

SUERF/BAFFI CAREFIN Centre Conference

Central banking and monetary policy: Which will be the new normal?

Central banking in the XXI century: never say never

Remarks by Fabio Panetta,

Deputy Governor of the Bank of Italy

Milan, 14 April 2016

1. Introduction

At first glance, today's global economic outlook gives plenty of ammunition to the critics of central banks. Take the euro area – though its problems are by no means unique – where notwithstanding a strongly expansionary monetary stance, inflation is persistently low, growth is weak, and the recovery far more fragile than one would hope. It is unsurprising that in this environment we have got caught in a crossfire of questions on the nature of monetary policy. Is the ECB pursuing the right objectives? Is it doing so effectively? Could zero or negative rates and intrusive asset purchase programmes cause all sorts of distortions, including financial bubbles or inequalities? Is the ECB fully aware of this? And if so, does it care?

These are important and intellectually challenging questions, and I will refer to them below to structure my remarks on 'what (I think) we learned' about monetary policy from or after the financial crisis. However, they also raise a key point that to my mind is by far the most important lesson we can take from the last eight years: when it comes to monetary policy, 'never say never'.

When H.G. Hawtrey wrote about central banking being an 'art' in 1932, he could not possibly have foreseen the policy palette that central bankers would have at their disposal in the 21st century. For that matter, central bankers in the early 2000s could hardly have imagined it either. When put to the test they proved braver and more creative than anyone – including those within their own ranks – could have expected. Two factors forced them to push the envelope: the end of the Great Moderation and their determination to do 'whatever it takes' to keep the economy stable. Pablo Picasso – admittedly a far better artist than your average central banker! – notoriously gave this piece of advice to his students: 'Learn the rules like a pro, so you can break them like an artist.' Central bankers learned and followed the (Taylor) rules for many years, but were quick to break them when they seemed out of step with the times. This is to their credit, irrespective of the many questions that can be raised about their specific choices, and of the uncertainty that continues to surround their ultimate success.

But the fact remains that the woes of the euro area do raise interesting questions about the nature and conduct of monetary policy. In the remainder of this talk, I will focus on four of them. First, its objectives: should monetary policy continue to focus on price stability? Second, its effectiveness: does it have sufficient tools to fight deflation or lowflation? Third, its interaction with financial

stability: should exceptional monetary expansions be avoided, so as not to trigger excessive risk-taking? Fourth, its distributional implications: does it increase income or wealth inequality? I will address each of these questions in turn.

2. Is the pursuit of price stability still warranted? (Yes!)

The popularity of inflation targets is at one of its all-time lows. Some remain sceptical of the need to use monetary policy to fight low inflation if or when the latter is mainly due to swings in the price of oil. Others, such as Issing (2016), argue that central banks should be more ‘patient’ and focus on longer-term horizons. Still others have suggested that the potential costs of ultra-expansionary monetary policies are likely to outweigh their benefits (Borio, 2015), particularly in cases where low inflation mostly reflects positive supply shocks.¹

In principle it is true that there are times when monetary policy should simply ‘look through’ a few consecutive observations of low, or even negative, inflation. Reacting to the short-term vagaries of the price level can be counterproductive. However, this argument can easily lead to an underestimation of the costs and risks of deflation that arise when inflation expectations become de-anchored, when nominal rates are at their lower bound, and when debt (public and private) is high.

Deflationary pressures pose a serious problem when they become entrenched in firms’ and households’ behaviour. Research at the Bank of Italy shows that adaptive learning can play an important role in this sense (Busetti et al., 2014). If agents have incomplete knowledge of the behaviour of their central bank and learn from inflation outturns (bounded rationality), the effects of negative surprises may become extremely persistent. In particular, the shocks that hit the euro area over the last two years would reduce inflation by at least 1 percentage point more than in a standard rational expectation model (see Figure 2). Besides being a problem in its own right, this would also imply that the (standard) models central banks use for forecasting may become inaccurate and provide poor guidance for policy decisions.

Our research also shows that there is a concrete risk of an outright de-anchoring of inflation expectations (Cecchetti et al., 2015). As long as expectations are well anchored, changes in relative prices or supply shocks should affect the price level in the short- but not in the long-run. Hence, the

¹ From this perspective the Great Depression is considered an outlier, a unique historical event with limited general lessons on the cost of deflation.

correlation between short-term and long-term expectations provides a gauge of de-anchoring risk. In the euro area this correlation has risen in recent months. In particular, the probability of downward changes in short-term expectations becoming associated with variations in longer-term expectations has increased substantially (Figure 3). Technicalities aside, it is clear that even declines in inflation due to favourable supply shocks may have adverse consequences when nominal interest rates are at the zero lower bound and debt levels are high.² To cut a long story short, it is crucial that central banks keep pursuing their price stability target.

3. Is monetary policy approaching its limits? (No!)

The next question is whether central banks can achieve their goals when interest rates are at the zero lower bound. Are their tools up to the task? This debate has intensified since the ECB Governing Council's decision of last March, but it is hardly new: doubts about the effectiveness of monetary policy, as well as claims that it has now 'really' reached its limit have been voiced after each round of monetary expansion in the last eight years on both sides of the Atlantic. The effectiveness of monetary policy might be hindered because of the ZLB; because 'you cannot push on a string'; or because monetary stimulus is necessarily weaker after a financial crisis, when firms and households want to deleverage and the bank transmission channel is broken (Masciandaro, 2016).

My initial response to this question is contained in the title of this speech: 'never say never'. There are no obvious limits to what central banks can do. The suspicion that they might really run out of tools and ideas is understandable, but it is backward-looking and has proved groundless more than once already. My considered response is that we now have enough information to reject the conclusion that the recent monetary policy initiatives did not work.

There is an apparently technical but actually crucial point that I would like to make before getting to the crux of the matter. To assess a policy intervention (monetary or otherwise), one needs to look at the counterfactual and not, or not only, at the data. The question is not whether we are happy with the current levels of growth and inflation, but whether we would be happier if the interventions had not taken place at all. This complicates the issue, making it more dependent on the assumptions one makes to get an answer, but it is the only serious way to perform a policy assessment.³

² See, inter alia, Neri and Notarpietro (2015).

³ The long debate on the causes of the Great Moderation clearly demonstrates that it is impossible to distinguish 'good luck' from 'good policy' by just looking at the data: you need a model. The moderation has long since gone, but that principle applies equally to the problem we are discussing today.

The unconventional measures adopted by the Federal Reserve and the Bank of England have proven effective in supporting asset prices and in narrowing inflation and output gaps (Williams, 2014; see Table 1). Casiraghi et al. (2016a) offer a similar assessment for the Italian economy. The measures introduced by the Eurosystem lifted GDP by almost 3 percentage points from 2011-13. Looking forward, our estimates suggest that the Expanded Asset Purchase Programme (EAPP) could boost GDP in Italy by more than 2 points over a three-year horizon, and sustain prices by more than 1 percentage point.

The EAPP is not a beggar-thy-neighbour policy: it may imply a depreciation of the exchange rate, but this is not the only, or for that matter indispensable, transmission channel. The fall in the medium- and long-term yields of a broad set of financial assets puts downward pressure on bank lending rates and supports investment. Wealth effects from financial prices may give an additional boost to household consumption in the medium term (our estimates for Italy suggest that a 10 per cent increase in financial wealth would raise consumption by 0.5 percentage points in the medium term). Increases in residential house prices, together with the decline in long term rates, support residential investment.

The evidence we have so far on the effects of the programme is consistent with those predictions. The cost of new loans to households and firms in the euro area has fallen by 60 and 70 basis points, respectively, since mid-2014. For Italian firms, the cost of borrowing has come down by 120 basis points (Figure 4). The performance of Italian GDP last year was broadly consistent with our estimates, as we reported in our last *Economic Bulletin* (Figure 5). Of course, monetary policy cannot work alone. Its positive impact on the performance of the Italian economy was possible in light of the reforms implemented at the national level, such as the reform of the labour market, the emphasis on the spending review, the gradual reduction of the tax burden.

Inflation responded positively to the programme in the first three quarters of 2015. It subsequently weakened, but that has much to do with a worsening of global conditions. At any rate, without the programme the inflation forecast for 2016 would have been about half a percentage point lower.

It is clear that the challenges to price stability remain significant. However, these estimates suggest that there is little ground for arguing that monetary policy is powerless, or that central banks are now approaching the limits of what they can deliver. I would therefore caution against listening to

the siren song of those who claim the opposite. We should never forget that inflation is ultimately a monetary phenomenon. This is no mere theoretical statement. The success of the Bundesbank in the 1970s depended directly on this view, on the fact that central banks should not give up on price stability, and that they had the means to achieve it. That this view was quite unpopular at the time, when many wanted central banks to forgo controlling prices, should ring a cautionary bell today.

Of course, we cannot fine-tune the economy with monetary policy alone. Its transmission mechanism entails ‘long and variable’ lags and it can be stronger or weaker depending on the state of the economy, which in turn is influenced by a broad range of policies. Hence, it can be dangerous to let monetary policy be the only game in town. This takes us straight to the next question I would like to discuss, namely the relation between monetary and fiscal policy

4. The policy mix

Many have advocated a key role for expansionary fiscal policy in lifting activity and employment (among others, Krugman, 2008). Bernanke argued that the poor performance of the euro area compared to the US after 2009 may have reflected the fact that fiscal policy was tighter than warranted by economic conditions.⁴ In his Jackson Hole speech in 2014, President Draghi also signalled that fiscal policy was ‘less available and effective’ in the EA, that it ‘could play a greater role’ and that ‘the existing flexibility within the rules could be used to better address the weak recovery and to make room for the cost of needed structural reforms’ (Draghi, 2014). By and large, the data seem to support these views. Indeed, looking at the cyclically adjusted primary balance, the fiscal stance in the euro area was less expansionary, if not contractionary, than in other advanced economies following the onset of the financial crisis (Figure 6).

The case of the euro area is, of course, peculiar in this respect. Not only is there no single fiscal policy, but many countries are also constrained in their ability to use fiscal policy countercyclically on account of high debt levels and/or political pressures. This issue has been important in the unfolding of the crisis and remains critical today. Nevertheless, maintaining a contractionary fiscal stance is clearly problematic in the current context. Furthermore, significant heterogeneity among European countries means that some economies have the leeway for an expansion that might prove beneficial for them and for the rest of the area.

⁴ Bernanke (2015).

The complementarity of monetary and fiscal policy also lies at the root of the debate on ‘helicopter money’, i.e. the direct financing of consumption or public investment. As President Draghi has remarked, the concept is an interesting one and is currently being discussed by academic economists, though interpretations of what it means vary widely. It also presents a number of complexities, both in accounting terms and legally. It is an important debate, which should not be dismissed lightly, but the fundamental message we can take from that discussion is perhaps not for central banks, but for fiscal authorities.

To paraphrase the title of an old article by Franco Modigliani, we should not forsake stabilisation policies (Modigliani, 1977). The importance of fiscal discipline is indubitable, particularly in the light of the recent tensions in euro-area sovereign bond markets; but overly restrictive or otherwise misguided fiscal strategies might mean that, in this stabilization effort, fiscal policy becomes part of the problem instead of part of the solution.

5. Monetary policy and financial stability

Should financial stability considerations interfere with the determination with which central banks pursue their primary target? I would start by emphasizing the strong link between price and financial stability in the medium run. It is hard to maintain a sound financial system in a (persistently) depressed economy. All measures aimed at closing output and price gaps after a long recession are therefore compatible with the financial stability objective of reducing systemic risk.

True, this link may be loose in the short run (as Masciandaro recently restated). A large body of evidence suggests that risk appetite is endogenous and is affected by monetary policy. Investors take on risk, potentially up to undesirable levels, when monetary conditions are too loose. This is by now well documented for both bank lending and market finance.⁵

The first issue is how to identify this phenomenon. In order to spot changes in investors’ risk attitude, policymakers need to look at a broad set of information. Monetary policy decisions must be taken on the basis of indicators such as credit developments, bank lending conditions and asset prices.⁶

⁵ Borio and Zhu (2012); Jimenez et al. (2014), for bank lending. Bekaert et al. (2013), for market finance.

⁶ Alessandri et al. (2015).

In my view, the data speak quite clearly as of today. The Italian credit cycle, measured by a detrended credit-to-GDP ratio, turned negative around 2010 and has remained so ever since (Figure 7). The same is true of the euro area overall. Figure 8 shows a cyclical indicator that combines information on housing and financial prices and on credit aggregates. The indicator shows that the euro area is lagging behind the United States in terms of financial recovery, and that cyclical conditions in Europe are still mildly negative. This does not mean that risks may not be rising in individual countries or sectors, but nor does it signal ‘excessive risk-taking’ in the aggregate.

The second issue is what to do if and when the indicators signal an increase in systemic risk. My answer is that macroprudential policy should be used as the first line of defence. Of course, monetary policy can also play a role, but the debate on what exactly this role should be is far from over. Monetary policy has the advantage that ‘it gets in all of the cracks’ of the financial system (Stein 2013), but it might also be a blunt instrument, as the benefits of fixing sectorial imbalances through it may be offset by large macroeconomic costs (Svensson, 2015). Macroprudential policies instead can rely on a broad set of instruments (such as time-varying capital requirements, caps on LTVs, DTIs, risk weights, etc.) targeted at specific financial imbalances. National macroprudential authorities can address local risks, as has recently been done in a number of countries, without altering the monetary stance.

Against this background, let me emphasize that the key question is not whether monetary authorities should take financial stability issues into consideration – the answer is ‘yes’ and they already do. The issue is rather whether the micro- as well as the macroprudential authorities take the macroeconomic implications of their policies fully into account. I recently argued that the interaction between monetary policy and micro- and macroprudential supervision is indeed an issue, and one that matters for two reasons.⁷ First, even from the microprudential perspective (and *a fortiori* from the macroprudential one) there is a clear link between capital requirements, credit, and economic activity. This link is likely to be particularly important in bank-based financial systems such as the euro area. Second, in and of itself slow growth poses a major medium-term risk for financial intermediaries. This implies that as long as there are no signs of generalized excessive risk-taking, it would be wise not to tighten the supervisory stance too much: this would guarantee that other stability-oriented policies do not undermine the efforts of monetary policy, delaying a recovery that banks need as much as firms and households.

⁷ See Alessandri and Panetta (2015).

Furthermore, when calibrating their interventions, supervisors should take into account the complementarity of micro- and macrosupervision, which rely on the same set of tools and similar transmission mechanisms. The overlap between micro- and macroprudential policies is particularly strong in economies with concentrated banking sectors, where the separation between ‘micro’ and ‘macro’ is tenuous. At a minimum, this complementarity gives macroprudential authorities in the euro area another reason not to be too restrictive (micro requirements are already high). Beyond that, it suggests that microprudential authorities may also want to reconsider their choices and ask themselves whether micro requirements are being tightened too much, or too abruptly, given the state of the economy.

6. The distributional effects of monetary policy

Another important concern is that the current monetary policy stance may disproportionately favour the rich (those who own more financial assets and benefit from large capital gains) while ‘expropriating’ pensioners’ savings via very low interest rates. Moreover, refinancing and open market operations are directed at favouring banks, rather than the average person.

This issue clearly deserves our attention.⁸ Rising inequality poses delicate ethical issues. History suggests that it might also hinder growth and make our economies less stable. Furthermore, although inequality lies squarely outside the mandate of central banks, if their decisions were to affect income distribution systematically, some might think that they should be overseen more closely by the government. Hence, the very independence of central banks might be at stake.

As a general point, let me stress that it would be a mistake to deviate from a policy that is welfare-improving for the economy as a whole purely on the basis of distributional concerns. If we agree that monetary stimulus is necessary to improve the conditions of the Eurozone, we should pursue it without hesitation. The distributional spillovers of a socially optimal policy (if any) should be kept in check by other means, and not by giving up on the policy altogether. In other words, monetary policy should increase the size of the cake and leave the distributional choices to other policies.

Second, it is crucial to think about this problem from a general equilibrium perspective. A monetary expansion can affect income and wealth through a number of channels. It boosts financial assets that are held by the rich, but it also makes debt less onerous, thus helping the poor. It stimulates

⁸ These themes are developed further in Panetta (2015).

profits and capital markets, but it also raises employment, which is the main source of income for the poorest. We do not yet have a full formal model of these mechanisms, but this is no justification for not giving them serious consideration, or for focusing on one of them in isolation while ignoring the rest.

Ongoing research at the Bank of Italy tries to build up this ‘general equilibrium’ view from micro data. The project examines the impact of unconventional monetary measures on a large number of variables in individual Italian households’ balance sheets.⁹ The main finding is that the traditional effects of monetary policy via activity and employment have prevailed even during the global crisis. By far the most relevant short-term distributional implication of expansionary monetary policy remains that, by stimulating the economy, it positively affects the incomes of the less well-off, whose jobs and wages are more sensitive to cyclical fluctuations. Financial benefits for wealthy households due to capital gains do emerge, but they are smaller than the advantages for the low-income population stemming from the improvement of labour market conditions and from the lower cost of debt. Overall, inequality decreases. (Figure 9).

To those who are sceptical of this particular result, or of model-based estimates in general, I would ask Bernanke’s simple question: ‘If the average working person were given the choice of the status quo (current Fed policies) and a situation with both a weaker labor market and lower stock prices (tighter Fed policies), which would he or she choose?’¹⁰ I believe the average person, or median voter, would be in favour of the current stance, both in the US and in Europe.

7. Conclusions

The crisis has taught us many lessons about central banking. The most important is that monetary policy is not a mechanical exercise carried out by wooden technocrats: central banking remains as much of an art today as it was in the 1930s. It is thanks to their creativity, coupled with their determination to do ‘whatever it takes’, that central banks have avoided a meltdown of the financial system and another Great Depression. But the mission has not yet been accomplished. Although the euro area is giving encouraging signs, its recovery from the worst crisis in its history cannot be taken for granted and, as of today, remains subject to significant risks. In such an uncertain and fast-changing environment, central bankers’ proven willingness to be bold, decisive and innovative gives much ground for optimism.

⁹ Casiraghi et al. (2016b).

¹⁰ ‘Monetary policy and inequality’, Ben S. Bernanke’s blog, June 2015.

References

- Alessandri Piergiorgio, Pierluigi Bologna, Roberta Fiori and Enrico Sette, 2015, 'A note on the implementation of the countercyclical capital buffer in Italy', Bank of Italy Occasional Paper, No. 278.
- Alessandri Piergiorgio and Fabio Panetta, 2015, 'Prudential policy at times of stagnation: a view from the trenches', Bank of Italy Occasional Paper, No. 300.
- Bayoumi, T., G. Dell'Araccia, K.Habermeier, T. Mancini-Griffoli, F. Valencia (2014), 'Monetary policy in the new normal', IMF staff discussion note, April.
- Bekaert Geert, Marie Hoerova, and Marco Lo Duca, 2013, 'Risk, uncertainty and monetary policy', *Journal of Monetary Economics*, 60(7): 771-788.
- Bernanke, Ben S., 2015, *The Courage to Act: A Memoir of a Crisis and its Aftermath*, WW Norton & Company, New York.
- Borio Claudio and Haibin Zhu, 2012, 'Capital regulation, risk-taking and monetary policy: A missing link in the transmission mechanism?', *Journal of Financial Stability*, 8(4): 236-251.
- Borio Claudio, 2015, 'Revisiting three intellectual pillars of monetary policy received wisdom', Speech at Cato Institute, November 12.
- Buseti Fabio, Giuseppe Ferrero, Andrea Gerali, and Alberto Locarno, 2014, 'Deflationary shocks and de-anchoring of inflation expectations', Bank of Italy Occasional Paper, No. 252.
- Casiraghi Marco, Eugenio Gaiotti, Lisa Rodano, and Alessandro Secchi, 2016a, 'The impact of unconventional monetary policy on the Italian economy during the sovereign debt crisis', *International Journal of Central Banking*, forthcoming.
- Casiraghi Marco, Eugenio Gaiotti, Lisa Rodano, and Alessandro Secchi, 2016b, 'A 'reverse Robin Hood'? The distributional implications of non-standard monetary policy for Italian households', mimeo.
- Cecchetti Sara, Filippo Natoli, and Laura Sigalotti, 2015, 'Tail comovement in option-implied inflation expectations as an indicator of anchoring', Bank of Italy Working Paper, No. 1025.
- Correia, Isabel, Emmanuel Farhi, Juan Pablo Nicolini, and Pedro Teles, 2013, 'Unconventional Fiscal Policy at the Zero Bound', *American Economic Review*, 103(4): 1172-1211.
- Cova Pietro and Giuseppe Ferrero, 2015, 'The Eurosystem's asset purchase programmes for monetary policy purposes', Bank of Italy Occasional Paper, No. 270.
- Draghi Mario, 2014, 'Unemployment in the euro area', Speech at the annual central bank symposium in Jackson Hole, August 22.
- Gabriel Jiménez, Steven Ongena, José-Luis Peydró, and Jesús Saurina, 2014, 'Hazardous Times for Monetary Policy: What Do Twenty-Three Million Bank Loans Say About the Effects of Monetary Policy on Credit Risk-Taking?', *Econometrica* 82(2), 464-505

- Gomes Pedro and Hernán Seoane, 2015, 'Made in Europe: monetary-fiscal policy mix with financial frictions', mimeo.
- Friedman, Milton, 1972. 'Have Monetary Policies Failed?', *American Economic Review* 62(2), 11–18.
- Issing Otmar, 2016, 'Nothing is written in stone', interview with the financial daily *Boersen-Zeitung*, January 21.
- Krugman Paul, 2008, 'Optimal fiscal policy in a liquidity trap', mimeo.
- Mankiw Gregory and Matthew Weinzierl, 2011, 'An Exploration of Optimal Stabilization Policy', NBER Working Paper No. 17029.
- Masciandaro Donato, 2016, 'Le banche centrali e la maledizione dei vincitori', article in *Il Sole 24 ore*, January 10.
- Modigliani Franco, 1977, 'The monetarist controversy, or, should we forsake stabilisation policies?', *American Economic Review*, No. 2, pp.1-17.
- Neri Stefano and Alessandro Notarpietro, 2015, 'The macroeconomic effects of low and falling inflation at the zero lower bound', Bank of Italy Working Paper, No. 1040.
- Panetta Fabio, 2014, 'The Distributional Consequences of Monetary Policy', Speech at De Nederlandsche Bank, November 20.
- Stein Jeremy C., 2013, 'Overheating in Credit Markets: Origins, Measurement, and Policy Responses', Speech at Federal Reserve Bank of St. Louis, February 7.
- Svensson Lars E.O., 2015, 'Monetary Policy and Macroprudential Policy: Different and Separate', FRB of Boston's 59th Economic Conference, October 2-3.
- Williams John C. (2014), 'Monetary Policy and the Zero Lower Bound: Putting Theory into Practice', Hutchins Center for Fiscal and Monetary Policy at the Brookings Institution, Washington, D.C.

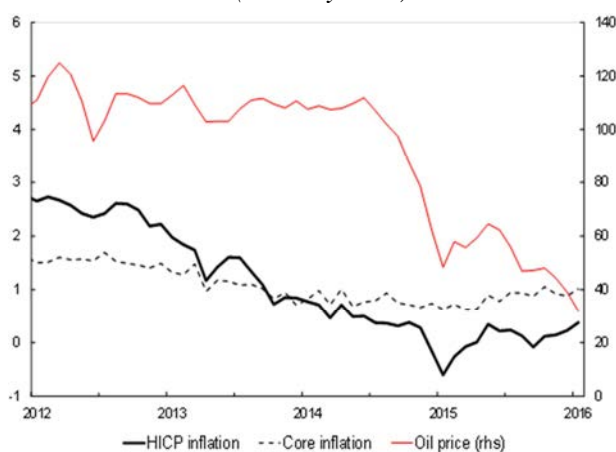
Table 1 – Selected estimates of the effects of large-scale asset purchases on long-term rates

| Study | Sample | Method | Estimates of effect (1) | Effect per purchases of 1% GDP (in bp) |
|----------------------------------|--------------------------------|--|-------------------------|--|
| Casiraghi et al. (2016a) | Italy SMP | time series | 200 bp per €100bn | 31 |
| Ghysels et al. (2014) | Italy SMP | time series | 100 bp per €100bn | 16 |
| Eser and Schwaab (2013) | Italy SMP | time series | 190 bp per €100bn | 30 |
| Krishnamurthy et al. (2011) | postwar U.S., LSAP1, and LSAP2 | time series | 15 bp per \$600bn | 4 |
| Gagnon et al. (2011) | LSAP1 | event study | 30 bp per \$600bn | 8 |
| Gagnon et al. (2011) | LSAP1 | time series | 18 bp per \$600bn | 5 |
| D’Amico and King (2013) | LSAP1 Treasury purchases | security-specific event study | 100 bp per \$600bn | 27 |
| Hamilton and Wu (2011) | U.S., 1990–LSAP2 | affine no-arbitrage model | 17 bp per \$600bn | 5 |
| Christensen and Rudebusch (2012) | LSAP1, LSAP2, and | event study, affine no-arbitrage model | 10 bp per \$600bn | 3 |

(1) Estimates for the US are from the survey in Williams (2014).

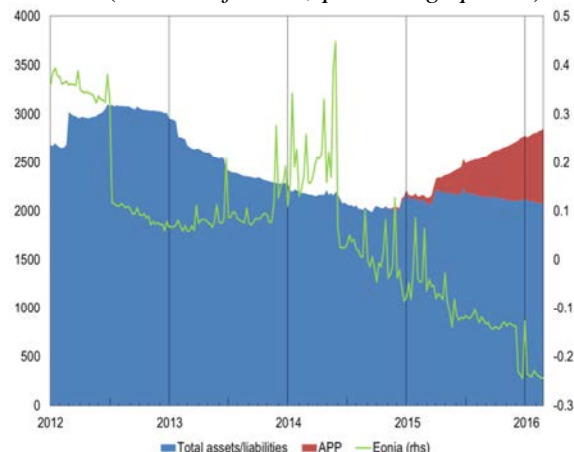
Fig. 1 – Inflation and monetary policy in the euro area

Price developments
(monthly data)



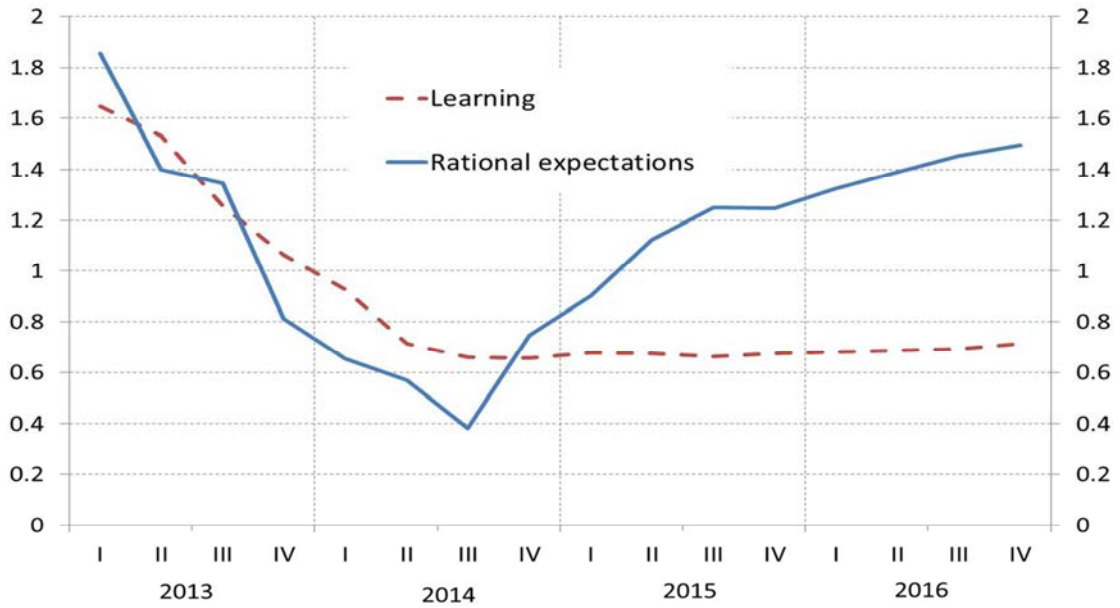
Source: Eurostat.

Eurosystem balance sheet and short-term rates
(billions of euros; percentage points)



Source: ECB.

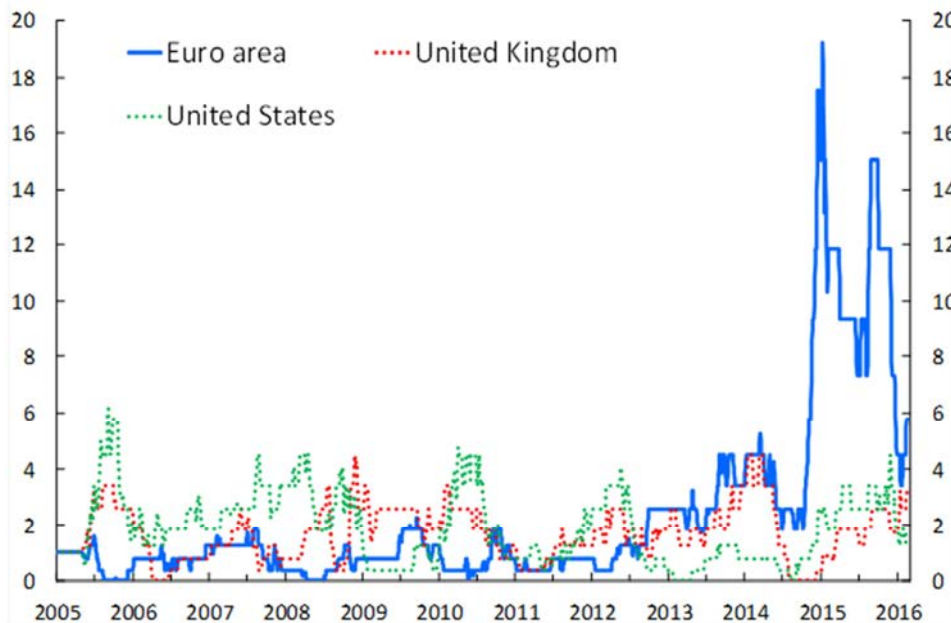
Fig. 2 – Price dynamics in the euro area under two scenarios (1)
(4-quarter change; per cent; quarterly data)



Source: Buseti et al. (2014).

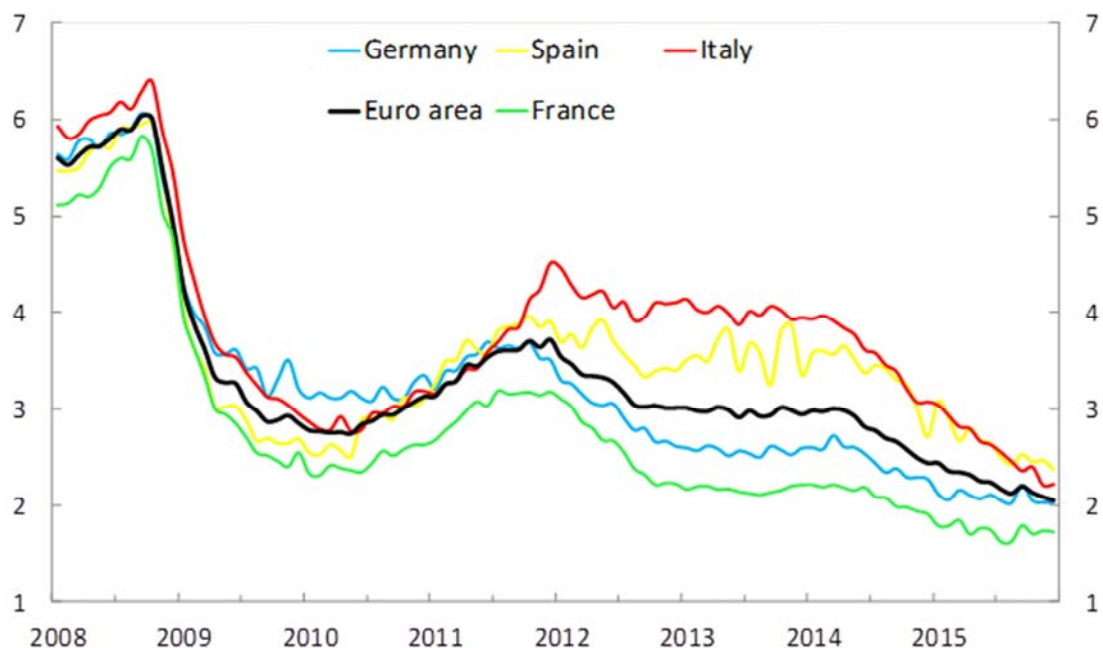
(1)The baseline scenario is derived from a simple model with RE (designed to replicate actual euro area data until 2014 Q3, thereafter forecasts as of September 2014); the alternative scenario assumes instead incomplete information and recursive learning.

Fig. 3 – The risk of de-anchoring inflation expectations (1)
(daily data)



Source: Natoli and Sigalotti (2015), “An indicator of inflation expectations anchoring”
 (1) Based on Bloomberg data.

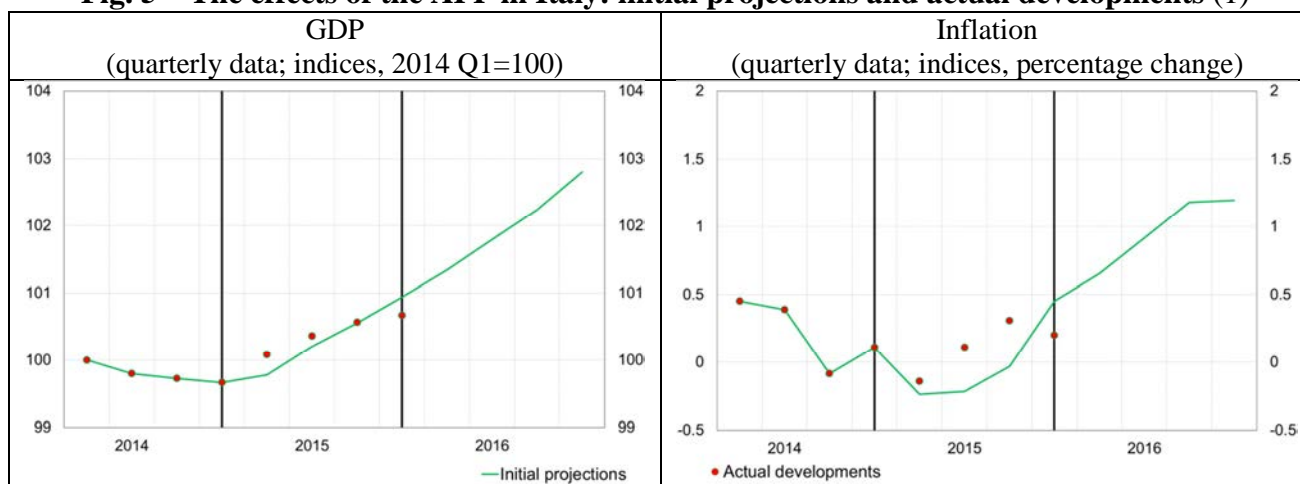
**Fig. 4 – Composite indicator of cost of new loans to non-financial corporations (1)
(percentage points)**



Source: European Central Bank.

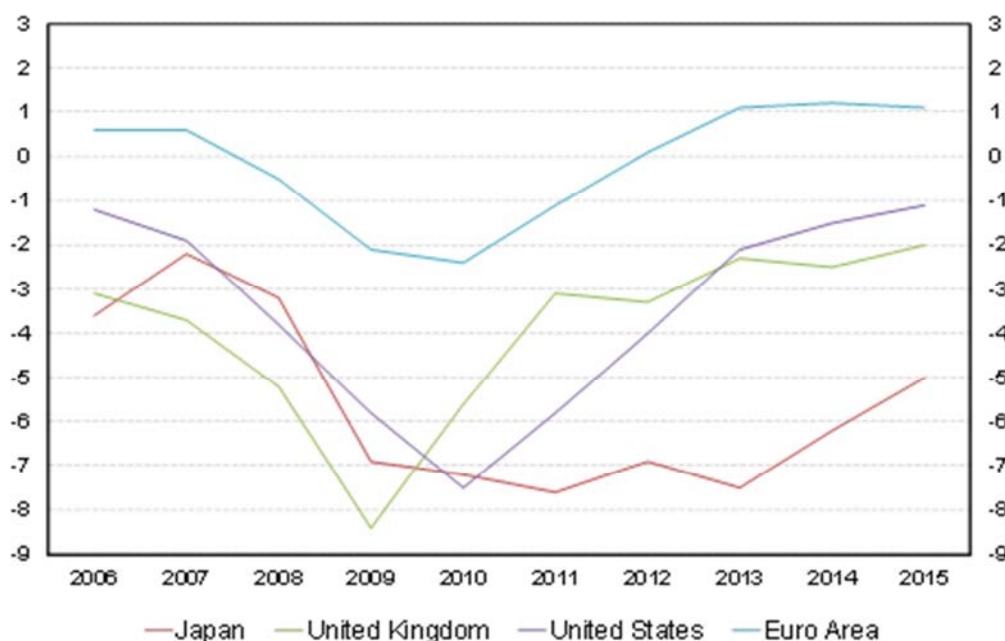
(1) Average of interest rates on new short- and medium-to-long-term loans weighted using the 24-month moving average of new loan disbursements. Includes overdrafts.

Fig. 5 – The effects of the APP in Italy: initial projections and actual developments (1)



(1) The projections presented in the above Figure incorporate the estimates of the macroeconomic effects of the APP that were included in the box ‘The macroeconomic impact for Italy of the Eurosystem’s Asset Purchase Programme’ in the Bank of Italy’s *Economic Bulletin*, No. 2, 2015. The actual trend displayed by inflation in the fourth quarter of 2015 incorporates the provisional figure for December.

Fig. 6 – Cyclically adjusted primary balance in advanced economies (1)
(percent of potential GDP)



Source: IMF staff estimates and projections.

(1) Cyclically adjusted primary balance is defined as the cyclically adjusted balance excluding net interest payments.

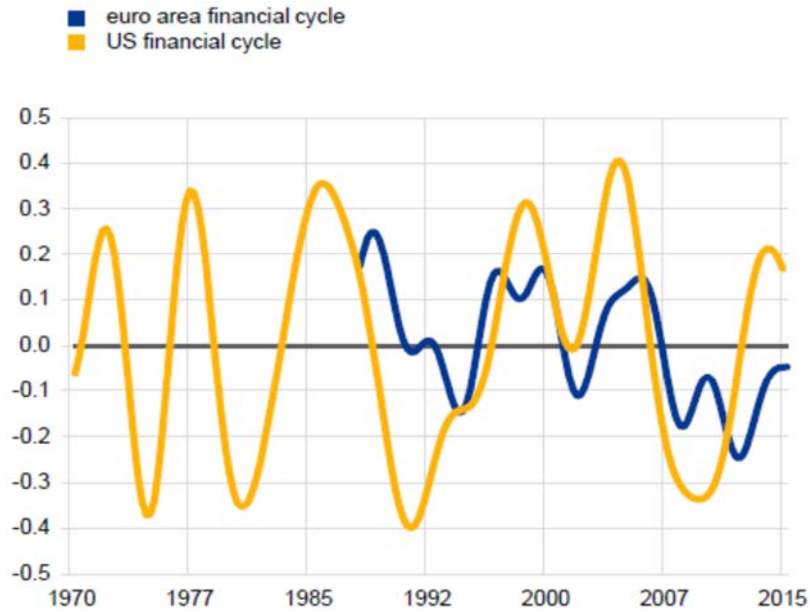
Fig. 7 – The credit cycle in Italy (1)



Source: Bank of Italy, *Financial Stability Report*, November 2015.

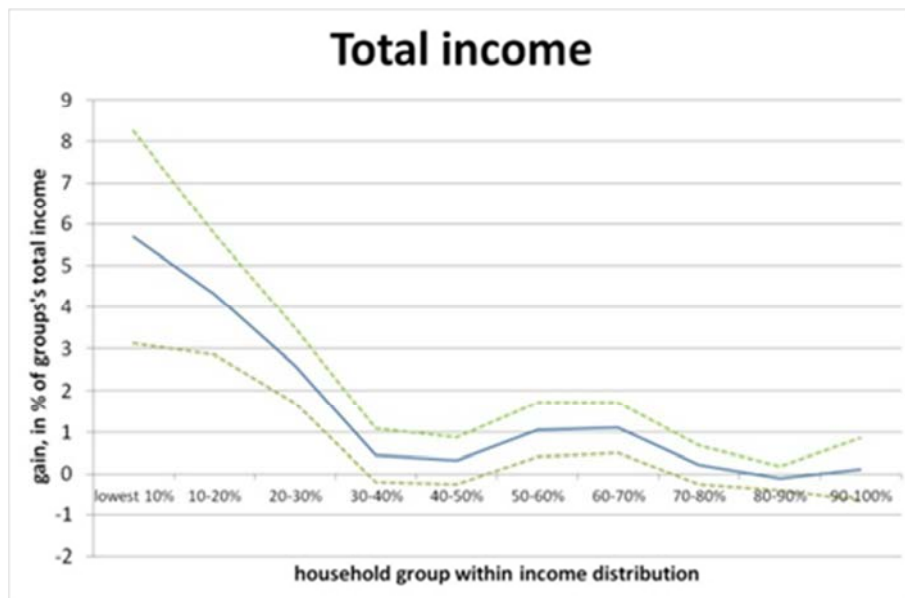
(1) Estimates of the cyclical component in the aggregate credit-to-GDP ratio for Italy. Red line: estimate based on a standard Hodrick-Prescott filter. Green line: estimates based on a corrected version of the Hodrick-Prescott filter (see Alessandri et al., 2015).

Fig. 8: The financial cycle in the euro area (1)



Source: European Central Bank *Financial Stability Review*, November 2015. The financial cycle is obtained as a time-varying linear combination of a set of indicators including total credit, residential property prices, equity prices and bond yields.

Fig. 9: Distributional effects of monetary policy shocks (1)



Source: Casiraghi et al. (2016b)

(1) The figure reports the estimated effects of unconventional measures adopted by the ECB in 2011-12 (SMP, 3-year LTROs and OMTs) on the income of Italian households. The impact is calculated separately for each decile of the income distribution, and is expressed in percentage points relative to the initial income level. For each household, the overall income variation reflects three components: an increase in employment and wages, a fall in the interest rates on assets (i.e. bank deposits and government bonds) and debt (i.e. bank loans), and capital gains stemming from a rise in house, bond and equity prices. The bands indicate \pm two standard deviations around each group mean.