Vítor Constâncio: Financial stability risks, monetary policy and the need for macro-prudential policy

Speech by Mr Vítor Constâncio, Vice-President of the European Central Bank, at the Warwick Economics Summit, Warwick, 13 February 2015.

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The financial crisis has shown that price stability is not sufficient to guarantee financial stability. The financial cycle and the business cycle are not synchronised, implying that risks can emerge especially in the periods of "disconnect" between the two cycles. In the run-up to the financial crisis, imbalances were building-up while inflation was low and stable. At present, the search for yield phenomenon continues against the very low inflation, subdued growth and low interest rate environment.

Monetary policy aims at ensuring price stability in the market for goods and services. It should not be used to address pockets of instability in asset markets. This falls under the remit of macro-prudential policy, aimed at safeguarding stability of the financial system and containing systemic risk. At present, in advance economies, monetary policy needs to stabilise prices and to continue supporting real activity, while macro-prudential policy needs to tame the financial sector in asset market segments showing signs of exuberance or where imbalances could be forming.

Financial stability objectives can only be achieved with an effective macro-prudential policy. This requires policy interventions in a timely and bold manner, significantly affecting the normal behaviour of financial markets or financial institutions. This poses great challenges. First, measures would need to be admittedly intrusive, going well beyond the new capital and liquidity regulatory framework. Secondly, the macro-prudential tool-kit that has been legislated – including the one entrusted to the ECB/SSM – is not complete, it is centred on banks. Instruments would need to address other financial activities and institutions, notably pertaining to the steadily growing "shadow banking" sector. Advanced economies will only be able to ensure financial stability with effective macro-prudential policy interventions.

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Ladies and gentlemen,

It is a great pleasure to speak at this special conference and to discuss with young people like you about current and potential challenges which our economies, with their ever evolving financial systems, are facing at present or will likely be facing in the future. In my lecture today, I will talk about policies to safeguard financial stability and in particular about the role of macro-prudential policy in achieving this task.

The financial crisis has changed our understanding of the interactions between the real economy and the financial system, and of the risks which these interactions may bring. In fact, the crisis did not only require a major policy response in order to contain the damage done to our societies. It has also triggered a re-design of our policy framework to safeguard financial stability in the future.

In my remarks today, I will first explain why macro-prudential policy aimed at addressing systemic risk is essential for an economy. Even more so if a country is part of a monetary union. I will discuss the main elements of macro-prudential policy targeting the banking sector. I will then focus on the growing importance of the shadow banking sector, the specific risks that emerge from these unregulated activities and the challenges they pose to macro-prudential policies. In this context, I will conclude with remarks on analytical priorities for academic research in this area.

1. Systemic risk, financial cycles and the objectives of macro-prudential policy

The financial crisis generated a big recession and had enormous costs in terms of lost output and unemployment. In 2008, it led many to think that deep reforms of the international monetary and financial governance would follow the acknowledged failure of the financial regulation in place. Two well-known specialists in the field, Barry Eichengreen and Eric Helleiner have very recently published two books explaining why a transformative reform of the international system has indeed not occurred.[1] Eichengreen explains it the following way:

> "…depression and financial collapse were avoided, if barely. This fostered the belief that the flaws of prevailing system were less. It weakened the argument for radical action….. Success thus became the mother of failure."

This sounds perhaps too harsh because good work has been done in adopting measures in the domains of capital, liquidity and resolution of banks in order to increase the resilience of the banking sector, within the financial system. However, much less has been achieved beyond banks, notably in what regards OTC derivatives or non-bank entities, including activities of the shadow banking. Also, no changes were introduced in the international monetary system. The G20 and the Financial Stability Board do not have the full competences to fulfil the role of the "fourth pillar" of international economic governance, contrary to what was initially announced by U.S. Treasury Secretary Tim Geithner.

As remarked by Helleiner, a promising innovation emerging from the crisis is the macro-prudential policy, a policy that uses regulatory measures to deal with system-wide financial risk.

Systemic risk "refers to the risk that financial instability becomes so widespread that it impairs the functioning of a financial system to the point where economic growth and welfare suffer materially."[2] Systemic risk may originate from three types of sources: significant macro-economic shocks that can make the financial sector vulnerable; contagion that may stem from default of a few financial institutions as a result of the growing interconnectedness within the system; finally, the development of endogenous financial imbalances associated with credit booms, excessive leverage and risk taking by financial institutions. One of the lessons from the crisis was that a good capital and liquidity situations at the level of individual institutions, as monitored by micro-supervision, does not guarantee the stability of the system as a whole.

In this context, macro-prudential policy has two main objectives: to enhance the resilience of the whole system and to smoothen the financial cycle, i.e. the fluctuation of credit, leverage and asset prices that may lead to boom-bust episodes. The instruments available for macro-prudential policy include most of the micro-supervision instruments related to capital and liquidity, when applied to the system as a whole, but extend to other categories, like limits to loan-to-value ratios in housing credit, counter-cyclical capital buffers, global leverage ratios, or haircuts and margin requirements in securities' transactions or clearing activities.

The financial cycle, which is an updated version of the old concept of the credit cycle, tends to have larger amplitude than the normal business cycle, implying that long periods of "disconnect" between the two cycles can materialise.[3] The financial cycle refers to the fluctuations of credit, leverage and the more relevant asset prices. The business cycle refers basically to the fluctuations of real economic activity as measured by the GDP. In the past,

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1 Eichengreen, B. (2015), "Hall of mirrors: The great depression, the great recession and the misuses of history", Oxford University Press USA; Helleiner, Eric (2014) "The status quo crisis: Global financial governance after the 2008 meltdown" Oxford University Press USA.

2 ECB (2009), "The concept of systemic risk", Special feature in the ECB Financial Stability Review, December.

3 See Drehmann M., C. Borio and K. Tsatsaronis (2012), "Characterising the financial cycle: don't lose sight of the medium term!" BIS Working Paper No. 380.

the separation between the two was not considered likely. In particular, it was thought that price stability in the market of goods and services would be sufficient to guarantee financial stability in the market for assets. The present situation, and the period of the so-called Great Moderation ahead of the crisis, should be sufficient to dispel such traditional concepts. Before the crisis, while inflation was low and stable, significant financial imbalances were building-up as the relatively deregulated financial system engineered a credit boom and a highly risky leverage situation. Likewise, at present, the very low inflation and subdued growth environment is accompanied by some froth in financial asset markets resulting from "search for yield" in an environment of low interest rates.

This "disconnect" between the financial and the business cycle creates a dilemma to traditional macro-economic policy and especially to monetary policy. The main remit of monetary policy refers to the relevant variables of the business cycle: inflation in the market of goods and services and the level of real economic activity. The level of real economic activity is a direct consideration for central banks with a dual mandate, like the U.S. Fed. It is an indirect one in the case of a hierarchical mandate, like the one of the ECB, where the level of economic slack in the economy is one of the drivers of inflationary (or deflationary) pressures. The most common monetary policy framework around the world is l the inflation targeting regime, where there is no role for any target related to asset prices. More generally, no central bank has objectives explicitly referred to asset prices in its mandate. After the crisis, there has been a trend, albeit without legislative expression, to attribute an explicit goal of financial stability to central banks. Nevertheless, in order to be justified, central banks have to be entrusted with a new set of tools of a macro-prudential nature, that can be applied to the financial system as a whole.

There are two different reasons why monetary policy cannot, and should not, be used to deal with financial instability in asset markets. The first relates to the fact that the priority goals of monetary policy may require an expansionary (restrictive) stance when asset markets would require restrictive (expansionary) measures. Monetary policy cannot abandon its priorities as clearly stated in the mandate of central banks. More generally, as Mervyn King once stated, it would be highly controversial if a restrictive central bank policy adopted for reasons of asset market risks would create "mini-recessions" in real activity and unemployment, when the level of inflation would be compliant with the defined and publicly-known target. The second argument questions whether monetary policy, through its main policy instrument – short term interest rates – can effectively target asset market prices. There is no theory or model establishing a reliable relationship between interest rates and asset price targets.[4]

Macro-prudential policy is therefore essential in any economy as the business and financial cycles are not synchronised. Even more so in a monetary union where vulnerabilities identified in each country can be addressed with macro-prudential policy, allowing for the appropriate heterogeneity, while countries remain subject to a single monetary policy.

Monetary policy simultaneously affects all sectors of the economy and can therefore be an ineffective tool to cope with specific imbalances in the financial sector. Finally, by independently addressing financial stability concerns, macro-prudential policy provides monetary policy with additional *room for manoeuvre* to better focus on ensuring price stability.

Take the present moment. The search for yield continues in global financial markets. Flows to high-yield bond and emerging market funds turned positive in January after recording significant outflows in the second half of 2014. Credit spreads have narrowed. At the same time, issuance of European leveraged finance products (high yield bonds and leveraged loans) has surpassed pre-crisis levels. Issuance of leveraged loans has reached a seven-year high in the fourth quarter of 2014. Furthermore, a growing correlation of asset price

[4] See Donald L. Kohn (2006), "Monetary policy and asset prices" speech at a European Central Bank Colloquium, March 16, 2006, http://www.federalreserve.gov/newsevents/speech/kohn20060316a.htm.

movements across market segments is reducing the investors' ability to hedge via portfolio diversification. Nevertheless, it should be noted that the situation of froth in asset prices is less marked in the euro area than in other parts of the world. For instance, stocks prices reflect the historical level of price-earnings ratios and model-based valuation of normal corporate bonds does not show indications of over-valuation.

In such a situation, monetary policy needs to stabilise prices and to continue supporting real activity. Macro-prudential policy needs to tame the financial sector in asset market segments showing signs of exuberance or parts of the financial system where imbalances could be forming. Monetary- and macro-prudential policy instruments are thus two different sets of tools, that sometimes have to adopt different stances but whereas in some situations, may share common goals. There are anyhow important synergies and interactions between the two policy functions. This also supports the rationale for placing the macro-prudential policy function under the responsibility of central banks, as reflected in the macro-prudential policy framework adopted for the ECB/SSM.

Monetary policy must prioritise the goal of price stability and not deal with the emergent financial stability issues. The Treaty does not mention stability in asset market prices as being included in the ECB's mandate. The separation principle implies that both fiscal dominance as well as financial stability dominance of monetary policy should be avoided by the central bank.

This conceptual view was behind the recent ECB decision to increase the expansionary stance of monetary policy, thus not yielding to the voices that claimed we should first consider the risks for asset prices and for the risk-taking transmission channel of monetary policy.[5] In order to tackle the threat to price stability created by a long period of very low inflation, which is contradictory to our mandate, we decided to enlarge the scope of our programme of outright purchase of assets to sovereign bonds. In the present circumstances, the additional stimulus we are providing to aggregate demand will also help to reduce the negative output and unemployment gaps.

The transmission channels of a Large Scale Asset Purchase (LSAP) programme include signalling and influencing inflation expectations, exploring spill-overs resulting from investors using the cash received to buy other assets and finally, the freeing-up of space in banks' balance sheets to increase credit to the real economy. Therefore, the counter-argument that the policy would not be effective on account of already low sovereign yields is not well founded. The transmission goes well beyond the direct effect on the yields of the purchased securities. Even less valid is the argument that sovereign bond purchases would ease the pressure on governments to do structural reforms. It is not the task of a central bank to exert more or less pressure on governments to adopt policies for which they are responsible. They should implement the reforms that are necessary. In order for central banks to deserve their independence they have to fulfil their responsibility of ensuring price stability in the medium-term, an objective that monetary policy has the power to achieve. To be credible, central banks must act in a symmetric way, avoiding either too high or too low inflation.

As mentioned, monetary policy cannot cope with two different objectives and the need for macro-prudential policy has become more acute with the realisation that advanced economies are very likely faced with a prolonged period of low real and nominal growth. In such an environment, monetary policy has to remain accommodative, with low interest rates, which foster search for yield and froth in asset markets, making the use of macro-prudential policy to tame the financial cycle and to pre-empt asset bubbles even more necessary.

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[5] Borio, C. and H. Zhu (2008), "Capital regulation, risk-taking and monetary policy: a missing link in the transmission mechanism", BIS Working Paper No. 268.

The trend for lower GDP and productivity growth and for ever lower real interest rates has continued for quite some time. For instance, the U.S. annual productivity growth was 2.36% from 1890 to 1972. Then it declined to 1.67% from 1972 to 2004 and to 1.33% from 2004 to 2013. I use the U.S. figures because this development cannot be explained by the absence of structural reforms, as often done by economists in relation to other countries. On the contrary, the U.S. is normally used as a benchmark by those economists, since it is a much liberalised and lightly regulated advanced economy. Trying to explain that trend,[6] Robert Gordon, in two well-known papers, has attributed it to the slowing down and lower economic traction of technological innovation.

On the other hand, we have seen that 10 year sovereign interest rates in real terms came down globally on average from 5% in 1980–1990; to 3.2% in 1991–2000; to 1.8% from 2001–2007 and 0.4% in 2008–2013.[7] This reflects a worldwide tendency for planned savings to exceed planned investment, which then depend on a host of other factors such as demographics to differential riskiness of equities and bonds or to real investment opportunities.

The extreme view of these two trends corresponds to what has been called the Secular Stagnation Hypothesis that would cloud the future of advanced economies at present, particularly Europe.[8] This hypothesis has two versions. One is more related to the supply-side, stressing technological and demographic factors behind the growth slowdown; the other, underlines the demand-side related to excess savings and lower investment prospects.[9] The extreme view of this demand-side version points to the possibility that the real interest rate, that would be the equilibrium rate at full employment, could turn negative during some periods of time. This negative real rate could not be engineered by monetary policy in view of the zero lower bound of nominal rates, leading monetary policy to use large scale asset purchase programmes to try to stimulate the economy.

In any case, even disregarding the extreme situations, it should be acknowledged that the monetary regime of low interest rates and large asset purchases that became necessary, can originate search for yield in asset markets, making it essential to find other instruments, like macro-prudential policy, to safeguard financial stability.

Without the effective use of macro-prudential policy, advanced economies would face instability, asset bubbles and further financial crises. It is more crucial to pre-empt financial cycle booms than to adopt a passive policy of just “mopping-up” with liquidity provision, in the aftermath of crises because we have learned how disastrous they can be.

There is some scepticism about the possible effectiveness of macro-prudential policy. This scepticism may be related to a reluctance to accept that a set of regulatory and administrative measures interfering with the free functioning of financial markets became necessary to tame the excesses of finance. Once again, the crisis convincingly showed that finance cannot be self-regulated and its frequent, endogenous imbalances can be very disruptive to the real economy and the livelihood of millions.

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[6] Gordon, R. (2012), “Is U.S. Economic Growth Over? Faltering Innovation Confronts the Six Headwinds” NBER Working Paper No. 18315; Gordon, R. (2014), “The Demise of U.S. Economic Growth: Restatement, Rebuttal, and Reflections” NBER Working Paper No. 19895.

[7] See IMF World Economic Outlook, April 2014.

[8] See Teulings C. and R. Baldwin (ed) (2014), “Secular Stagnation: Facts, Causes and Cures” Edited by VoxEU.org.

[9] Krugman, P., September 2013, “Bubbles, Regulation and Secular Stagnation” in http://krugman.blogs.nytimes.com/2013/09/25/bubbles-regulation-and-secular-stagnation; Summers, L., Speech at the IMF Economic Forum on 8 November 2013.

In reality, there is no alternative to making macro-prudential work effectively[10] and, for that purpose, it needs to be applied in a timely, bold and intrusive manner, affecting the normal behaviour of financial markets or financial institutions. This brings about some big challenges. First, the policy has to be intrusive. This can take the form of imposing caps to loan-to-value or debt-to-income ratios in credit to housing, regulating haircuts and margins in securities transactions, introducing limits to large exposures to specific sectors, prohibiting proprietary trading to commercial banks, or other types of structural measures. One can easily see how this genre of policies would confront doctrinal refusal. However, without them, simple measures related to capital charges may indeed not be effective to contain the boom phase of the financial cycle. Second, the macro-prudential tool-kit that has been legislated is not complete – notably the one entrusted to the ECB/SSM – because it is mostly centred on banks and excludes other activities and institutions, namely the so-called "shadow banking".

Let me briefly recall the set-up of the macro-prudential policy function in the euro area before coming back to these points.

2. Macro-prudential policy in the euro area

Major steps have been made to enhance financial stability in Europe, notably the establishment of a Single Supervisory Mechanism (SSM). In 2013, the European Council established a set of regulations, including the Capital Requirements Directive (CRD IV), the Capital Requirements Regulation (CRR) and the SSM Regulation, that all form the framework for a harmonised bank micro-prudential and macro-prudential oversight in Europe. Based on these regulations, the ECB conducted a comprehensive assessment that was a health check of 130 banks' balance sheets, including a stress test exercise using, inter alia, its own stress testing modelling framework.[11] On 4 November 2014, the SSM became operative and now houses bank supervision in a single European institution. An agreement has also been reached among Member States to establish another key element of the Banking Union – the Single Resolution Mechanism.

The SSM Regulation also confers the ECB with macro-prudential powers. The ECB may top-up specific macro-prudential measures if it considers actions by national designated authorities as insufficient to mitigate systemic risks. As in the past, the ECB will also continue to detect and assess systemic risks at the euro area level. However, in view of the new macro-prudential mandate, this task is now also being enhanced by a more granular, country-level approach.

In terms of instrument tool-kit, the ECB may use all macro-prudential instruments laid down in the Union acts. It covers capital instruments, such as the counter-cyclical capital buffer, the systemic risk buffer, capital surcharges of systemically important institutions as well as liquidity instruments, such as the liquidity coverage ratio. In addition, the ECB can also increase risk weights on real estate exposures or set higher limits on large exposures.

In a single currency area, macro-prudential policies are particularly important to deal with sectoral and regional risks that cannot be accounted for by a common monetary policy. Measures such as the caps on loan–to-value (LTV) or debt-to-income (DTI) ratios are suitable instruments to address these developments. In this context, recent research suggests that exposure-based measures, such as LTV and DTI could be more efficient than capital-based measures.[12] Indeed, the experiences of Korea, Singapore and Hong Kong

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[10] Constâncio, V. (2014), "Making macro-prudential policy work" Speech at high-level seminar organised by De Nederlandsche Bank, 10 June 2014, http://www.ecb.europa.eu/press/key/date/2014/html/sp140610.en.html.

[11] See Henry and Kok (2013).

[12] See Żochowski (2014).

confirm that LTV and DTI are efficient tools to address local house price misalignments.[13] On the other hand, they may generate important cross-border spill-overs and leakages, and moreover, are now solely with national authorities. Implementing them will therefore require co-ordination and the ECB will play an active role to facilitate this in the euro area.

3. Importance of the growing market-based credit system and measures to address its risks

With the more regulated banking system, the risks that regulation is circumvented by shifting activity to the unregulated sector are increasing. This is even more important since the size of this new market-based credit system has been growing almost uninterruptedly throughout the crisis – at least partially compensating for the reduction of the credit from traditional banks.

According to the ECB Banking Structures Report published last October,[14] the size of the shadow banking sector more than doubled over the past decade. The total assets of this sector in the euro area amounted to €23 trillion in mid-2014 (from €19 trillion at the end of 2013), against €30 trillion for the banking sector. If the shadow banking sector continues to grow at the same rapid pace as in the past decade and the bank credit remains stagnant, the assets of the unregulated shadow banking sector may then become larger than the regulated banking sector already within five years. This has actually already happened in Luxembourg, in the Netherlands and in Ireland.

Providing credit through non-bank channels helps transform the euro-area economy into a more U.S.-style market-based funded system. This can be beneficial as it contributes to the wider risk diversification in the economy and may alleviate the impact of real shocks, by providing additional source of credit in times when banks are under stress.[15] Nevertheless, non-bank credit channels can also become a source of systemic risk or contribute to the aggravation of the initial shock.[16]

Let me now discuss the most important techniques through which shadow banks provide credit to the real economy, the main systemic risks which the unregulated banking sector may pose, and which macro-prudential tools may be used to address these risks.

Supposedly, provision of lending to the real economy via the shadow banking sector is contained. Out of €23 trillion assets of the sector I mentioned, only €2.2 trillion were in loans to the euro area non-financial sector. While direct lending is increasing rapidly and already accounts for 18% of bank credit, this is not the most important technique for providing credit to the real economy. The primary sources of funding of the real economy by the shadow banking are securitisation, repos to finance securities transactions and funding indirectly provided via OTC derivatives. While Financial Vehicle Corporations (FVCs) shrunk by more than one-fifth since the crisis erupted, still more than 12% of all loans extended by monetary and financial institutions (MFIs) granted to euro area households are secured through euro area conduits, which hold €1.9 trillion in assets. Moreover, euro area bond funds hold almost a quarter of all outstanding debt securities issued by euro area non-financial corporates, while equity funds hold almost half a trillion in equities of euro area non-financial corporates.

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[13] See Igan and Kang (2011) and Kuttner and Shim (2013).

[14] See: *Banking structures report*, ECB, October 2014, https://www.ecb.europa.eu/pub/pdf/other/bankingstructuresreport201410.en.pdf.

[15] De Fiore and Uhlig (2015) reach a similar conclusion in a general equilibrium model where firms optimally chose among bank and non-bank sources of finance.

[16] See, among others, Aoki and Nikolov (2014) for an analysis of the implications of a growing shadow banking sector on financial stability.

In addition, hedge funds and mixed funds provide additional funding to the real economy via off-balance sheet transactions, such as repos and credit commitments and OTC derivatives.

Let me put a word of caution on the numbers I quoted. They refer only to assets held by money market funds, investment funds, financial vehicles corporations and some special purpose vehicles that are domiciled in the euro area. The figures would be much higher if we also had statistics on non-euro area shadow banking. They would be even higher if off-balance sheet activities, such as securities funding transactions and derivatives were accounted for.

The recent substantial increase in the size of the shadow banking sector in the euro area was fostered by three factors. First, in an environment of globally low interest rates, among other financial institutions, investment funds and hedge funds were instrumental in the general search for yield. Second, the supply of credit has been weak due to impaired banks' balance sheets, which led to the expansion of the unregulated credit market. Third, a more stringent banking regulation in anticipation of the implementation of new capital and liquidity rules under Basel III could have, in itself, induced a shift of lending to the unregulated sector.

From a financial stability perspective, a raise of the shadow banking sector may create systemic risks that need to be better understood and measured. The sector is engaged in maturity transformation the same way as banks are. It was the proneness of banks to deposit runs that led the U.S. regulators, back in 1930s, to introduce deposit insurance to mitigate that risk. What we now witness is the emergence of the shadow banking sector that is also vulnerable to runs. Shadow banks do not hold deposits and are mostly funded via equity. However, they are subject to the short-term redemption risk. If, for any reason, shadow banks experience substantial redemptions, they may be forced to promptly sell assets to fulfil their obligations, which may give rise to fire sales. This is particularly worrisome, since 98% of almost 95 thousand non-money market investment funds operating in the euro area in 2014 are open-ended funds, which means that the investors can redeem their shares in the funds at any time. Moreover, the funds' buffer of liquid assets that can absorb the equivalent of a run on shadow banks has dropped in recent years increasing the illiquidity risks.

The risks stemming from the shadow banking sector are sometimes understated on the ground that potential losses would be suffered by equity holders, who should be aware of the risks they are taking. The systemic risk arising from the shadow banking sector cannot be easily ring-fenced. This is because of the interconnectedness of shadow banks with the regulated part of the financial system. Stress in the shadow banking sector can be transmitted to the banks both through direct and indirect channels: banks' exposures to shadow banks through equity investments, credit claims or liquidity lines. Credit claims are often related to prime brokerage services allowing *de facto* non-bank financial institutions to increase their leverage. Undrawn liquidity lines can also be activated once the redemption risk materialises. Banks also rely on funding received from shadow banks, which often invest in bank debt securities or provide liquidity through repo transactions or through provision of collateral. More importantly, stress in the shadow banking could be propagated through financial markets via common exposures to assets. The price of those assets would be depressed in the case of a run on shadow banks, in an extreme case leading to a fire sale.

It is important to protect the border between shadow and non-shadow banks, which implies that a macro-prudential regulator could introduce large exposures limits on exposures of regulated institutions to shadow banks. Similarly, we could introduce margin requirements for repo transaction with shadow banks. These are non-direct instruments and may not be efficient in addressing the risks emerging in the shadow banking sector.

The U.S. Fed has gained the competence to transfer non-bank financial institutions to the supervised perimeter. We do not have this powerful tool implemented in Europe. Certainly, some shadow banks grew too-big-to-fail and hence, they should be subject to the same surveillance as Global Systemically Important Banks (G-SIBs). In fact, the Financial Stability

Board is preparing a methodology for identifying Global Systemically Important Non-bank Financial Institutions (G-SINFIs).

Another possible macro-prudential tool to address excessive leverage in conducting securities funding transactions and not-centrally-cleared OTC transactions could be to introduce margin requirements for these transactions. Shadow banks could in principle be subject to direct regulations. In this context, cash buffer requirements and redemption fees or gates have already been discussed by expert groups and cannot be excluded.

Finally, in order to mitigate the risk of regulatory linkages, any macro-prudential instrument operating via the demand for loans, such as the LTV or DTI ratios should be imposed at the borrower level, possibly by introducing restrictions in the consumer protection legislation and not via the bank regulations. This would allow for the extension of the perimeter of these macro-prudential instruments to beyond the regulated banking sector.

4. Challenges for macro-prudential policy with an ever-evolving financial sector

I have argued that central banks should be given a strong macro-prudential policy mandate and an adequate set of tools to address the build-up of financial risks, in particular in situations when monetary policy is accommodative. CRD IV and CRR provide the necessary framework for regulating the banking sector. Nonetheless, as I mentioned, risks may develop outside the banking system. Macro-prudential policy is a new field for research that should attract young economists.

Addressing those risks is challenging. Firstly, because shadow banking is an elusive concept that is hard to quantify with available statistics. Secondly, as I have argued, the tools needed to prevent the building-up of excessive risks in that sector are currently not in the set of instruments available to the ECB or to macro-prudential authorities at large – and some need yet to be devised.

An important role of research is to break frontiers by providing underpinnings for policies that have not been used before. At the ECB, we realised the need for deep analytical foundations of macro-prudential policy already in 2010, when the Macro-prudential Research Network was established for this purpose. One of the network's key contributions was the development of a series of macro-economic models featuring financial instability and apt to the evaluation of bank regulation, something that was virtually absent from the economic literature before the crisis. An important achievement was the build-up of a model that allows the assessment of benefits and costs of capital adequacy regulation in a micro-founded, general equilibrium setup.[17] On the empirical side, the network developed a coincident indicator of systemic financial instability as well as several early-warning indicators of banking crisis, which confirmed the important role of credit growth and leverage in capturing the rise of imbalances in the financial system.[18]

The Macro-prudential Research Network was concluded in 2014 but efforts to improve the foundations of macro-prudential policy and to provide empirical evidence on its effectiveness continue at the ECB, in other central banks but also in the wider profession.

Let me mention three main areas where progress would be particularly welcome: interconnectedness of shadow banking with the banking sector: implications for macro-prudential policy; cross-country spillovers of macro-prudential policy and their interaction with financial cycles; identification of specific risks in the shadow banking sector and respective statistical challenges.

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[17] Clerc et al. (2014).

[18] A summary of the network's research output and conclusions can be found in its final report: http://www.ecb.europa.eu/events/pdf/conferences/140623/MaRs_report.pdf.

4.1 Interconnectedness of shadow banking with the banking sector: implications for macro-prudential policy

The first area relates to the interconnectedness of shadow banking with the banking sector and the implications for macro-prudential policy.

I have argued above that financial cycles and business cycles are generally de-synchronised. Recent research has shown that business cycle recessions do not always correspond to troughs in the financial cycle and are typically much shorter than financial contraction phases.[19] This supports the idea that central banks should use monetary policy to stabilise the general price level over the business cycle and macro-prudential policy to prevent the build-up of risk over the financial cycle.

However, the macro-prudential instruments currently available to the ECB mainly operate through their effect on banks. The extent to which those instruments can smooth the financial cycle crucially hinges on the importance of the banking sector relative to shadow banking in driving financial fluctuations, notably credit and asset price developments. A limited role of shadow banking would reinforce the motivation for the use of banking regulation as a dedicated policy tool to address financial instability. Conversely, evidence that the financial cycle is to a large extent driven by non-bank activities would forcefully suggest the need to enlarge the perimeter of financial institutions subject to regulatory action. More empirical research on the main drivers of the "disconnect" between business and financial cycles would be useful.

Traditional banks and shadow banks are interconnected not only via direct exposures but also via exposures to common markets. Channels of propagation of possible shocks in the shadow banking sector to traditional banks is another analytical avenue worthwhile exploring. Research in this respect is on-going at the ECB. Some preliminary results suggest that a relatively large shadow banking sector could exacerbate fire-sales and increase incentives for traditional banks to behave more like shadow banks.[20]

Another aspect that deserves further research relates to the implications of shadow banking for the effectiveness of banking regulation. On the one hand, a rise in the size of shadow banking can hinder the desirability of capital regulation, even if the latter would be optimal in the absence of non-bank financial activities. A tightening of capital requirements can induce banks to exploit regulatory arbitrage opportunities and migrate some activities outside the regulated sphere, resulting in a higher aggregate risk exposure of the financial sector.[21] On the other hand, increased competition from shadow institutions can generate non-monotonic welfare effects of capital requirements on banks.[22] At relatively low levels of those requirements, competition from shadow banking institutions in the financing of profitable projects may induce banks to "search for yields" and to take up risky investments, with adverse implications for social welfare. At sufficiently high levels, however, banks' increased "skin in the game" may reduce the profitability of risk-shifting strategies, restoring the positive effect of capital regulation on financial stability and welfare.

4.2 Cross-country spillovers of macro-prudential policy and their interaction with financial cycles

A second area which is particularly relevant in the euro area context and where research is also needed, relates to the cross-country spillovers of macro-prudential policy and their

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[19] See Drehmann et al (2012) and Schüler et al. (2015).

[20] See Ari, Kok, Paries and Żochowski (2015).

[21] Plantin, G. (2015).

[22] Harris,Opp and Opp (2014).

interaction with financial cycles. This is also because cross-country spillovers tend to be stronger the more integrated financial systems are. They might thus gain in importance with the launch of the banking union.

Macro-prudential policies could be weakened or strengthened because of cross-border spillovers. Spillovers depend on the behaviour of both borrowers and lenders following a macro-prudential policy action. Positive spillovers reduce risks to financial stability, while negative spillovers raise these risks. Let me give you an example. If a country (say, country A) raises capital requirements in response to excessive domestic credit growth, a neighbouring country that also experiences excessive credit growth (say, country B) might benefit from this measure. If financial markets are integrated, banks in country A will reduce their lending in country B, thus contributing to a slowdown in financial exuberance. However, if financial markets are segmented, or if financial cycles are not synchronised and country B is experiencing weak credit growth, the sign of the spillovers from the same macro-prudential measure may turn from positive to negative.

Negative spillovers clearly pose a threat to the effectiveness of macro-prudential policy. For policy-makers, it is therefore crucial to be aware of the possibility of such spillovers and their respective propagation channels, co-ordinate policies to the best extent possible and apply mitigating measures to minimise leakages.

The sign and the strength of these spillovers depend on the type of macro-prudential instrument, the linkages between the two economies and their financial sectors as well as the level of the synchronisation of the cycles. To add another layer of complexity, the spillovers from LTV policy could be qualitatively different than those from capital policy. Following the introduction of a LTV cap, banks may find it profitable to reallocate lending abroad, thus generating negative spillovers on the neighbouring country. Based on the available literature, the empirical quantification of cross-border spillovers remains limited. Some evidence based on the U.K. experience suggests however, that resident foreign branches increased lending after capital requirements were tightened for local banks. Additional evidence based on European emerging markets shows that tighter regulatory restrictions on non-core bank activities (like bank involvement in securities markets, insurance, real estate, ownership of non-financial firms, etc.) and higher minimum capital requirements are associated with lower bank lending standards abroad.[23]

Moreover, macro-prudential policy may leak due to regulatory arbitrage. Credit could be provided to the economy via less capital-intensive channels, for instance via securitisation.[24] Macro-prudential measures can also encourage the so-called “race to the bottom”, whereby capital and liquidity is moved around within the group to the country with the lowest requirements. In both cases, the shadow banking sector may play an important role in facilitating such a regulatory arbitrage Measures can and should be envisaged to prevent “regulatory leakages” of macro-prudential policies. For instance, CRD IV introduces automatic reciprocity for countercyclical capital buffer up to 2.5%. This means that if any of the EU countries introduces a countercyclical capital buffer to smoothen the financial cycle in its economy, all other EU countries are bound by law to impose the same capital surcharge on banks’ cross-border exposures to the country introducing the measure. This prevents the so-called negative in-ward spillovers, whereby branches of foreign banks increase lending to circumvent the restrictions set by the macro-prudential authority on local banks. Without reciprocity, macro-prudential policy is prone to leakages.

[23] Ongena, Popov and Udell (2013).

[24] See Żochowski (2014).

4.3 Enhancing the transparency of the shadow banking sector

A third area where substantial progress needs to be made is the statistical treatment of the shadow banking sector. The ability of macro-prudential policy to address the risks materialising in the financial system is hindered by the opaqueness of that sector. A key priority for the ECB and the European System of Central Banks is to enhance its transparency and to develop a statistical system able to quantify its size, composition and risk exposure.

A main challenge in measuring the role of shadow banking is to define a perimeter for the activities it performs. For the euro area, a measure can be obtained using the quarterly ECB/Eurostat euro area accounts and the ECB's monetary statistics.[25]

However, measures of the size of the shadow banking sector based on these data, face several drawbacks. First, a large share of the total assets intermediated by shadow banking entities belongs to a residual category that refers to all non-bank financial intermediaries except money market funds and financial vehicles corporations, for which no further information is available. Second, the relevance of shadow banking entities is measured through the size of their balance sheets, so their exposure to risk is likely to be underestimated. This is because shadow banks tend to increase leverage and risks typically through derivatives and off-balance sheet vehicles.[26] Third, the approach misses significant non-core banking activities performed by the banks themselves, thus providing an incomplete picture of shadow banking and of its potential vulnerabilities.[27] Finally, the data only capture financial institutions domiciled in the euro area, thus understating the overall relevance of shadow banking.

Enhancing the transparency of the shadow banking sector in the euro area requires more granular information on particularly important activities, such as securitisation, repo transactions and derivatives trading. In this respect, some progress has been made through recent initiatives. One among them – the European Market Infrastructure Regulation – introduces an obligation in the EU to report the details of all derivatives to authorised trade repositories, which in turn have to provide this information to regulatory authorities (including the ECB).

Understanding the relevance of shadow banking also requires improving the available statistical information on repo markets. To this purpose, in 2014 the EU Commission published a proposal for a regulation on reporting and transparency of securities financing transactions. The initiative aims at facilitating the monitoring of the build-up of systemic risks related to those transactions, and the disclosure of this information to the relevant investors.

Finally, since 2014, the European System of Central Banks collects new statistics on securities holdings. The data provide granular information on securities held by the sector "other financial institutions" (e.g., financial vehicle corporations and investment funds including money market funds), and on securities issued by this and other sectors of the economy.

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[25] One possible approach is to exclude financial intermediaries whose liabilities are largely based on equity rather than debt, such as insurance corporations, pension funds and most investment funds, while including money market funds. A proxy for the size of the shadow banking sector can then be calculated by adding money market funds to the sector "non-monetary financial intermediaries other than insurance corporations and pension funds", and by subtracting other investment funds. See the article "Enhancing the Monitoring of Shadow Banking". ECB Monthly Bulletin, February 2013.

[26] A similar point is made by Brunnermeier et al (2011).

[27] An alternative statistical approach addresses this concern by providing a measure of shadow banking that encompasses all non-core liabilities of both banks and non-bank financial institutions (see e.g. Harutyunyan et al., 2015).

5. Conclusions

Let me conclude. Macro-prudential policies are key to cope with systemic risk and endogenous cycles in the financial sector. They are particularly important in the euro area at the current juncture, as the global environment of low interest rates and the rise in shadow banking activities exposes the financial sector to increased risks.

Macro-prudential policy and monetary policy rely on separate tools and aim to achieve different objectives. Yet, they need to be co-ordinated, which is a non-trivial task given that financial and business cycles could be de-synchronised. For these reasons, as I have already highlighted, macro-prudential policy should also be under the responsibility of central banks.

Finally, let me repeat the warning that without an effective macro-prudential policy, advanced economies will not be able to ensure financial stability. It is therefore an important endeavour to keep fighting for the appropriate policies to smoothen the financial cycle and to sufficiently tame finance in order to avoid crises that threaten the future of our economies.

Thank you for your attention

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