Vítor Constâncio: International headwinds and the effectiveness of monetary policy

Speech by Mr Vítor Constâncio, Vice-President of the European Central Bank, at the 25th Annual Hyman P Minsky Conference on the State of the US and World Economies at the Levy Economics Institute of Bard College, Blithewood, Annandale-on-Hudson, New York, 13 April 2016.

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Ladies and Gentlemen,

I want to start by thanking the Levy Institute for inviting me again to address this important conference honouring Hyman Minsky, the economist that the Great Recession justifiably brought into the limelight. His work provides crucial insights not only identifying the key mechanisms by which periods of financial calm sow the seeds for ensuing crises, but also the specific challenges that economies face in recovering from such crises.[1] Moreover, Minsky displayed a keen understanding of the damaging effects of uncertainty, not just on economic performance but also, ultimately, on the fabric of civil society and democratic institutions.[2] These insights have acquired renewed urgency in view of the world-wide resurgence of "easy-answer populism" whose simple but flawed solutions to complex problems become more appealing the greater the uncertainty.

This year's conference has a very topical title "Will the Global Economic Environment Constrain U.S. Growth and Employment?" Indeed, the prospects for the full recovery of the U.S. economy and the normalisation of its monetary policy are of utmost importance but can only be properly assessed in an international context. Conversely, international spillovers from the U.S. to the other economies must be well understood, to appreciate the most likely scenarios for the global economy.

Nine years after the inception of the Great Recession, it is no secret that economists and policy-makers are baffled and disappointed with the lacklustre nature of the ongoing recovery. The perplexities and anxieties generated by the present situation were summed up in a rather open and pessimist way by the Governor of the Bank of England in a recent speech, who noted that: "the global economy risks becoming trapped in a low growth, low inflation, and low interest rate equilibrium".[3] But, equilibrium implies a prolonged stable situation, and while that might be emerging in economic terms, the same is not the case in social terms. Put differently, the social equilibrium is not stable. Advanced economies must either radically change their economic prospects by generating growth and jobs, or they will be forced to adjust their social systems in uncharted ways.

In the rest of my remarks, I will first discuss some of the hypotheses put forward in the literature to explain the determinants of this prolonged, low-growth period, sometimes characterised as a global liquidity trap. I will then review some of the proposed measures to exit from the liquidity trap, including fiscal and structural policies. While each of these measures has specific benefits, they also all have limitations or are subject to constraints. Against this background, it is important to emphasise that, while having to resort to non-standard tools, monetary policies also remain effective in fighting the global liquidity trap

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1 Hyman P. Minsky (1994), "*The debt-deflation theory of great recessions",* Hyman P. Minsky Archive Paper 159.

2 Hyman P. Minsky (1996), "*Uncertainty and the institutional structure of capitalist economies",* Hyman P. Minsky Archive Paper 24.

3 Carney, M. "*Redeeming an unforgiving world*" speech given at the 8th Annual Institute of International Finance G20 conference, Shanghai, 26 February 2016.

even against international headwinds. For the euro area, I will conclude that only an encompassing policy mix can deliver stability and prosperity.

Global liquidity traps

The literature about liquidity traps and their international contagion is vast. A subset of that literature considers the implications of a liquidity trap in the open economy and highlights the importance of a global response to the trap.[4] For example, Jeanne (2009) demonstrates how a recessionary shock in a country can lead the world into a global liquidity trap. This is particularly the case when monetary policy interest rates reach the Lower Bound (or LB). The author argues that increasing the expected inflation rate in both countries through monetary policy, if feasible, is the more efficient response to the global liquidity trap, more efficient than an increase in public expenditures.

Hélène Rey (2013) shows how monetary policy spillovers from major advanced economies create a global financial cycle that reduces the efficiency of monetary policy even in a regime of flexible exchange rates.[5] The trilemma of international economics (free capital movements, and independent monetary policies being only possible with flexible exchange rates) is thus reduced to a dilemma that can be resolved with capital controls and effective macroprudential policies to limit the leverage of the financial system. Cook and Devereux (2014) use a two-country, new Keynesian model to illustrate how the liquidity trap can propagate from one country at the LB to the world economy, through the interconnected international financial system. This international contagion undermines the effectiveness of domestic monetary policy even in a regime of floating exchange rates. Capital controls are proposed as a solution to restore the independence of monetary policies.

This strand of literature is also linked with the "savings glut" explanations of the Great Recession. Put forward by Ben Bernanke in 2005, it was later used by him in 2007 and 2010[6] to justify how capital inflows had depressed U.S. medium-term interest rates and fuelled the subsequent housing bubble. Despite being contested, this hypothesis has been quite influential and has been supported since 2008 by the theory which explained global imbalances by a "shortage of safe assets" in countries with underdeveloped financial systems. The ensuing search for those assets, particularly in the U.S., generated capital flows, decreased medium-term yields and allegedly conditioned U.S. monetary policy. Until 2008, the imbalances resulting from excessive savings in search of safe assets could be equilibrated by the decrease of interest rates. After the crisis, the decrease of yields was accentuated by the reduction of the stock of assets resulting from weaker private issuers and from weaker European sovereigns. Interest rates were therefore pushed down to the LB and the phenomenon propagated to other countries through the financial markets.

The recent paper by Caballero, Farhi and Gourinchas (2015) models what happened after the LB was reached.[7] With interest rate variations prevented by the LB, the supply and demand of safe assets could only be balanced through recessionary variations of output. This would explain the weakness of the worldwide recovery and the temptation felt by all countries to try to use the exchange rate as a way to stimulate their own economy – hence the expression "currency wars" in the paper's title. The authors highlight that the U.S., by

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[4] See Svensson, L.E.O. (2003), Jeanne, O. (2009), Cook, D.E. and M.B. Devereux (2013) and (2014), Devereux, M.B. and J. Yetman (2014) and Caballero, R.J., E. Farhi and P-O. Gourinchas (2015).

[5] See Rey, H. (2013) *"Dilemma not Trilemma: The Global Financial Cycle and Monetary Policy Independence",* Kansas FED, Jackson Hole Conference.

[6] See Bernanke, B. (2005), (2007) and (2010).

[7] See Caballero, R.J., E. Farhi and P-O. Gourinchas (2015), *"Global imbalances and currency wars at the ZLB"* NBER Working Paper No 21670, October 2015.

adopting a very expansionary monetary policy earlier, was able to benefit from a depreciating U.S. Dollar (USD), but this changed after 2014 when both Europe and Japan embarked also in a more expansionary unconventional monetary policies. Due to a non-Ricardian treatment of public finances, there is a role for fiscal policy in dealing with the situation. The paper also finds that countries with more wage and price flexibility have a smaller share of the world recessionary trend but "at the global level, more downward price or wage flexibility exacerbates the global recession".

The idea of a prolonged global liquidity trap is connected with the notion of secular stagnation, i.e. the possibility of a prolonged situation of low inflation and low growth at the global level. The secular stagnation hypothesis in this case refers to the demand-side version promoted by Larry Summers[8], where a trend of planned savings systematically higher than planned investment implies a situation of persistent lack of demand and a negative output gap, interest rate at the LB and low inflation or even deflation. The real equilibrium rate that ensures the savings investment balance at full employment may indeed become negative as recent estimates for the U.S. indicate.

Eggertsson and Mehrotra (2014) and Caballero and Farhi (2015) modelled secular stagnation in a closed economy and more recently, Eggertsson, Mehrotra, Singh and Summers (2015)[9] presented a model of secular stagnation in a multi-country context in which exit policies may include a global increase of the inflation target (if made credible), fiscal policy stimulus or capital controls for the countries with a domestic positive real equilibrium interest rate. The effectiveness of both monetary and fiscal policy is strongly amplified by possible international co-ordination of their use.

Some exit solutions

The whole literature on global liquidity traps provides an overall consistent view of how the world economy works and leads to a bleak outlook on the feasible exit solutions from the present quagmire.

The first solution is credible forward-guidance about future policy rates linked to a somewhat higher inflation target in order to influence inflation expectations. In the type of models used in this literature, forward-guidance is the only available monetary policy tool. The measure would be more efficient if applied simultaneously by all major jurisdictions. The shortcoming of this approach is the lack of a sufficiently credible commitment mechanism that would convince markets about the central bank "committing to be irresponsible", no matter what.

The second solution is to use the exchange rate as a policy target in order to stimulate growth via net exports. Obviously, this is a zero-sum game if all countries try to do it. Recently, the hope in many countries has been to depreciate against the dollar as a result of U.S. recovery, but the more recent months have proved that this is not an assured development, or perhaps that the U.S. is not ready to accept these consequences. I will return to this point later.

The third exit solution proposed in the literature is the use of capital controls that would restore independence to national monetary policy, so that real equilibrium interest rates could differ across countries. For those with a positive real rate, capital controls would avoid the fall into the LB. It is indeed the case that the international community and the IMF have now

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[8] See Summers L. (2016), *"The age of secular stagnation: what it is and what to do about it"* in Foreign Affairs March/April 2016 issue.

[9] See Eggertsson, G.B. and N.R. Mehrotra (2014), "A Model of Secular Stagnation", NBER Working Paper No 20574, October 2014; Caballero, R.J. and E. Fahri (2015), *"The Safety Trap",* NBER Working Paper No 19927 February 2015 and Eggertsson, G.B., N.R. Mehrotra, S. Singh, and L. Summers (2015) *"Contagious Malady? Global Dimensions of Secular Stagnation",* Working Paper, Brown University 2015.

lightly condoned the use of capital controls as a macroprudential tool in developing countries. However, the implication of the literature would be to use capital controls among advanced economies, an option that stands out as unrealistic for political and ideological reasons.

The fourth exit solution is to use tariffs and protectionism. Jeanne (2009) illustrates this option in his model, but points out that it would be less efficient. Going beyond models, a generalised rush towards protectionism would aggravate, rather than solve, the world economy predicament.

The fifth and final solution is to rely on fiscal policy, the traditional way-out in situations of liquidity traps. All the models concur with this prescription, which is particularly efficient at the LB[10], and amplified if adopted internationally in an effort of international co-ordination. Fiscal policy, however, seems to be out of bounds in all major economies. In the euro area, fiscal policy is strictly conditioned by the legislation of the Stability and Growth Pact and in the U.S., it is seemingly blocked by political partisanship. Apparently, only if the state of the world economy deteriorated considerably, would governments step up the use of all the tools at their disposal.

One can therefore understand the dispirited conclusion of Caballero, Farhi and Gourinchas (2015): *"Unfortunately, this state of affairs is not likely to go away any time soon. In particular, there are no good substitutes in sight for the role played by US Treasuries in satisfying global safe asset demand. With mature US growing at rates lower than those of safe asset demander countries … its debt and currency are likely to remain under upward pressure, dragging down (safe) interest rates and inflation, and therefore keeping the world economy (too) near the dangerous ZLB zone."*

Nevertheless, as I will argue later, this list of solutions to the global liquidity crisis dismisses too easily non-standard monetary policy tools. Thanks to such tools, international headwinds may hamper, but do not annul the effectiveness of major central banks in influencing economic outcomes.

The structural reforms solution

Before moving on to monetary policy, let me first recall that another proposed option to boost the recovery is to increase growth potential in the medium and long-term through structural reforms. However, structural reforms entail short-term contractionary effects many times. Eggertsson, Ferrero and Raffo (2014) highlight that such contractionary short-term effects are amplified at the LB, because they cannot be off-set by expansionary monetary policy through a reduction in interest rates.[11] A recent IMF working paper by Bordon, Ebeke and Shirono (2016) concludes that "*Existing studies have shown that the long-run effects of structural reforms on growth and employment are positive.*[12] *However, the evidence on the short-run effects of structural reforms is rather mixed and limited."* The recently published April 2016 IMF WEO agrees and writes: "*Product market reforms deliver gains in the short term, while the impact of labor market reforms varies across types of reforms and depends on overall economic conditions. Reductions in labor tax wedges and increases in public spending on active labor market policies have larger effects during periods of slack, in part because they usually entail some degree of fiscal stimulus. In contrast, reforms to employment protection arrangements and unemployment benefit systems have positive*

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[10] See Christiano, L., M. Eichenbaum and S. Rebelo (2011), *"When Is the Government Spending Multiplier Large?",* Journal of Political Economy, 2011, 119 (1), 78 – 121.

[11] See Eggertsson, G.B., A. Ferrero, and A. Raffo (2014), "*Can structural reforms help Europe?",* Journal of Monetary Economics, Vol 61, 2–22, January 2014.

[12] See Bordon A.R., C. Ebeke and K. Shirono (2016), *"When Do Structural Reforms Work? On the Role of the Business Cycle and Macroeconomic Policies",* IMF Working Paper No 16/62.

effects in good times, but can become contractionary in periods of slack. These results suggest the need for carefully prioritizing and sequencing reforms."

To summarise, the effects of structural reforms are contingent on the state of the cycle and the degree of slack in the economy as well as on the accompanying stance of macroeconomic policies. That is why the IMF WEO pleads for the use of structural reforms accompanied by fiscal policy when there is fiscal space, a concept that has several different interpretations. In their recent Shanghai meeting, the G20 pleaded for the same approach, although one can be sceptical about delivery. We can recall the embarrassing results of the G20 agreed plan in Brisbane two years ago to generate an additional 2% in world growth via a long list of concrete reforms put forward by the IMF and the OECD. Less than half was implemented and in fact, the world economy now risks not even attaining what was then considered the baseline scenario.

So, on both the demand and supply sides, there are constraints to effective policy action. I would like to add two key issues to this discouraging perspective: one that aggravates the challenges with a different version of secular stagnation and another that offers some hope related to the role of monetary policy.

Another version of secular stagnation

The version of the secular stagnation hypothesis promoted by Robert Gordon in a series of papers and in his recent magisterial book is a supply-side phenomenon.[13] The two broad frameworks for secular stagnation are not mutually exclusive. One emphasises supply-side factors that lower potential growth while the other points at chronic weakness in demand as the root cause of secular stagnation. Demand and supply factors may, in fact, reinforce each other because a chronic weakness in demand would amplify and exacerbate supply constraints as, for instance, persistent unemployment may hamper workers' set of skills, thereby curtailing the productive capacity of the economy.[14]

Gordon diagnoses a slow-down in the pace of innovation with regard to so called general-purpose technologies, consisting in inventions that revolutionize living standards and business practices. As he points out, many of these technologies, such as electricity, clean running water, cars and planes, as well as vaccines and antibiotics, were brought to large sections of the population in the time between 1870 and 1970, which he has dubbed the "special century"[15]. By contrast, he argues that current innovations, such as the internet, improve existing technologies in a less spectacular and more marginal way. The reduction of total productivity growth in the U.S. and other advanced economies, decade after decade since the 70s, offers a compelling empirical case for Gordon's views.

This gloomy assessment has not gone unchallenged. Most prominently, Joel Mokyr, Erik Brynjolfsson and Andrew McAfee argue that, given recent advances in robotics, genetic modifications, 3D printing, and further innovative technologies, we stand at the cusp of a new industrial revolution.[16] This scenario is certainly desirable. But, as Robert Gordon has also pointed out: even if innovation is not slowing in absolute terms, global economy is still facing

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[13] See Gordon, R.J. (2016), *"The Rise and Fall of American Growth: The U.S. Standard of Living since the Civil War",* Princeton University Press.

[14] See Blanchard, O. and L. Summers (1986), *"Hysteresis and the European Unemployment Problem",* NBER Macroeconomics Annual, Vol. 1.

[15] See Gordon, R.J. (2016), *"The Rise and Fall of American Growth: The U.S. Standard of Living since the Civil War",* Princeton University Press.

[16] See Mokyr, J. (2013), *"Is technological progress a thing of the past?",* VoxEU article, 8 September 2013 and Brynjolfsson, E. and A. McAfee (2014), *"The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies".*

an uphill battle, given the challenges of population aging, rising inequality, failing education systems and debt overhang.

The role of demographics is especially dominant here. As Charles Goodhart and colleagues (2015) have noted, recent decades have benefitted from a positive global labour supply shock, deriving from the baby-boomer generation in the 1970s, and from the integration and expansion of emerging markets as part of the global economy. These demographic headwinds are fading out, implying that another crucial source of growth is drying-up, at least until a demographic reversal takes place in about 25 to 30 years' time.[17]

Beyond these factors, doubts can also be raised about the depth of the economic traction of the innovations that are in the pipeline. The technological changes at the turn of the 20th century and after the Second World War, led to the creation of mass products widely used in association with the urbanisation explosion that is about to end. The second wave of income growth was triggered by women's participation in the labour force and jump in education levels, developments that cannot now be repeated to the same degree. So far, the new products or services associated with the digital economy have not a similar impact on jobs and income. Part of their value is not even paid for in a market, as is the case with the internet or social media. To count these and other intangibles which clearly improve our lives and personal productivity, would only be justified in an indicator of well-being but not in a GDP concept that aims to measure traded goods and services that generate monetary income and consequently, jobs. Robotics is expected to introduce an important new wave of innovation, but that will only make the question of jobs more complicated, requiring significant and difficult changes in the income redistribution systems of our societies.

This secular stagnation thesis and the related declining real productivity also provide an explanation for the continuously decreasing real equilibrium interest rate. Other contributing factors to this phenomenon are the demographic decline, greater income inequality and lower public investment.

The declining real equilibrium interest rate cannot be ignored by monetary policy that grounds its rationale in real variables and tries to achieve a real rate that ensures macroeconomic stability with low inflation and a zero output gap. Facing the Great Recession and this development of the real equilibrium rate, central banks had no alternative but to reduce rates until the zero lower bound was attained.

In other words, the low level of nominal interest rates in advanced economies before and after the crisis cannot be explained only by the "savings glut" view or by the "shortage of safe assets" theory which is its mirror image. These views provide an explanation for what happened to nominal market rates but not to the evolution of the real equilibrium interest rate over time. What is more, monetary policy also has a decisive influence on interest rates that cannot be explained by the loanable funds theory alone. Short-term market nominal rates are directly influenced by monetary policy rates and via expectations of future policy rates, and risk premia policy rates also influence medium and long-term market rates.

This means that monetary policy cannot escape responsibility for the low level of rates before the crisis. It must however be acknowledged that central banks were doing so in pursuit of their mandates, which exclude assets prices or other aspects of financial stability from their primary objectives. In the period of the so-called Great Moderation, they ensured low inflation and reasonable growth while the financial system brewed credit booms and instability. The fact remains that central banks cannot pursue several objectives with the same instrument and that, in order to ensure financial stability, they need to be given regulatory powers of a macroprudential nature that can smoothen the financial cycle by controlling leverage of the

[17] See Goodhart, C., P. Pardeshi and M. Pradhan (2015), *"Workers vs pensioners: the battle of our time",* Prospect Magazine, December.

credit institutions. What happened before the crisis was a failure of financial regulation and supervision that did not react to excessive leverage, credit booms and growing debt, believing in the rhetoric of the efficient markets hypothesis that blessed all market practices and accepting that the risk management techniques behind securitisation and the "originate and distribute model" were safe and sound.

In another criticism of the "savings glut" view of the crisis, Claudio Borio and Piti Disyatat (2011)[18] are correct in pointing out that "*a focus on current accounts in the analysis of cross-border capital flows diverts attention away from the global financing patterns that are at the core of financial fragility. By construction, current accounts and net capital flows reveal little about financing. They capture changes in net claims on a country arising from trade in real goods and services and hence net resource flows. But they exclude the underlying changes in gross flows and their contributions to existing stocks, including all the transactions involving only trade in financial assets, which make up the bulk of cross-border financial activity."*

They also underline the importance of monetary policy in determining interest rates and other analyses have added to the criticism of the vision that external influences were behind the low interest rates that led to various asset price bubbles. Hélène Rey (2013) also indicates that "*A VAR analysis suggests that one of the determinants of the global financial cycle is monetary policy in the centre country, which affects leverage of global banks, capital flows and credit growth in the international financial system.*"[19]

To sum up, there are some good points against the view that the "savings glut" or "safe assets shortage" theory, while useful in understanding key aspects of the present global economy framework, contain all the truth. In particular, they fail to fully capture the responsibilities of monetary policy of the major central banks. But they also fail to capture their possibilities.

Possibilities and challenges of monetary policy

Turning to the challenges of monetary policy, perhaps the most salient issue to refer is that monetary policy has gone beyond the lower bound on nominal interest rates and is actually into negative territory even though, as there is a floor to negative rates, one can say that this has only displaced the lower level further down. While this monetary policy move is unprecedented in a historical perspective, it is entirely standard insofar as it relies on the traditional interest rate instrument. From a purely monetary policy point of view, it is entirely consistent to aim at negative rates when the real interest rate has itself turned negative.

Speaking from the perspective of the ECB, negative rates have only been applied to the deposit facility which banks use to credit funds to the central bank at an overnight maturity. The main objectives of this measure are twofold: first, to further lower money market rates and the longer end of the yield curve via expectations effects; and second, to increase the velocity of circulation of excess reserves in the interbank market towards the banks that need liquidity to sustain or expand their credit portfolio. The banks with excess liquidity have an incentive to pass it on to other institutions or use it to fund new loans. We have had some success on both scores and the stimulus to demand has benefited the European and global economies.

Many market commentators link negative deposit facility rates mostly with exchange rate policy. This interpretation may well be correct in the case of small countries trying to avert the

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[18] See Borio, C. and P. Disyatat (2011) *"Global imbalances and the financial crisis: Link or no link?",* BIS Working Paper No 346.

[19] See Rey, H. (2013) *"Dilemma not Trilemma: The Global Financial Cycle and Monetary Policy Independence",* Kansas FED, Jackson Hole Conference.

risk of excessive currency appreciation. However, recent experience clearly demonstrates that it does not work the same way for larger economies. In spite of the ECB's and the Bank of Japan's decision to implement negative deposit facility rates, both the euro and the yen have been appreciating against the US dollar. There is no inexorable link between the levels of deposit facility rates and exchange rates, as even the possibility of some form of carry trades depends on the general situation of risk aversion. Additionally, recent empirical evidence points to a relatively limited pass-through of the exchange rate to the economy[20].

It is, nevertheless, important to recall that there are clear limits to the use of negative deposit facility rates as a policy instrument. First, there is always the possibility of hitting the limit where the preference for cash withdrawals would set in, even if the threshold seems to be significantly distant in view of the costs of cash storage, safety and insurance[21]. Second, the instruments should not push banks to pass on their additional direct costs by turning deposit rates negative or increasing lending rates to increase margins. Both developments would be problematic for our monetary policy goals. Tier systems that simply pass direct costs at the margin can mitigate this concern but cannot dispel it altogether.

Overall, broadly counting all the effects that negative deposit facility rates have on banks' profitability, the aggregate result comes up positive for the euro area as a whole. Negative money market rates reduce the cost of funding for many banks, the lowering of yields for several assets produces capital gains and the support to the recovery reduces impairment costs on non-performing loans.

In more general terms, there has recently been quite some pushback against monetary policy in certain quarters, in particular questioning its effectiveness in the present situation. More sophisticated critiques focus on the alleged exclusive, short-term effects of monetary policy which can only buy time for other policies, presumably structural reforms, to do the real job.

The main common idea behind these arguments is the more general view that monetary policy is merely about the short-term with supply policies determining the longer term. This separation between the short and long terms is an analytical device, a needed abstraction, to build simpler models and theories. However, such distinctions are artificial when we consider chronological real time. Monetary policy can stimulate demand and investment and as this creates productive capacity, a link is established with the supply-side and the long-term. Also, by speeding up the closing of output or unemployment gaps, monetary policy influences future potential output and growth. By avoiding protracted periods of recession, monetary policy helps avoid hysteresis[22] that affects productive capital efficiency, when equipment is not timely substituted, or when the quality of human resources deteriorates due to periods of long unemployment. Both forms of hysteresis influence the supply-side and the long-term potential of the economy. As Keynes wrote "Life and history are made up of short runs" which implies that the long run is just a sum of many different short terms. Monetary policy cannot be reduced to a short-term gimmick since our economies do not spontaneously return quickly to zero output gaps and full employment.

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[20] See Forbes, K., I. Hjortsoe and T. Nenova, (2015), *"The shocks matter: improving our estimates of exchange rate pass-through",* Bank of England Discussion Paper No 43.

[21] See Cecchetti, S. and K. L. Schoenholtz (2016), "How Low Can They Go?".

[22] See Blanchard, O. and L. Summers (1986), *"Hysteresis and the European Unemployment Problem",* NBER Macroeconomics Annual, Vol. 1. and Blanchard, O., E. Cerutti and L. Summers (2015), *"Inflation and activity − two explorations and their monetary policy implications",* ECB Forum on Central Banking on Inflation and Unemployment in Europe, Sintra 2015.

U.S. and Euro Area Monetary Policy

After the crisis, monetary policy responded forcefully everywhere, particularly in the U.S. with the early implementation of QE and credit easing measures. The U.S. recovery has been stronger than in the euro area and for 2016 buoyant growth was expected, accompanied by a gradual normalisation of interest rates. This would have been a vital development for world economy and at the same time, an important proof that, even with a restrictive fiscal policy, monetary policy can play a decisive role in generating a meaningful recovery and getting firmly away from the LB. This would be a relevant disproval of the more sombre views about the world economic system and monetary policy.

Although this possibility is still very much alive, it has apparently been delayed by some mixed results since the fourth quarter of 2015. Turmoil in financial markets and the external environment seem to have affected the economy. In the blogosphere and some market literature, we could see minority views about a possible double dip or significant slowdown and market expectations for further rate increases this year became quite weak. Importantly Chair Janet Yellen has said recently that while *"global financial developments could produce a slowing in the economy. I think we want to be careful not to jump to a premature conclusion about what is in store for the U.S. economy*".

So, we can continue to hope that the centre of the world economy will hold and will prove its resilience, independently of some external headwinds.

On our side, the ECB has confronted the severe and persistent disinflationary forces affecting the euro area economy with a broad set of measures. In particular since mid-2014, we have adopted a range of monetary policy tools that had been unprecedented in scope and scale for the euro area. These tools have followed a three-pronged approach: first, they have entailed targeted measures to revitalise specific market segments and strengthen bank lending, which is a particularly relevant conduit of monetary impulses in the euro area; second, they have effectuated a broad-based easing of overall financial conditions, most notably through central bank purchases in the large and liquid sovereign debt market and, third, they included cuts in the main ECB interest rates, including by taking the deposit facility rate to negative territory.

Given that monetary policy takes time to transmit to the real economy, the full effects of these measures on macroeconomic conditions have yet to fully materialise. However, the adjustment in financing conditions, via which monetary policy transmission operates, provides encouraging signals. For instance, since June 2014, the GDP-weighted average of euro area 10-year sovereign bond yields has fallen by more than 130 basis points and bank lending rates to euro area companies by about 95 basis points. The lion's share of these declines can be directly attributed to the monetary policy measures that the ECB has taken since then.

Our measures have also helped arrest the contraction of loans to companies, which have, in fact, started to grow again and are granted at more favourable conditions. As a result, also fewer SMEs report that credit is a limiting factor for their businesses.

Ultimately, what matters for the assessment of our measures is whether they contribute to a sustained adjustment in the path of inflation. Applying a large and diverse set of models to account for the uncertainties surrounding such analysis, ECB staff estimate a substantial effect of our measures on growth and inflation. In the absence of these measures, inflation would have been negative in 2015 and would be projected to remain in negative territory also this year. Regarding growth, two thirds of one percent of the registered growth in the past two years can be attributed to our monetary policy. We will continue to do whatever is necessary, in accordance with our mandate, to bring the euro area inflation rate close to our objective.

From a global perspective, monetary policy measures that strengthen the resilience of the domestic recovery do not amount to a zero-sum game, in which different jurisdictions merely

aim to debase their currencies vis-à-vis each other. In fact, monetary policy accommodation, by improving domestic credit conditions and stimulating nominal spending, creates additional global demand, rather than just leading to demand-switching from one economy to the other – as some observers have suggested.

Vice versa, a large literature has reported a decline in the exchange rate pass-through to inflation, suggesting that the relative role of this channel is likely to have become less relevant in the quest to reflate the domestic economies.[23]

Moreover, as evidence by Kristin Forbes and colleagues for the U.K. economy shows, there are indications that exchange rate fluctuations originating from monetary policy shocks display a relatively limited pass-through to consumer prices.[24]

Notwithstanding a forceful response, monetary policy can only be one element of an encompassing policy mix. Other policy domains, both at national and European level, have to step up to their responsibilities to transform the prevailing uncertainty into a positive scenario. I refer, naturally, to a full use of any existent fiscal space, especially for infrastructure expenditures; to the continuation of structural reforms to improve the business climate, educational levels, judicial system efficiency and product market competition, especially in services; and finally, to institutional progress at European level. This refers in particular to completing banking union and taking the first steps of fiscal union, thus proving the willingness of Member States to create better conditions for the successful functioning of a monetary union that can deliver stability and prosperity.

Thank you for your attention

This is the full text of a speech delivered in abridged form at Bard College on 13 April.

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[23] See ECB (2015), "*The International Role of the Euro".*

[24] See Forbes, K., I. Hjortsoe and T. Nenova, (2015), *"The shocks matter: improving our estimates of exchange rate pass-through",* Bank of England Discussion Paper No 43.

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