) for the overall effect of the yield curve on bank profitability; Borio *et al* (2015) also provide a detailed discussion of various channels.

⁸ Refers to the speech given by Mario Draghi on the willingness of the ECB to act, now known as the "whatever it takes" speech.

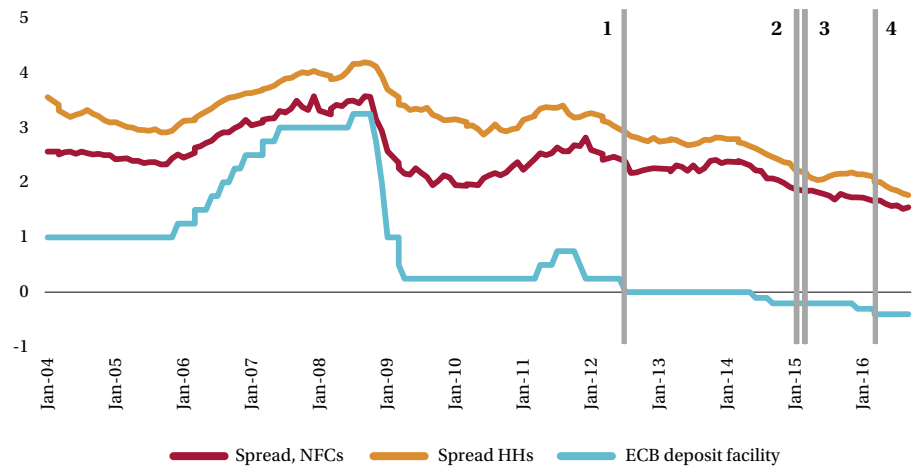
guidance and expectations of conventional monetary policy. Term spreads fell from very high levels in the periphery countries during 2013 and 2014 (Figure 2), but have increased since the announcement and start of QE⁹. Since the ECB announcement of the expansion of the PSPP and the March 2016 decision to include corporate bonds, term spreads have been on a declining, though volatile, path. However, in the latter part of 2016, term spreads increased again. Broadly speaking they have regained the same level as at the start of QE. It is difficult therefore to discern a strong and lasting effect of QE on the term spread.

Figure 2: Government bond term spreads (10 year yields – 1 year yields) (%)



Source: Bloomberg. Note: 1) 'Whatever it takes' (see footnote 8); 2) PSPP announcement; 3) Start of PSPP; 4) CSPP and expansion of PSPP.

Figure 3: Lending-deposit rate spread on new credit, euro area by sector (%)



Source: European Central Bank. Notes: 1) 'Whatever it takes' (see footnote 8); 2) PSPP announcement; 3) Start of PSPP; 4) CSPP and expansion of PSPP. Spread NFCs: Loans other than revolving loans and overdrafts, convenience and extended credit card debt, Total initial rate fixation, Total amount, New business coverage, Non-Financial corporations [S.11] sector, denominated in euro; Overnight deposits, Total original maturity, New business coverage, Non-Financial corporations [S.11] sector, denominated in euro. Spread HHs: Lending for house purchase excluding revolving loans and overdrafts, convenience and extended credit card debt, Total initial rate fixation, New business coverage, Households and non-profit institutions serving households [S.14 and S.15] sector, denominated in euro; Overnight deposits, Total original maturity, New business coverage, Households and non-profit institutions serving households [S.14 and S.15] sector, denominated in euro.

9 The uncertainty relating to negotiations with Greece in the summer of 2015 may be the explanation for that.

Profits are affected when the lending-deposit rate spread narrows, as banks borrow short term (typically through deposits) to invest in long-term assets. The lending-deposit rate, and therefore the margin for banks to make profits, continues to decline. For the euro area as a whole, this reduction in the lending-deposit rate is visible for new lending to households and the non-financial corporate sector (Figure 3). In terms of new lending, the lending-deposit spread in September 2016 amounted to 1.77 percent for households and 1.55 percent for non-financial corporations.

Nevertheless, the impact on total profitability depends also on the number of loans issued. Loans to households continue to grow at a rate of two percent and loans to non-financial corporations are now starting to show a positive growth rate (see Figure A4 in the Annex).

Quantitative easing also affects asset prices through what is known as the ‘portfolio balance’ channel. As banks sell these assets to the central bank, they reallocate the cash obtained to riskier assets in order to generate greater profits. But the immediate effect of quantitative easing on bank profitability is known as the ‘scarcity effect’ (Montecino and Epstein, 2014). As securities of different maturities are imperfect substitutes, the increase in the central bank’s demand for long-term securities should make them less available in the market and should therefore also increase their price (all things being equal). This effect is possible because the central bank is a large player that aims to use QE to shift bank incentives. Montecino and Epstein (2014) assessed the level of profitability of US banks that sold directly to the Fed as part of the Large-Scale Asset Purchases (LSAP) programme¹⁰. They found that by comparison to banks that were not part of LSAP, their profitability went up by 0.35 of a percentage point. This is economically a significant number in an era when profitability hovers around zero.

3. Bank profitability: perceptions and facts

The arguments so far imply that the total effects of QE on bank profitability are threefold:

1. Positive effect: scarcity effect through an increase in capital gains;
2. Negative effect: lowering and flattening of the yield curve leads to lower opportunities for profits arising from lending – deposit rate spread;
3. Finally, improved macro conditions increase the demand for credit and the quality of credit, benefitting banks.

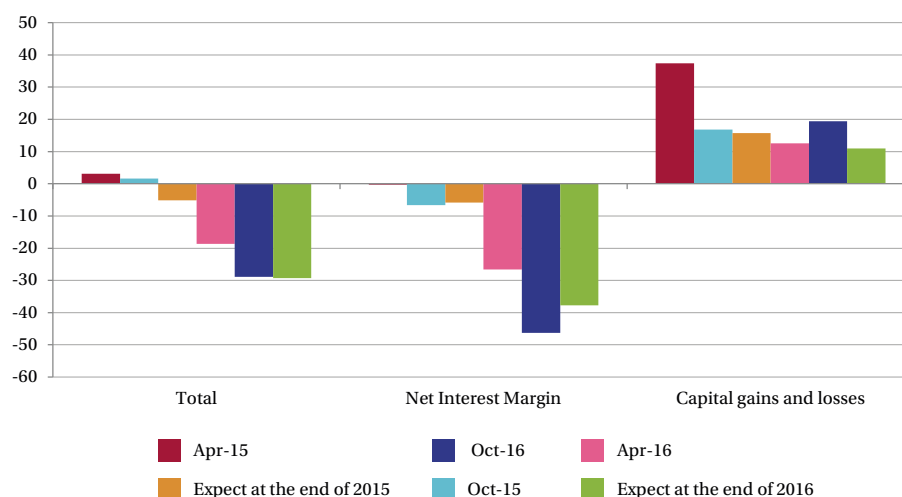
But what does the data on bank profitability actually show and how do banks perceive the current situation?

In its regular Bank Lending Survey, the ECB asks banks how they perceive the impact of QE on their profitability. Figure 4 shows that since the end of 2015 banks in the euro area have on average taken an increasingly negative view about their ability to generate profits, because of QE.

The banks also acknowledge that capital gains are positive (the first effect) but consider this to be outweighed by the negative effect on net interest margins (thus the total is negative in Figure 4). It would be important to see whether these perceptions match reality.

¹⁰ Data shows that the ECB did not buy these assets from domestic banks with the exception of Spain (Hüttl and Merler, 2016).

Figure 4: Impact of the expanded APP on euro area banks' profitability



Source: Bank Lending survey, ECB (results of surveys in April and October, 2015, 2016). Notes: The y-axis shows the difference between the share of 'increase/improve considerable/somewhat' responses and 'decrease/deteriorate considerably/somewhat' responses¹¹. Answer to the question 130: "Over the past six months, has the ECB's expanded asset purchase programme led to a change in your bank's assets or affected (either directly or indirectly) your bank profitability? Is it likely to have an impact here over the next six months?".

3.1 A closer examination of bank profitability

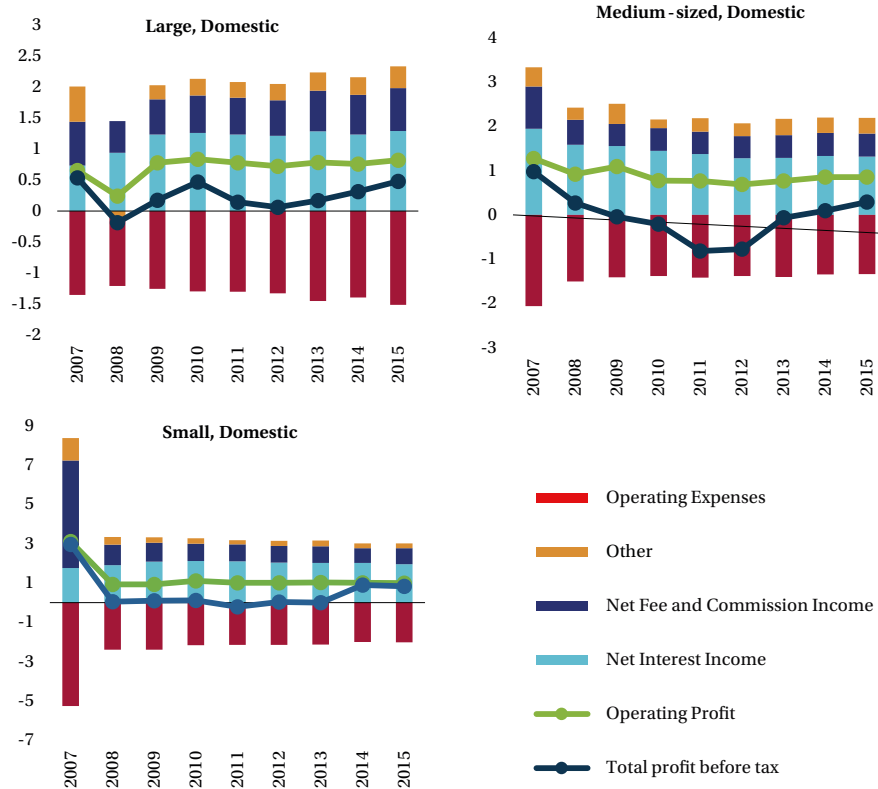
On average, banks use deposits to fund their loans. Since deposits are short-term whereas loans mature over the long-term, banks rely on the term structure to generate profits. As we have shown, the term spread has narrowed and so has the loan-to-deposit spread. Accordingly, we would expect lower profits from standard bank lending.

The ECB publishes aggregate, consolidated data on banks' profitability, balance, sheets, asset quality, liquidity and solvency. Banks' total profits, as well as those relating to operations and strictly interest income-generating business, are the most relevant indicators. We consider two main profit indicators: i) total profit before tax; and ii) operating profit. The difference between the two indicators is that the former includes credit loss expenses and impairment losses on financial investment, in addition to operating profit. Furthermore, we break down operating profit into its constituent parts (Figure 5), specifically net interest income, the main item relating to the lending-deposit spread, and other categories, namely, net commission and fee income, operating expenses and a residual. The difference between operating profits and total profits (allowances/provisions for credit losses arising from bad debts, ie an estimate of the debt that is unlikely to be recovered) is indicative of the deteriorating quality of credit that affected bank balance sheets during the crisis.

Figure 5 shows that net interest income and operating profits have been fairly stable. Net interest income is the variable that should be directly affected by the documented decline in the term spreads. It is surprising that nothing is visible in the aggregate data. There could be two reasons for this. First, a falling term spread (and loan-deposit spread) only applies to new loans. Since loan growth is weak, this would mostly affect the rolling-over of existing loans. The low spread therefore only gradually feeds into net interest income. Moreover, it is possible that banks increasingly manage to compensate for the falling spread through fee increases (loan origination fees, net of loan origination costs, are recognised as interest). Second, banks have been able to successfully profit generation to the QE environment.

¹¹ The data used to compute the differences consists of weighted average frequencies of five responses based on the share of each country in the total loan outstanding amounts of the area aggregate and of each bank in the total loan outstanding amount of the BLS banks sample. The sample group comprises about 140 banks from all euro-area countries and takes into account the characteristics of each country's national banking system.

Figure 5: Bank profitability, euro area (% of total assets)



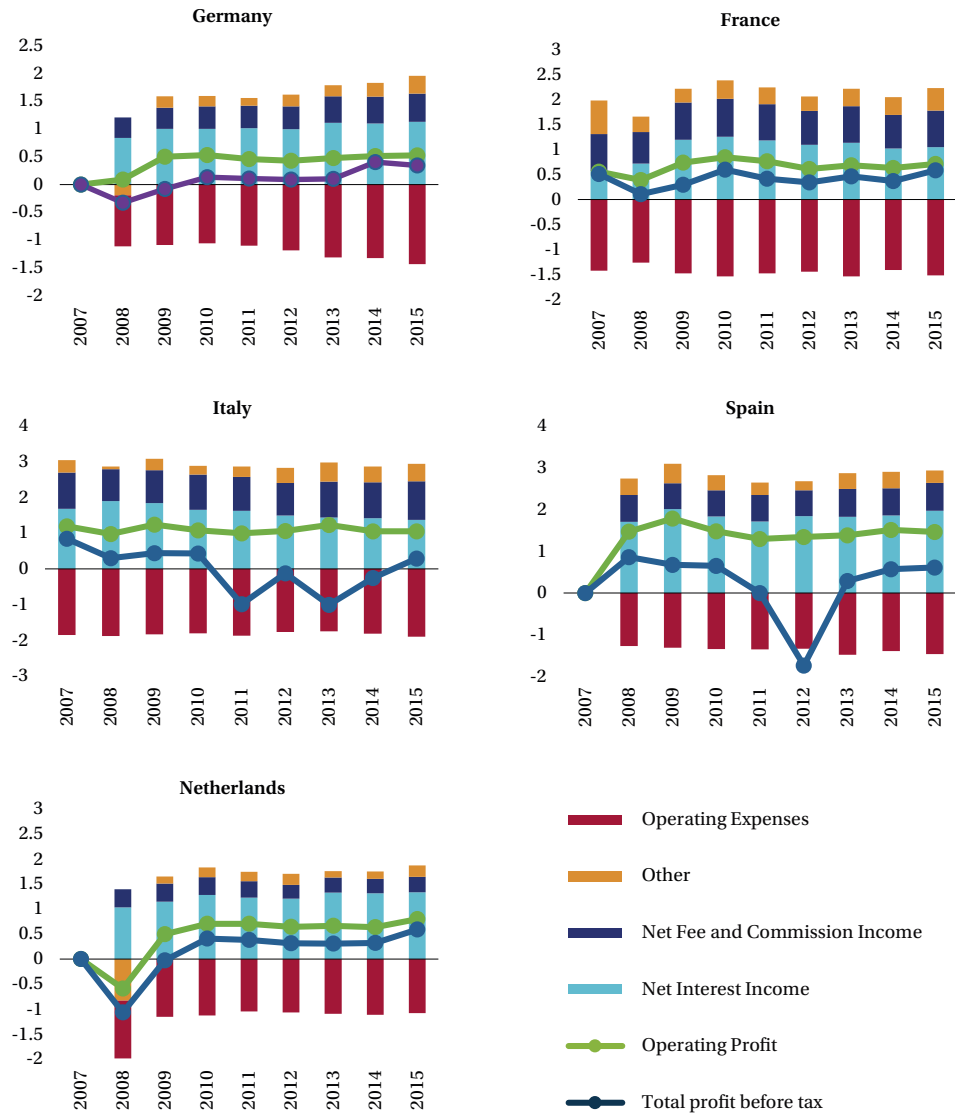
Source: European Central Bank, consolidated banking data. Note: Definition of bank size based on assets as a percentage of total consolidated assets of EU banks – Large (greater than 0.5 percent), Medium-sized (between 0.5 percent and 0.005 percent), Small (less than 0.005 percent).

Figure 6: Bank profitability, euro area (% of total assets), quarterly profile with latest data (up to Q2 2016)



Source: SNL Financial, Bruegel calculations.

Figure 7: Bank profitability (selected countries) (% of total assets)



Source: European Central Bank, consolidated banking data.

Nevertheless, total profits have been volatile and at times negative. Medium-sized banks appear to have been hit hardest in this respect. The main drivers of this volatility and the losses have been losses arising from provisioning for non-performing loans, which accounts for the difference between the two types of profits shown. Legal costs are categorised as operating expenses and are therefore part of the operating profit. Figure 5 shows that euro-area banks, irrespective of size, have made progress in reducing the burden arising from loss provisioning. In the case of small banks, this gap has even been eliminated.

The second quarter 2016 data on bank profitability¹² confirms that net interest income remains stable and total profits have even recovered (Figure 6).

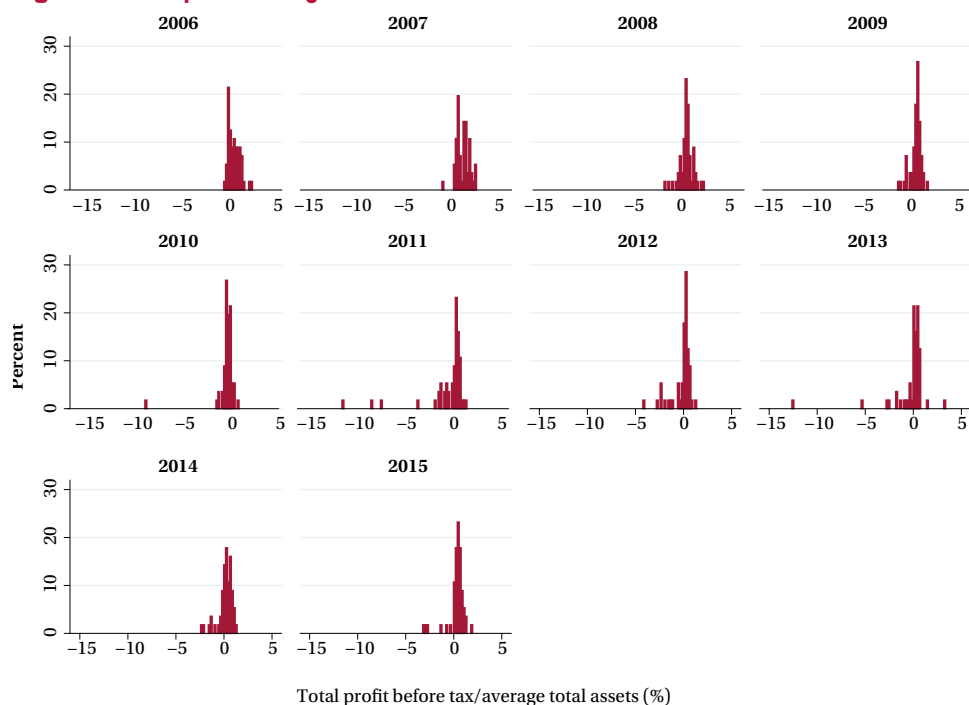
A closer look reveals some differences between countries in terms of total profits before taxes (Figure 7). In particular, the data confirms that profitability is in particular low in Germany (0.34 percent of total assets in 2015) and Italy (0.29 percent). However, as already noted, net interest income (and operating profits) have remained very stable over time in all countries. What has changed is total profits over tax, which reflects the quality of credit on banks'

12 This data covers 36 of the 129 banks supervised by the ECB, representing 32 percent of consolidated euro-area banking assets in 2015. We look at a group of stable composition, even if incomplete, to ensure comparability.

balance sheets. We see that Italy and Spain, the two countries among the five we consider that have the greatest number of non-performing loans (Figure A.5 in the Annex), have seen negative profitability.

The aggregate macroeconomic pictures could give a distorted picture because they do not capture bank-specific developments. In Figure 8, we therefore examine the distribution of profitability of banks since before the financial crisis¹³. We observe that during the years of the crisis the difference in profits earned by banks has become greater, with an increasing number of banks reporting negative profits. This trend however is starting to reverse as the variability of profits is now decreasing and profits appear more concentrated again. There does not appear any sizeable shift of average profits over time.

Figure 8: Bank profitability 2006-15



Source: SNL Financial, Bruegel calculations.

Conclusions

- The ECB's policy has been heavily criticised for different reasons. One of the most frequently voiced criticisms is that its policy is undermining the profitability of banks. As a consequence, according to this argument, ECB policy itself would become less effective because weak banks will shy away from lending and will not engage in new lending if deposit-to-lending spreads are low.
- The lending-deposit spread has fallen significantly for new lending and is now as low as 1.55 percent and 1.77 percent for new lending to companies and households. This corresponds to banks' replies to the ECB's bank lending survey, which finds that they consider

¹³ 56 banks of the 129 supervised by the ECB which represents 70 percent of consolidated euro area banking assets in 2015. We look at a group of stable composition, even if incomplete, to ensure comparability.

that the APP is negatively affecting their net interest margins. However, there are also differences between countries.

- A look at the aggregate bank profitability figures, however, shows that banks' net interest income has been extraordinarily stable and has not (yet) fallen as a result of QE. Total profits in different countries vary significantly. Such differences are mostly explained by provisioning for non-performing loans. Anecdotal evidence suggests that banks also have been able to raise fees to compensate for falling interest margins.
- Finally, QE has overall positive macroeconomic effects and its announcement has lowered long-term yields and, correspondingly, increased sovereign bond prices. Both effects support bank balance sheets by improving the economic outlook.
- Overall, in our assessment, the effect of the ECB's QE programme on bank profitability has not yet had a dramatically negative effect on bank operations. In the future, the ECB might want to consider steps comparable to the Bank of Japan, which has aimed to increase the steepness of the yield curve to support long-term yields (above 10 and in particular 15 years and more). The ECB would have to evaluate the extent to which such higher long-term yields would deter current investment and benefit banks and insurers.

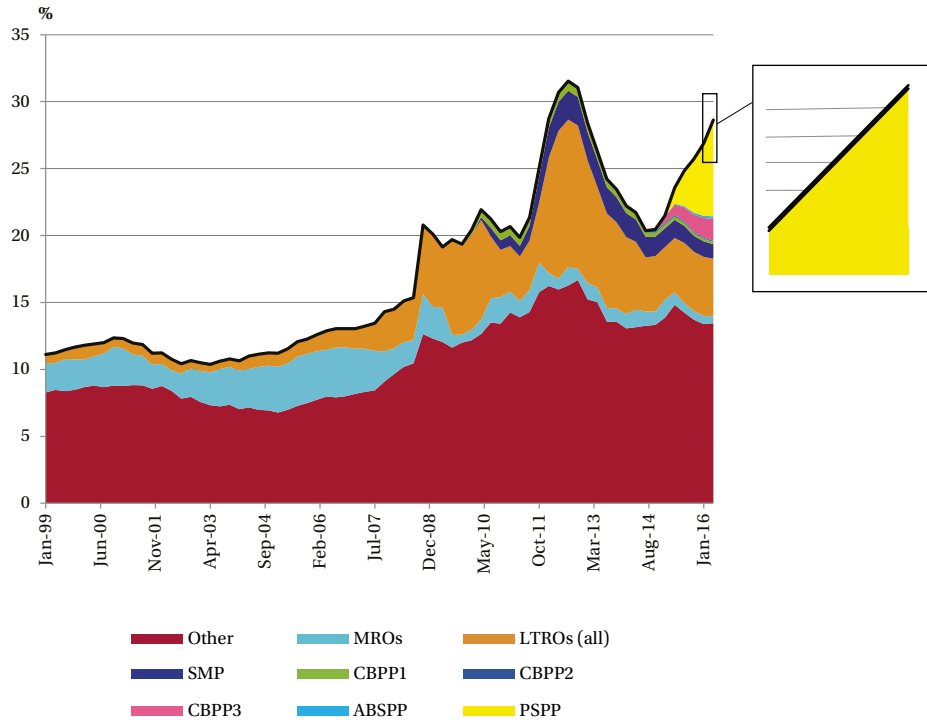
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Annex A: QE and its macroeconomic effects

Figure A1 shows the evolution of the ECB's balance sheet since its inception. The yellow shaded area shows the effects of QE on the total amount held. It corresponds to about a third of the current total.

Figure A1: ECB's balance sheet as percentage of euro area GDP



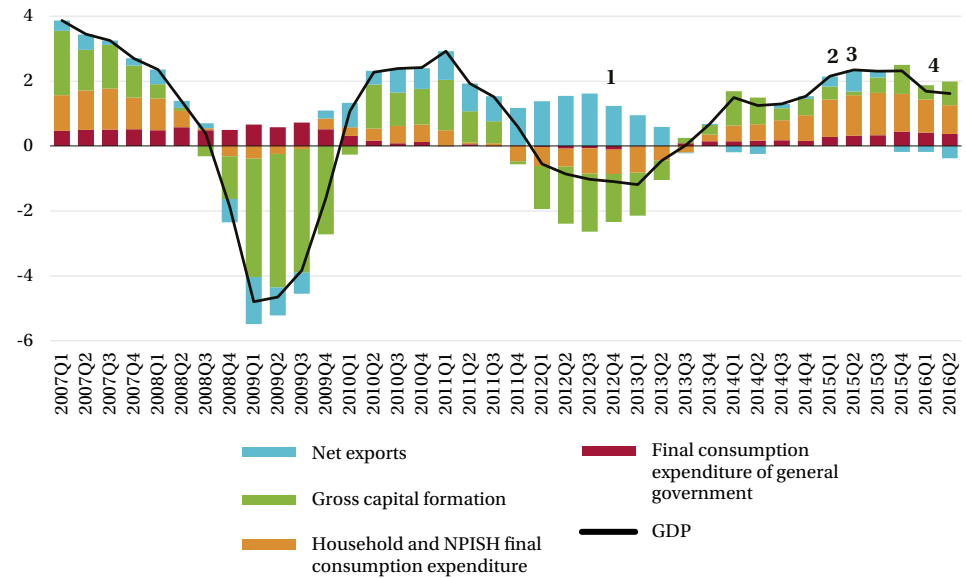
Source: Eurostat, ECB (insert shows how little Corporate Sector Purchase Programme amounts to up to October 2016).

Figure A2 shows an updated graph for GDP growth in the euro area and its contributors. Gross fixed capital formation and household consumption remain the two main drivers of current growth.

We see in Figures A3 and A4 that both gross fixed capital formation and lending have been consistently improving since the start of QE. More specifically, lending to non-financial corporations has been falling steadily since 2012, only to stabilise in the second half of 2015 following the start of the PSPP. Lending to households has held more robustly, and has indeed increased since the announcement of the PSPP: from a yearly growth of around 0% to one of 2%. This credit took mostly the form of mortgages which was helped by the stabilisation or even increase in house prices. Credit, therefore, has been important in reversing and sustaining the contributions of consumption and investment to growth.

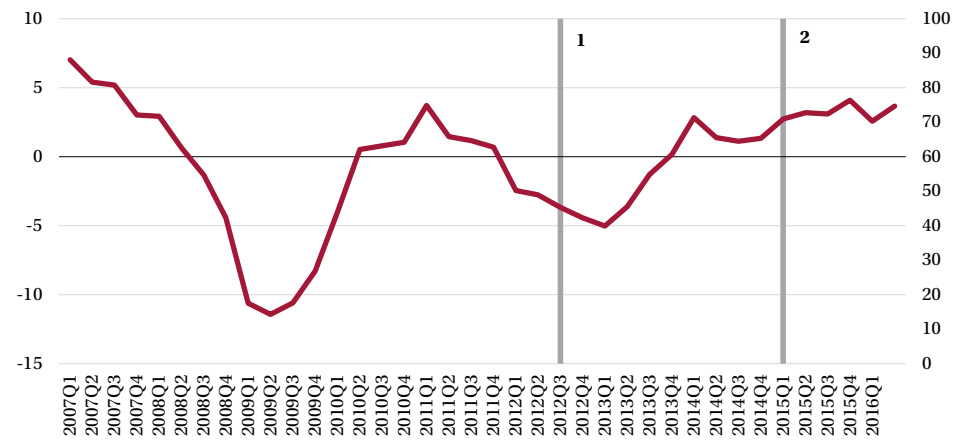
Figure A5 shows the progress made in terms of dealing with impaired assets at the EU level. We observe that Spain had both a lower level of NPLs and has managed to implement the reforms made. Italy has a much larger amount of impaired assets and has been slow to implement successfully these reforms. The other three countries, (Germany, France and the Netherlands) have not had levels of NPLs that affected their profitability.

Figure A2: Contributions to real GDP growth (growth contribution, %)



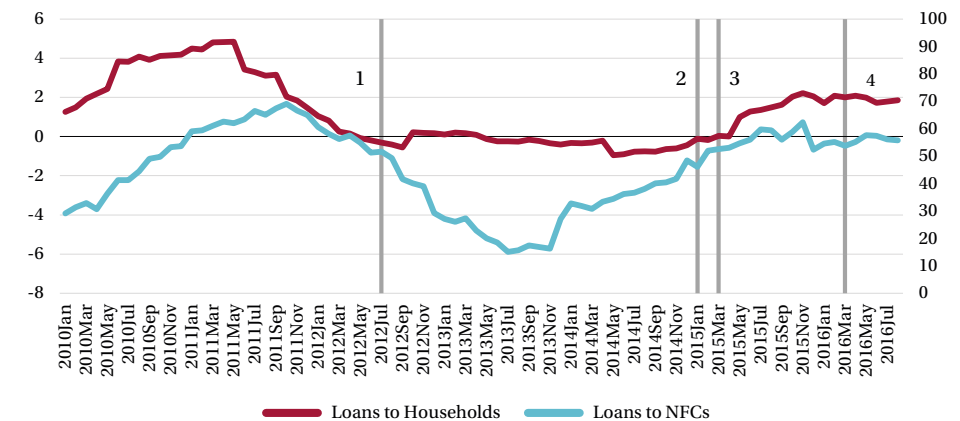
Source: Eurostat. Note: 1) 'Whatever it takes' [see footnote 5]; 2) Announcement of PPP; 3) Start of PSPP; 4) CSPP and expansion of PSPP.

Figure A3: Euro area gross fixed capital formation (real year-on-year growth, %)



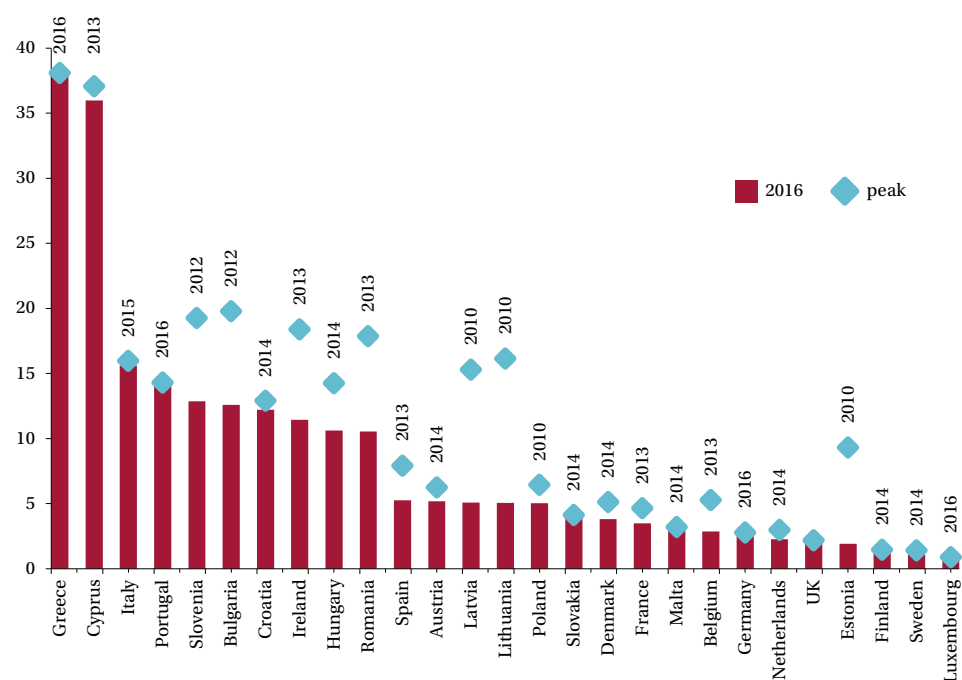
Source: Eurostat and European Central Bank. Note: 1) 'Whatever it takes' [see footnote 5]; 2) PSPP Announcement; 3) Start of PSPP; 4) CSPP and expansion of PSPP.

Figure A4: Loans to households and non-financial corporations (year-on-year growth, %)



Source: Eurostat and European Central Bank. Note: 1) 'Whatever it takes' [see footnote 5]; 2) PSPP Announcement; 3) Start of PSPP; 4) CSPP and expansion of PSPP.

Figure A5: Gross non-performing debt instruments, % of total gross debt instruments



Source: European Central Bank. Note: peak year to 2016Q1.

Annex B: The channels through which QE affects the economy

Krishnamurthy and Vissing-Jorgensen (2011) have outlined the different channels through which Quantitative Easing (QE) may affect medium and long-term interest rates. The seven theoretical channels are summarised below.

- The **signalling channel** concerns expectations on future actions of the Central Bank. It predicts that long-term bond yields will reduce should unconventional monetary policy be perceived as a credible commitment. A large purchase of long-term assets may signal that commitment, as a future raise in interest rates would imply losses for the central bank. This impact is expected to be larger on intermediate-maturity rates.
- Quantitative easing can reduce the duration risk, causing a decrease in long-maturity bond yields relative to short-maturity yields. The **duration risk channel** anticipates that QE will decrease the yield on all long-term nominal assets, with larger effects on longer-duration assets.
- By trading less liquid long-term securities for more liquid reserve balances, QE increases liquidity for investors, reducing the liquidity premium. The **liquidity channel** thus predicts that QE increases yields on the most liquid assets relative to other less liquid assets.
- The **safety channel** suggests that QE policies involving Treasury and agency bonds lower the yields on safe assets relative to less safe assets, such as lower-grade corporate bonds or MBSs. By increasing the supply of safe assets, *clientele* demands for this type of assets are met, thus reducing their safety premium.
- A specific channel is related to the purchase of Mortgage Backed Securities (MBS) solely.

The **prepayment risk premium channel** implies that QE policy through MBS purchases lowers Mortgage Backed Securities yields relative to other bond market yields. This channel is more relevant for the US than the euro area.

- The **default risk channel** addresses the reduction of default risk and default risk premium motivated by the spurring effects of unconventional monetary policy in economic activity. Under these conditions, it is expected that default risk of companies will decrease, leading to a decrease in rates. A reduction in investor risk aversion is also expectable, with a negative impact on default risk premium.
- Finally, Quantitative Easing may impact the real economy *via* the **inflation channel**, as the possible expansionary effects of QE can increase inflation expectations.

The authors note that, as a given interest rate may be affected through a variety of channels, one cannot infer the overall effect of QE from examining a specific asset type.

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