Benoît Cœuré: How binding is the zero lower bound?

Speech by Mr Benoît Cœuré, Member of the Executive Board of the European Central Bank, at the conference "Removing the zero lower bound on interest rates", organised by Imperial College Business School / Brevan Howard Centre for Financial Analysis, CEPR and the Swiss National Bank, London, 18 May 2015.

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Summary

The notion of an effective lower bound on policy interest rates, that is lower than zero, has become a concrete concern for monetary policy. While the effective lower bound for short-term rates exists, it does not impose a binding constraint on the effectiveness of monetary policy. There are tools for dealing with the lower bound constraint, which at the ECB go under the name of "non-standard monetary policy measures". We saw that the short-term interest rate going below zero does not pose the difficulties for monetary policy.

While removing the effective lower bound by abolishing cash can be envisaged, it should be based on changing technologies and social perceptions, not of policy prescriptions. Also political capital could be better spent on structural reforms of euro area economies, which would raise the natural real rate of interest and thereby make the lower bound less binding.

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Ladies and gentlemen,

It's a great pleasure for me to speak to you tonight.

The existence of an arbitrage relationship between the return on short-term nominal bonds and the return on cash has long been known in the academic literature. To quote John Hicks, "So long as rates of interest are positive, the decision to hold money rather than lend it, or use it to pay off old debts, is apparently an unprofitable one".[1] From a portfolio choice perspective, cash is, under normal circumstances, a strictly dominated asset, because it is subject to the same inflation risk as bonds but, in contrast to bonds, it yields zero return. It has also long been known that this relationship would be reversed if the return on bonds were negative. In that case, an investor would be certain of earning a profit by borrowing at negative rates and investing the proceedings in cash. Ignoring storage and transportation costs, there is therefore a zero lower bound (ZLB) on nominal interest rates.

In the years of relatively high inflation rates, the zero lower bound was merely a theoretical notion taken into account when characterising the solutions of monetary models. It has, however, become a concrete concern for monetary policy in the last two decades, first in Japan, then in most other developed economies. Central banks have consequently become interested in the formerly abstract ZLB topic. And, because storage and transportation costs of cash are non-negligible in reality, the notion of an "effective lower bound "of policy rates has emerged that is lower than zero.

That monetary theory is thinking ahead once again and investigating options to remove this constraint is in my view welcome. It is therefore a pleasure to be at this conference and I am looking forward to learning more about all the proposals presented today.

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[1] J. R. Hicks, 1935. "A Suggestion for Simplifying the Theory of Money" Economica, New Series, Vol. 2, No. 5 (Feb., 1935), pp. 1–19

In my remarks, however, I will argue that while the effective lower bound for short-term rates exists, it does not in fact impose a binding constraint on the effectiveness of monetary policy. There are readily available tools for dealing with the lower bound constraint that at the ECB go under the name of "non-standard monetary policy measures". Moreover, even if structural changes in payment habits could soften the constraint on short-term policy rates imposed by the effective lower bound, I consider such ideas – in the euro area at least – to be for tomorrow and not for today.

The effective lower bound is not at zero

Let me begin however with an important question: where is the effective lower bound in the euro area? As you know, the ECB operates on the basis of the corridor system. We have an interest rate at which we normally provide most of our liquidity to monetary and financial institutions, the rate on the main refinancing operations, or MRO rate. We then have the marginal lending rate – a rate incorporating a spread over the MRO at which banks can obtain overnight liquidity from our standing marginal lending facility. And we finally have the deposit rate, that is, the interest rate on the deposit facility where banks can place their reserves in excess of the reserve requirement and which is fixed at a spread below the MRO rate.

Since our September 2014 monetary policy decisions, the MRO rate has been fixed at 5 basis points, the marginal lending rate at 30 basis points, and the deposit facility rate at *minus* 20 basis points.

Under normal circumstances, the so-called "policy rate" of macroeconomic models would correspond to our MRO rate. This is the rate that typically relates to the rate on private interbank transactions on the overnight market, the EONIA rate. However, in an environment of excess liquidity and persistent frictions in financial markets, as we see today, it is no longer possible to define our stance by a unique "main" policy rate. If one were willing to proxy such a rate with the EONIA, one would conclude that our policy rates stand at around minus 10 basis points. From this macroeconomic perspective, our effective lower bound is therefore slightly negative. From an operational perspective, the lower bound corresponds to the deposit rate, which can in theory be kept at an even more negative level because of the cost of storing and shipping physical currency. The key point is that, however defined, the lower bound has been found to be below zero.

Equally importantly, we now also have evidence that a large fraction of unsecured money market transactions can take place at negative rates without hampering market functioning.[2]

Following the decisions of June and September 2014, the lower policy rates were transmitted smoothly throughout the money market. As expected, EONIA forwards curves flattened and shifted down, and the volatility of EONIA rates dropped. In spite of the EONIA hovering much of the time in negative territory, no adverse effects on market conditions have been recorded. On the contrary, negative EONIA rates have coincided with stable and even rising trading volumes, and with homogenous transmission to closely substitutable market segments.

All this suggests that the short-term interest rate going below zero does not pose the difficulties for monetary policy that we might have imagined. So could we reduce the main policy rates in the euro area even further? On this point we have been very clear: the current constellation of policy rates is for us the effective lower bound. We do not intend to lower short-term policy rates further. And an important reason for this is that the lower bound for short-term rates is, in fact, not a hard constraint on monetary policy.

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[2] See B. Cœuré, 2014. "Life below zero: Learning about negative interest rates", presentation at the annual dinner of the ECB's Money Market Contact Group, Frankfurt am Main, 9 September, and European Central Bank (2015), "Euro Money Market Survey 2014", Box 4, p. 23, 30 April.

The lower bound and non-standard measures

Monetary conditions depend not just on short-term rates, but on the entire range of market interest rates. Indeed, when the central bank alters short-term rates it is aiming to steer the medium- to long-term rates that determine investment and consumption decisions in the real economy. An inability to cut short-term rates even more does not therefore make monetary policy ineffective if other tools are available that can influence the shape of the yield curve. At the extreme, one could argue that the true lower bound for monetary policy is reached only when the entire yield curve is flat at the effective lower bound. This is where non-standard measures come in.

Non-standard measures are a variant of standard monetary policy that utilises different instruments, intermediate targets and communication devices to achieve the same final objective, namely maintaining price stability over the medium term. Following a version of the Tinbergen principle, we can view non-standard measures as assigning a large array of instruments – asset purchases at different maturities – to a correspondingly large set of intermediate targets, i.e. the corresponding market interest rates. The effective lower bound for monetary policy should be seen in this functional space, and not along a one-dimensional line. Through this expanded set of instruments, we are able to exert direct influence on many long-term interest rates, rather than only control a very-short term interest rate on banks' reserves.

This view puts into a different perspective models and model-based simulations aiming at assessing stabilisation policies when monetary policy is constrained by the lower bound. In standard DSGE simulations, the ZLB is captured by the policy rate being non-negative at each point in time along the future path of the economy. But taking into account the possibility for monetary policy to exert influence on longer-term interest rates would lead to a more benign assessment of the impact of the lower bound on, say, the size of fiscal multipliers, or on the welfare impact of structural reforms.[3]

We have two main instruments to flatten the yield curve across the full spectrum of maturities. The first is forward guidance, which works both by anchoring expectations about the level of future short-term rates, and by reducing the volatility around that level. However, forward guidance is only credible over the horizon of visibility of the monetary policy committee. If the central bank intends to steer interest rates at maturities beyond that horizon, it has to do so by directly targeting the term premium through private or public asset purchases.

As our short-term rates have fallen towards the lower bound, and hence the signalling power of rate movements has decreased, the ECB has progressively resorted to both these instruments. We have provided and then reinforced our forward guidance and, when rates reached the effective lower bound in September last year, we moved to asset purchases as the main tool of monetary policy, starting with two programmes of purchasing private assets and then expanding them to include public sector bonds last January. We buy public sector assets with remaining maturities of two to 30 years, and the weighted average maturity of our portfolio is eight years. This is an unprecedented lengthening of the horizon at which we influence interest rates.[4]

Both these instruments have been effective in overcoming the lower bound constraint. Forward guidance has led to a decline in the uncertainty about future monetary policy, and the sensitivity of money market forward rates at various horizons to news and data surprises

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[3] In the former case, see e.g. C. L., Eichenbaum, M., and S. Rebelo, 2011. "When Is the Government Spending Multiplier Large?", Journal of Political Economy, Vol. 119, No. 1, pp. 78–121. In the latter case, see A.Ferrero G. Eggetson and A. Raffo, 2014, "Can Structural Reforms Help Europe?", Journal of Monetary Economics, 61, January 2014, pp. 2–22.

[4] Our three-month liquidity tenders are still called "long-term refinancing operations".

has diminished. It is also clear from the data we have so far that some of the expected transmission mechanisms of large-scale assets purchases are already at work.

For example, following the announcement of the expanded asset purchase programme on 22 January, we saw a decline in the forward interest rates across all maturities on sovereign and, with a lag, on corporate bonds, showing that the portfolio rebalancing channel was in play. Some investors appear to have been taking profit on corporate bonds and reallocating investments towards equity and foreign markets, as the upside potential in the euro area corporate bond market is judged to be relatively limited. This suggests that the portfolio rebalancing channel of our public sector purchase programme is playing out in a very different way than for US quantitative easing, which started at a time when there remained significant scope for domestic credit spread compression, and that it involves both domestic and international rebalancing.

Interestingly, both measures – forward guidance and asset purchases – have been reinforced by the fact that the effective lower bound has proven to be slightly negative. When policy interest rates reach zero, even with credible forward guidance the term structure can steepen as markets anticipate that future short-term rates can only rise. If however they can be convinced that the lower bound for short-term rates is not zero but can be made negative, then the probability distribution of future rate movements changes. After we introduced our negative deposit rate last year we saw long-term interest rates starting to flatten. The probability distribution of future EONIA rates (with the forward rate standing at –15 basis points at end-2015) indeed includes an expectation that our deposit facility rate can be lowered further.

A negative deposit rate can also complement our asset purchase programme by inducing banks which are selling securities to the Eurosystem, and receiving bank reserves in return, to lend on those balances. It compensates the lack of capital relief for banks in a regulatory environment which treats government bonds as risk free. In this way it can increase the velocity of circulation of reserves and accelerate the portfolio rebalancing transmission channel.

As you know, this combination of measures has created strong price effects in certain asset markets, going beyond what many observers initially anticipated. German yields, for example, were briefly negative out to around the 8-year maturity point and were below the deposit rate until almost the 4-year maturity. We have always stressed, however, that the objective of our programme is to influence prices but not to impair price discovery. For this reason I do not see the recent reversal in the price of Bunds and other sovereign bonds as a cause for concern, insofar as it reflects a market correction, recreates two-way risk in the market and reflects the fact that, as our programme takes effect, some of the more pessimistic assumptions of future growth and inflation trends are being revised. It is the *rapidity* of the reversal that worries me more. After several similar episodes, it is yet another incident of extreme volatility in global capital markets showing signs of reduced liquidity.[5]

Against this background, we are also aware of seasonal patterns in fixed-income market activity with the traditional holiday period from mid-July to August characterised by notably lower market liquidity. The Eurosystem is taking this into account in the implementation of its expanded asset purchase programme by moderately frontloading its purchase activity in May and June, which will allow us to maintain our monthly average of €60 billion, while having to buy less in the holiday period. If need be, the frontloading may be complemented by some backloading in September when market liquidity is expected to improve again. The slightly

[5] For a discussion of the financial stability consequences of lower market liquidity, see A. Bailey, 2015. "Financial Markets: identifying risks and appropriate responses", speech given at Hughes Hall, Cambridge University, 15 May.

higher purchase volume that market analysts may observe in the coming weeks is therefore unrelated to the recent episode of market volatility.

Other options for dealing with the lower bound

The fact that non-standard measures can help to overcome the lower bound constraint does not mean that there might not be other, even more effective ways to deal with it.

In this context two types of policy have been put forward: those that take the existence of the effective lower bound as a given and seek to improve the traction of monetary policy in that environment; and those which aim to remove the lower bound constraint altogether.

As regards the first type, several options have been proposed in the literature, but most are unfortunately not very appealing to policy-makers. For instance, Blanchard and Ball, among others, suggest increasing the inflation objective, for example from 2% to 4%.[6] This option, however, would impose permanent costs on the economy in terms of the inefficient allocation of resources associated with a higher inflation rate. Another important casualty would be the credibility of the ECB, given that economic agents would entertain the possibility of further changes in the objective in response to future shocks. All in all, raising the inflation target is "too blunt an instrument" for achieving the desired objective of stabilising the economy in a low interest rate environment.

Additional proposals are even more far-reaching. They involve the use of "active" fiscal policy to create inflation, or to *increase* policy interest rates to coordinate expectations on the desired equilibrium of inflation of below but close to 2%.[7] But neither proposal is practical given our context in the euro area. Our forward guidance is based on the notion that we do not intend to raise rates for an extended period of time. And explicit monetary-fiscal policy coordination is neither possible within our institutional framework of 19 different national fiscal policies, nor is it desirable given our independence from fiscal authorities. Moreover, the aggregate stance is broadly neutral today, and if its allocation across countries can be questioned, it would not be desirable for it to become much more active given the high legacy debt and the requirements of our fiscal rules.

As regards the second type of policy – those aimed at removing the effective lower bound on short-term rates – perhaps the most prominent proposal is to either to tax currency holding *à la* Gesell or abolish it altogether, and hence to remove the arbitrage between bonds and cash.[8] One can indeed imagine several advantages associated with such a policy, on top of pushing the lower bound further into negative territory. For example, tax on cash can act like a tax on illegal activities and would foster greater transparency. In addition, we could economise on the costs of storage and use of currency, which are not insignificant.

There are important reasons, however, why it is difficult for policy-makers to give this option serious consideration. They have mainly to do with psychological and operational factors.

The use of cash with a zero guaranteed nominal rate of return and a non-negative nominal interest rate on deposits is deeply ingrained in the psyche of economic agents. Savers

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[6] See O. Blanchard, G. Dell'Ariccia, and P. Mauro, 2010. "Rethinking Macroeconomic Policy", IMF Staff Position Note, February 12, 2010; and L. Ball, 2013. "The case for 4% inflation," Voxeu.

[7] See C. Sims, 2014. "Coordinating Monetary and Fiscal Policy to Exit the Zero Lower Bound". Presentation made at the European Central bank. https://www.ecb.europa.eu/events/pdf/conferences/141215/slides/SIMS_slides.pdf. Also, "Commentary on Policy at the Zero Lower Bound". (2010) CEPS Working Paper No. 201. And S. Schmitt-Grohé and M. Uribe, 2014. "Liquidity Traps: An Interest-Rate-Based Exit Strategy", The Manchester School, 82, S1, September 2014, 1–14.

[8] See W. Buiter, 2009. "Negative Nominal Interest Rates: Three ways to overcome the zero lower bound", NBER Working Paper, No. 15118, and K. Rogoff, 2014. "Costs and Benefits to Phasing Out Paper Currency", presented at the NBER Macroeconomics Annual Conference, 11 April.

already perceive a negative nominal interest rate on deposits as an unfair wealth tax and extending it to cash would deepen this perception and affect even more vulnerable members of our society. Beyond looking for a different bank which might offer slightly better conditions, depositors would have no other option than to keep hold of their savings, unless there were to be rapid shift in attitudes towards saving in more risky types of assets such as equities. In addition, this would raise serious financial inclusion issues as not all people today can use computers or operate smartphones.

In short, while I can very well envisage a world without cash, I view it as the outcome of changing technologies and social perceptions, not of policy prescriptions.

Besides, I do not believe that it would be desirable to remove the zero lower bound in the euro area at the current juncture. I say this for three reasons.

First, removing the lower bound would not solve all problems related to monetary policy. The experience of the global financial crisis taught us that the type of shocks which can drive policy interest rates to the lower bound are also shocks which produce severe impairments to the monetary policy transmission mechanism. Suppose, for example, that the interbank market freezes and prevents a smooth transmission of the policy interest rate throughout the banking sector and financial markets at large. In this case, any cut in the policy rate may be almost completely ineffective in terms of influencing the macroeconomy and prices.

Given the persistent signs of fragmentation in some euro area financial markets, it is therefore not clear that the ability to lower key ECB rates deep into negative territory would by itself help ensure a faster return to growth in the euro area. On the contrary, this could have an impact on the business model of banks and insurance companies, and impair their capacity to perform financial intermediation and support monetary policy transmission. And where fragmentation is now receding, our non-standard measures have in any event pushed real rates well below the long-term growth rate, creating sufficiently strong price incentives to invest.

Second, we are mindful of the risks of persistently low interest rates to financial stability.[9] It is accepted today that real rates will remain below the long-term growth rate for as long as is necessary in order for investment to recover. Throughout this period, private agents may be tempted to borrow to purchase assets of which the supply is limited or inflexible, such as real estate.[10] We are prepared to use our micro- and macro-prudential instruments to face the risks of bubbles and excessive leverage, but if the lower bound were effectively abolished, those risks would increase and may lead to macroeconomic instability along this dynamically inefficient path.

Third, we have to reflect on why we have reached the lower bound in the euro area in the first place. An important issue here is the possibility that the natural real rate may have fallen very low or even gone negative; this could occur for various reasons such as low productivity or a slowdown in population growth, both of which are relevant for the euro area. A protracted period of deleveraging in the euro area, similar to the one which occurred in Japan in the 1990s, could also have pushed the natural real rate down, even into negative territory,

[9] See M. Draghi , 2015. “The ECB’s recent monetary policy measures: effectiveness and challenges”, Camdessus Lecture, International Monetary Fund, Washington DC, 14 May.

[10] See G. Claeys and Z. Darvas, 2015. “The Financial Stability Risks of Ultra-Loose Monetary Policy”, Bruegel policy Contribution, Issue 2015/03.

and potentially for a long time.[11] This is related to the so-called "secular stagnation" hypothesis.[12]

This scenario may also be consistent with a gloomier view of recent bond market developments than the one I have provided above. Real forward interest rates indeed suggest that the expected short-term real interest rate about ten years ahead is around –1%, while expected euro area GDP growth for the period six to ten years ahead stands at 1.4% (according to the Consensus Forecast). If forward markets were correct, then the fall in long-term yields would not due to a generalised reduction in the market price of risk, and thus a flattening of term and risk premia induced by our extended asset purchase programme. It would be rather a reflection of a generalised fall in real interest rates, signifying bleaker prospects for euro area growth. For monetary policy to remain "neutral" in such an environment, a lastingly low or negative *actual* real rate would be needed.

It is in response to this that some are proposing to remove the effective lower bound. But my question is, why not instead focus on raising the natural real rate? Why not introduce structural reforms that will raise investment demand? This would be unambiguously positive for employment and productivity growth and, as I have discussed elsewhere, could have positive effects even over a relatively short time horizon. The answer could in principle be to do both, but we know that in reality political capital is often scarce, and my suspicion is that taxing deposits would use up much of the political capital that could be better spent on structural reforms.

[11] See G. B. Eggertsson and P. Krugman, 2012. "Debt, Deleveraging, and the Liquidity Trap: A Fisher-Minsky-Koo Approach," The Quarterly Journal of Economics, Oxford University Press, vol. 127(3), pages 1469–1513.

[12] For a detailed overview of the discussion see R. J. Gordon, 2015. "Secular Stagnation: A Supply-Side View"; L. H. Summers, 2015. "Demand Side Secular Stagnation" ; B. Eichengreen, 2015, "Secular Stagnation: The Long View", all published in the American Economic Review: Vol. 105 No. 5 (May 2015).