Analysis

# The financial crisis changed the instruments but not the objectives of monetary policy

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Central banks have acted forcefully to provide monetary accommodation. With little room for manoeuvre for standard interest rate policy, unconventional measures have been adopted. Committing to monetary accommodation gains importance as interest rates go down and inflation expectations increasingly deviate from the target; the expectations channel of monetary policy transmission becomes key when the aim is to raise inflation expectations and improve confidence. One example of the new monetary policy instruments is the Eurosystem's expanded asset purchase programme, which demonstrates the determination of the Governing Council to return price developments to a path in line with its price stability objective.



## Monetary accommodation at the start of the financial crisis

The US economy began to falter in 2007 and 2008. At first, the Federal Reserve responded by gradually lowering the federal funds rate. With the collapse of Lehman Brothers in the autumn of 2008 uncertainty grew to levels where banks were no longer willing to lend to each other. Money market rates rose significantly higher than key interest rates in the major economic regions. Central banks were forced to apply unconventional measures.

The Eurosystem adopted a full allotment policy in its liquidity provision to the money market: the central bank sets a fixed interest rate and accepts all bids from the banks at this rate. The monetary policy stance became even more geared to controlling the price of central bank money rather than monetary developments. The fixed rate full allotment policy has since been applied in all monetary policy credit operations, and as a result the size of the Eurosystem balance sheet has since 2008 been determined more by the demand for central bank money than by Eurosystem decisions. At the same time, the Eurosystem has kept money market rates tightly under control.

A new phase in monetary policy began internationally when the zero lower bound of policy rates was reached. Economies were still suffering, which meant that all normal rules guiding the monetary policy stance (e.g. the Taylor rule[1]) were still pointing to a need for further easing. At the

zero lower bound for nominal interest rates, however, real interest rates could no longer be pushed down by lowering the short-term lending rate of the central bank.[2]

Central banks had to come up with new unconventional instruments for monetary accommodation, such as exceptionally large purchases of securities, credit operations with very long maturities, accepting an even wider range of banks' assets as collateral in central bank refinancing operations as well as forward guidance on monetary policy paired with an active commitment to accommodation.

Unconventional monetary policy measures tend to change the focus from controlling short-term interest rates to controlling longer-term interest rates. Normally central banks effectively set the level of risk-free short-term interest rates with their own key interest rate, whereas longer-term interest rates are the sum of expectations about future central bank interest rates and various kinds of risk premia. As short-term interest rates cannot be lowered below zero, monetary policy accommodation has to take the form of directly influencing expectations about the future level of short-term interest rates or outright purchases of instruments with longer maturities.

In 2008–2011, monetary policy instruments for lowering longer-term interest rates differed considerably from one currency area to the next. In the euro area, banks play an important role in financial intermediation, and the major policy measures were consequently a lengthening of maturities in credit operations and an easing of the eligibility criteria for assets accepted as collateral. In addition, the Eurosystem sought to support the functioning of banks' market-based financing by purchasing covered bonds issued by banks on the secondary market. Central bank financing with longer maturities and covered bond purchase programmes reduced banks' financing costs over the longer term and consequently lowered the level of interest rates more generally in the euro area. Another objective of these measures was to reduce the increasing inter-country differences in the transmission of the single monetary policy.

In the United States, capital markets play a more central role in financial intermediation than bank financing, and the US Federal Reserve (Fed) thus launched large-scale purchases of securities at an early stage. The purchases of e.g. mortgage-backed securities guaranteed by government-sponsored agencies contributed greatly to easing financing conditions and supported waning consumption and investment demand. There were also determined efforts to improve solvency in the banking system and the functioning of the financial system. In the euro area, the link between the financial positions of banks and sovereigns dampened lending especially in stressed countries for a prolonged period. Only with the establishment of banking union in 2014 did the feedback loops between banks and sovereigns begin to weaken.

At the same time, central banks sought to convince the markets and economic agents that the

accommodative monetary policy would continue for longer than expected. The Fed began to issue forward guidance in December 2008 by communicating that rates were likely to remain at their exceptionally low levels for some time. In December 2012 the Fed switched from calendar-based to threshold-based forward guidance by making its intention to maintain the federal funds rate at its prevailing level conditional on explicit quantitative thresholds for economic conditions such as inflation and the unemployment rate.[3]

Central banks use forward guidance to, on one hand, provide insight into their views on economic developments over the longer term and, on the other, into how they will react to changes in the outlook. Central banks continuously refine their reaction function and seek to influence the expectations of economic agents regarding future monetary policy.

Other major central banks followed the example of the Fed in their monetary policy communication. The ECB began to communicate more explicitly about its future monetary policy in June 2013, at a time when interest rates in the euro area were starting to rise in the wake of US rate developments, contrary to the monetary policy stance of the Eurosystem. The ECB's announcement produced the desired reaction, and euro interest rates began to move away from dollar rates.[4]

## Debt crisis in euro area leads to tailor-made central bank measures

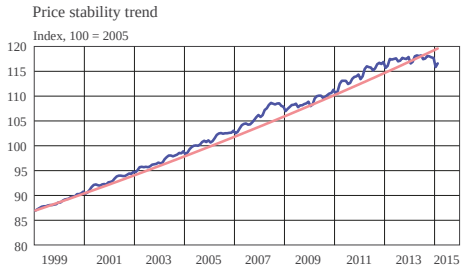
In the first half of 2010, the sovereign debt crisis broke out in a number of euro area countries.[5] In the first decade of the euro area, financial markets had priced euro area government bonds relatively homogeneously. During the crisis, however, country differences in economic developments and especially in government debt levels and debt sustainability started to become apparent. Market reaction was a swing from one extreme to the other. Formerly minimal differences in risk premia expanded across the board, putting further strain on the public sector. As a result, average financing conditions in the euro area tightened considerably in a situation where the economy was not yet ripe for such a tightening.

In order to safeguard the independence of monetary policy, central banks in the European Union are not allowed to finance the public sector. The prohibition on monetary financing serves to reinforce the responsibility of euro area countries for their own finances and prevents the ECB from providing emergency funds to euro area governments. A key role in managing the acute crises of euro area sovereigns was reserved for European Commission and IMF consolidation programmes.

In the most acute phase of the crisis in summer 2012, the markets began to question the sustainability of the Eurosystem as a whole. In response, the Governing Council of the ECB launched a programme of outright monetary transactions (OMT) with a view to preventing unfounded fears about the reversibility of the euro from distorting risk premia and adversely affecting the functioning of the single monetary policy.

The fragmentation of financing conditions across the euro area was greatly reduced by the actions of the stressed countries, financial support granted by euro area countries and the OMT programme, which has proven effective without even making a single purchase (see Chart 1). In addition, the long-term refinancing operations of the Eurosystem, the consolidation efforts in the banking sector and the forward guidance had the desired effect. As a result of all these measures, the financing conditions of the euro area banking system stabilised and long-term interest rates fell to very low levels. Nevertheless, economic activity in the euro area failed to strengthen as hoped and, as both actual inflation and inflation expectations in the euro area declined sharply over the past two years, the likelihood of deflationary developments generated a great deal of concern.

Chart 1.




Sources: Eurostat and calculations by the Bank of Finland.

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## Expanded purchase programme in response to waning inflation expectations

The stated objective of monetary policy in the euro area is to keep annual HICP inflation below, but close to, 2% in the medium term. A secondary objective is to support the EU's general economic policies without prejudice to the objective of price stability.

Over the long term, the Eurosystem has met its price stability objective commendably. Average inflation rates have stayed below, but close to, 2% since the introduction of the euro. The price

level in the euro area has never deviated more than a few index points from the path that would have resulted from constant inflation at 2% (see Chart 2). In the short term, however, inflation has at times expressed high volatility around the price stability objective. This was especially the case just before the financial crisis in 2008, when inflation peaked at over 4%, and again only approximately one year later, when global economic growth stalled in the wake of the collapse of Lehman Brothers and inflation bottomed out below zero (see Chart 3).

Chart 2.

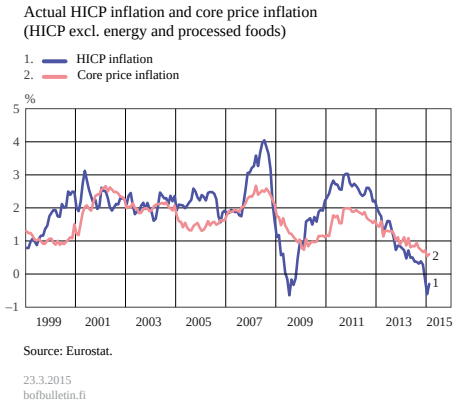



Chart 3.




Recent times have been difficult from the point of view of price stability. Inflation has remained below 1% for over a year and is forecast to remain below target levels for at least two more years. There are both internal and external reasons for the slowing pace of inflation in the euro area. Overindebtedness and the resulting persistently weak demand have reduced price pressures and prevented non-financial corporations from fully reflecting cost increases in their pricing. Competitiveness issues have reduced wage pressures in several countries, and in some euro area countries wages and salaries have even gone down, especially in the public sector. In addition, falling global commodity and energy prices have significantly dampened global price

developments, with both fuel prices and food production costs falling simultaneously.

Towards the end of 2014 the outlook for prices in the euro area weakened further. This trend was underlined by negative inflation rates in December as the result of a major decline in the price of oil, which has a significant weighting in the price basket. However, even core inflation (excluding food and energy prices) has been exceptionally low and following a falling trend in recent times, which points to a more broadly based weakening of price developments (see Chart 3).

Central banks are prepared to use all the means at their disposal in order to prevent a generalised self-reinforcing cycle of falling prices, i.e. deflation. Although prices have declined in some euro area countries, the euro area as a whole has not experienced broadly based deflation. A temporary decline in prices in a limited group of products (e.g. oil) does not constitute detrimental deflation. Nevertheless, signs of highly dangerous price developments increased towards the end of 2014. One example can be seen in the IMF forecast of autumn 2014, where the probability of deflation for the euro area has increased to close to 30%.

From the point of view of forward-looking monetary policy and price stability it is more important to look at the inflation outlook than at actual inflation. There are two reasons for the significance attached to inflation expectations. Firstly, as the implementation of monetary policy is market-based, the transmission of policy changes to current prices is not immediate. Under normal circumstances, the transmission lag of monetary policy is approximately 18–24 months. This delay and random price variation are the main reasons why the ECB aims to maintain price stability in the medium term.

Secondly, economic agents seek to project future price developments when making financial decisions. This channel is particularly important when financial agreements are made for longer periods. When e.g. wage agreements are made for a number of years, inflation expectations become key in assessing their real impact. High expected inflation leads to higher wage demands, and high wage demands drive inflation. Because of this self-fulfilling quality of inflation expectations, anchoring them to levels consistent with price stability is of key importance to monetary policy.

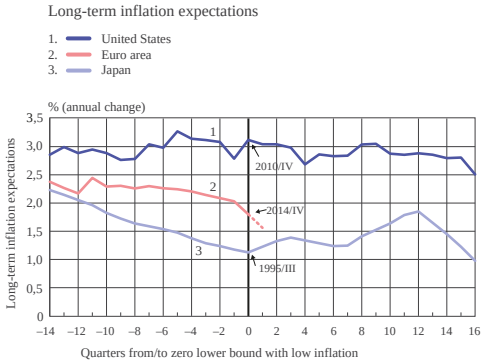
Even if actual inflation falls close to zero, central banks need not be concerned as long as the underlying factors are of a temporary nature, as a fall in oil prices tends to be. The inflationary impact of changes in relative prices tends to be temporary; they have no impact on inflation expectations and central banks would, in any case, not be able to react in time because of the transmission lag.[6] However, a weakening economic outlook, persistent very low inflation rates and monetary policy at the zero lower bound have been dampening both short and long-term inflation expectations in the euro area for several months already. Low levels of inflation were no longer

considered a temporary phenomenon. Towards the end of 2014, markets began to price in negative inflation for the following year. In addition, various inflation forecasts from different sources saw inflation remaining below levels consistent with the price stability objective for a prolonged time, which began to drag even on long-term inflation expectations derived from market information.

Despite the uncertainty in measurements of inflation expectations, this was particularly problematic from the monetary policy perspective, as inflation expectations derived from three to five-year market prices also plummeted after the summer of 2014. This was interpreted as markets no longer believing that inflation would return to levels consistent with price stability even after the fading away of the direct and indirect impacts of past oil price cuts on annual inflation.

A decline in longer-term inflation expectations signalled to the Governing Council of the ECB that the price stability objective was at risk. Earlier monetary policy measures aimed at supporting credit markets were now complemented with an expanded asset purchase programme in response to apparently persistent very low inflation and the risk of deflationary developments.

Chart 4.



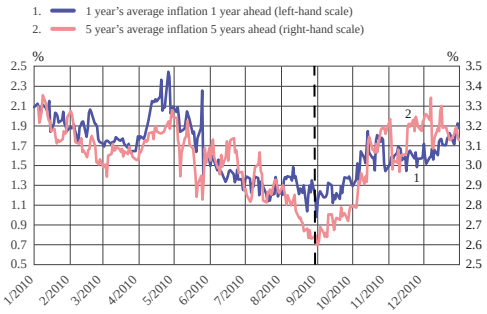

Long-term inflation expectations for the United States and euro area are for 5 years' average inflation 5 years ahead. Japan's inflation expectation is the consensus inflation forecast for 10 years.

Sources: Auroba et al. and Bloomberg.

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Chart 5.

Short and long-term inflation expectationsin the United States in 2010



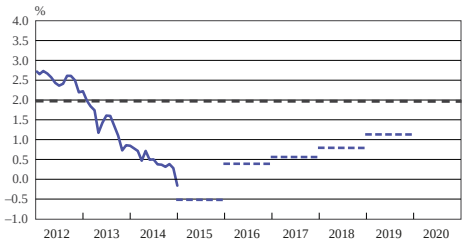

Inflation expectations according to inflation swaps. The vertical broken line indicates the time the Fed Chairman gave the speech on possible additional purchases of government bonds. The decision on bond purchases was taken on 3 November 2010.

Source: Bloomberg.

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Chart 6.

Market-implied expected inflation as at 1 January 2015




Sources: Eurostat, Bloomberg and calculations by the Bank of Finland.

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## Price stability through monetary growth

The asymmetry of the interest rate instrument could introduce a downward bias in the price stability objective: average inflation rates may remain below target levels if central banks are only able to raise interest rates and slow down inflation but – because of the zero lower bound – not to lower the rates and boost inflation. In principle, central banks could counteract this effect e.g. by committing to an accommodative monetary policy for a sufficiently long period and allowing inflation to exceed average target levels for a time. Implementing such a policy would not be easy, however, as it would move the focus of the central bank's monetary policy strategy from inflation targeting towards price level targeting.[7]

The zero lower bound can, however, lead to a prolonged period of very low inflation even without a broadly based deflationary cycle of falling prices and wages. Breaking out of such a situation may

prove difficult, especially if inflation expectations are clearly below the central bank's target level. Preventing a deflationary cycle is in principle a simple matter: monetary policy needs to commit to unlimited accommodative measures to achieve price stability and raise inflation expectations back to levels consistent with the strategic objective. One such measure is to increase the amount of central bank money by purchasing assets with (electronic) money that is created for this very purpose. The expansion of central bank balance sheets through asset purchases for monetary policy purposes does not constitute a money-printing scheme, also known as helicopter money.[8] In addition to increasing the amount of money in circulation, it would be important to boost domestic lending, and fiscal policies should support demand growth where possible.

In practice, such policy actions are not easy to implement. Central banks do not easily commit to unlimited operations, as prolonged overly accommodative monetary policies can result in e.g. rapid, unfounded asset price increases. Measures to increase credit demand are dampened when a significant share of economic agents are overindebted. Problems related to overindebtedness could weaken the central bank's ability to tighten monetary policy at a sufficient pace when the time comes. Fiscal policies supporting demand might be neither feasible nor prudent if central government budgets have been in deficit for an extended period, tax rates are high and long-term growth prospects are weak. Indeed, structural reforms to enhance the growth potential of national economies have gained importance especially in countries where there is limited scope for improving public sector demand.

The ECB's main refinancing rate has been 0.05% since June 2014. In September 2014 the central bank also changed the lower bound of its interest rate corridor, lowering the rate on the deposit facility to -0.20%. The Eurosystem had reached the zero lower bound for monetary policy. In addition, in the months from June to September the ECB decided on a number of measures to support bank lending and expand the Eurosystem balance sheet. Even with these measures in place, loan demand remained subdued and inflation expectations continued to fall towards the end of the year.

In a bid to achieve its balance sheet objective and safeguard price stability, the Governing Council decided on 22 January to significantly expand the asset purchases introduced in the autumn of 2014 and to also include bonds issued by euro area central governments, government agencies and European institutions. In the earlier purchasing programmes the ECB has been buying covered bank bonds and asset-backed securities. The combined monthly purchases were announced to amount to EUR 60 billion from March 2015 to the end of September 2016, bringing the total cumulative purchases to EUR 1,140 billion. In addition, the Governing Council announced that it would be prepared to continue the programme until it sees a sustained adjustment in the path of inflation that is consistent with its aim of achieving inflation rates below, but close to, 2%

over the medium term. This constituted a clear step, in terms of both the monetary policy stance and communication, from setting the price of money to manipulating the money supply.

## Monetary policy toolkit not exhausted

Expanding the Eurosystem balance sheet is not an end in itself; it has real economic goals besides price stability. The purchases increase the amount of money in circulation, which will eventually manifest itself as improved financing conditions and a better availability of financing for the euro area real economy.

The economic impact of an increased money supply is felt through several channels. The measures lower the yields on the bonds being purchased, which translates to lower financing costs for the issuer. Central government bond yields are commonly used as reference rates on the financial markets, so an impact on the rates is felt much more widely than just in central government finances. This transmission channel is reinforced by what is called the portfolio effect, which occurs when the sellers of assets invest the money received in payment from the central bank in other assets, thus pushing up prices and again lowering financing costs. In addition, price increases on bonds increase the wealth of their holders and raise the collateral value of the assets. The purchases will also have wealth effects and improve the availability of liquidity to agents with impaired access.

Monetary growth will increase the supply of the currency vis-à-vis other currencies, thus in principle weakening it. The euro is a freely floating currency whose value is determined by the markets. The monetary policies of other countries influence its value alongside the monetary policy of the Eurosystem. Expectations of a tightening of monetary policy in the United States, implying higher dollar rates in the future, have influenced the exchange rate of the euro against the dollar, the euro depreciating and the dollar appreciating. The impact of monetary easing on the exchange rate will depend crucially on how monetary policy measures change the views of domestic and foreign investors as regards future yields on securities issued in the euro area and denominated in euro.

A weaker exchange rate should enhance the competitiveness of goods and services produced in the currency area, strengthening exports. In addition, import prices will rise as a result of the depreciation, accelerating inflation.

The combined effect of all current Eurosystem decisions should strengthen demand, consumption and investment, raise the capacity utilisation rate and support the growth of money and credit, thus contributing to bringing inflation closer to 2%. In this way, monetary policy in the euro area supports economic recovery and the return of inflation rates to levels consistent with the set

objective over the medium term. The objective can be reached faster if the expectations of economic agents develop positively and other economic policies provide support to the measures taken by the European Central Bank.

Although the impact of the asset purchases has been beneficial, it is too early to assess how strong the impact will eventually be, e.g. how the different rates will go down and which assets will see strongest demand growth. The answers will depend, to a great extent, on decisions made outside the central banks: from which balance sheets assets will be sold and what the sellers will do with the money they receive.

The January decisions of the Governing Council were explicitly about safeguarding the objective of price stability. The Governing Council is committed to continuing its accommodative monetary policy until it sees a sustainable adjustment in the path of inflation to levels consistent with the objective, i.e. below, but close to, 2%. This should raise inflation expectations, which of course is the one way a central bank acting under the zero lower bound can lower the real interest rates in the economy.

A commitment to unlimited monetary accommodation gains importance and is more effective in an environment of low interest rates with inflation expectations deviating considerably from the objective. In the situation prevailing in the euro area in recent months, the expectation channel of monetary policy transmission has gained increasing importance in raising inflation expectations and bringing about a more broadly based improvement in economic agents' confidence levels. Forward guidance in the form of a commitment to monetary accommodation can be considered as the key component in the January monetary policy decisions. The expanded asset purchase programme is a novel measure for the Eurosystem and, as such, proof of the Eurosystem's determination to bring price developments back in line with the objective. Still, it is important to understand that the monetary policy-makers have not exhausted their toolkit. If the decisions made in January are not sufficient to achieve price stability, the ECB will use additional instruments within its mandate.

## Notes

1. According to the Taylor rule, changes to the key interest rate are determined by the deviation of actual inflation and output from their desired paths, where the desired inflation rate is the price stability objective of the central bank and the desired output is potential output. ↑
2. In practice, central banks cannot lower their lending rates significantly below zero without turning cash money into an investment with a risk-free real yield. ↑
3. Williams, J. C. (2013) Will Policy Be the New Normal? FRBSF Economic Letter 2013-29, 7 October. ↑

4. ECB Monthly Bulletin (April 2014) The ECB's Forward Guidance. ↑
5. The worst hit were the so called GIIPS countries, i.e. Greece, Ireland, Italy, Portugal and Spain. ↑
6. Changes in relative prices can, however, lead to a more persistent inflationary cycle, for example when they are compensated for in wage negotiations. ↑
7. See Kilponen, J. – Kontulainen, J. – Suvanto, A. (2013) Financial crises and monetary policy targets. Bank of Finland Bulletin 1/2013. ↑
8. See Bernanke, B. S. (2002) Deflation: Making Sure "It" Doesn't Happen Here. Remark before the National Economists Club. Washington, DC. November 21. ↑

## Keywords

euro area, inflation, monetary policy, quantitative easing, unconventional monetary policy