Speech by Luc Laeven (ECB)[1] 3 February 2016

SUERF Colloquium and Deutsche Bundesbank conference "The SSM at 1"

Ladies and gentlemen

It is a great pleasure to be speaking at the SUERF Colloquium and Deutsche Bundesbank conference "The SSM at 1", and I am grateful to the organisers, and especially Jens Ulbrich, Erich Loeper, and Urs Birchler, for giving me the opportunity to do so.

Anniversaries offer an opportune moment to pause and look back or forward in time.

Looking back, the anniversary of the Single Supervisory Mechanism (SSM)—and banking union more broadly—is indeed an event worth celebrating. The banking union is an important milestone in the institution building of the European monetary union, and few of us would have foreseen its establishment in the years prior to the global financial crisis. A historical step indeed whose importance some have compared to the introduction of the euro. And, while most attention has gone to the establishment of the SSM, perhaps because of the large number of supervisors involved, one should not forget about the equally important establishment of the second pillar of the banking union, the Single Resolution Mechanism (SRM), which became fully operational at the beginning of this year.

Looking forward, while there is much cause for celebration, additional work is needed to solidify the banking union. A first anniversary is also known as a paper anniversary—a symbol of fragility and modest beginnings—and thus work in progress. Completing the banking union requires additional work in terms of implementation and institution building, including the establishment of common deposit insurance. Questions also remain about the degree of centralization of lender of last resort policies. Moreover the new setup has not been tested by a major financial crisis when conflicts may emerge between the various authorities responsible for monetary policy and financial stability.

Against this background, I will touch on three related issues associated with financial regulation and the conduct of monetary policy. First, whether central banks should incorporate financial stability considerations in the conduct of monetary policy. Second, whether macro-prudential regulations are effective in preventing the occurrence of financial instability. And third, whether bank capital should be raised to support financial stability.

Should central banks incorporate financial stability considerations in the conduct of monetary policy?

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The global financial crisis has reignited the debate on the link between short-term interest rates and bank risk taking, also known as monetary policy's "risk-taking" channel: the notion that interest rate policy affects the quality and not just the quantity of bank credit. Specifically, many hold the view that interest rates were held too low for too long in the run up to the crisis[2], and that this helped fuel an asset price boom, spurring financial intermediaries to increase leverage and take on excessive risks[3].

More recently, a related debate has ensued on whether continued exceptionally low interest rates and unconventional monetary policy are setting the stage for the next financial crisis[4]. More generally, there is a lively debate about the extent to which monetary policy frameworks should include financial stability considerations[5].

The pre-crisis view was that central banks should focus on price stability, whereas financial stability objectives should be left to prudential authorities. Financial stability concerns should only be taken into account by the central bank to the extent they affect the medium term outlook for price stability. The main lesson from the crisis is that a more macro prudential perspective is needed to safeguard financial stability, with a regulatory framework that unlike micro prudential regulation takes the perspective of the system as a whole.

Under this view, the objectives and instruments of monetary and macro-prudential policy can easily be separated. It relies heavily on the premise that the interaction between monetary policy and macro prudential regulation is limited, that the monetary policy stance did not contribute to the build-up of imbalances during the boom period, that monetary policy is a very blunt tool to deal with those imbalances and its use would create too large distortions as opposed to more targeted prudential instruments, and that monetary policy works primarily through altering the volume of credit rather than the composition of credit and thus has no first-order effect on risk-taking incentives.

An alternative view that emerged following the crisis is that central banks should incorporate financial stability considerations in the conduct of monetary policy. This view starts from the premise that the costs of financial crises are very large, so that more emphasis is needed on their prevention; that the consequences of financial crises are problematic also for monetary policy and price stability, not just financial stability; that monetary policy interacts with important drivers of financial imbalances, including not only the quantity but also the quality of credit, the so-called risk-taking channel of monetary policy; that macro-prudential policy can in principle be used to manage such imbalances and

[2] Taylor (2009).
[3] Borio and Zhu (2008) and Adrian and Shin (2009).
[4] For instance, Rajan, 2010; Krishnamurthy and Vissing-Jorgenson, 2011; Farhi and Tirole, 2012; Acharya et al., 2013; and Chodorow-Reich, 2014.
[5] Woodford (2012); Stein (2014).

risks but that its use needs to be closely coordinated with monetary policy to avoid coordination problems.

Financial crises are indeed a very costly affair, not just in terms of output losses and unemployment, but also in terms of sizable fiscal costs associated with government interventions needed to rescue and reignite the financial system[6]. These costs are transferred to future generations in the form of higher public debt, which represent a deadweight burden on the economy, dimming both its investment and growth prospects. The widespread belief prior to the crisis was that the frequency of such crises was low, at least for advanced economies, in part because central banks by promoting price stability also fostered more stable growth and financial stability, and that the clean-up following such crises was manageable and not very costly. However financial globalization may well have made the world riskier, making financial crises all but once in a lifetime events, and the growing interconnectedness, size, and complexity of financial systems made their clean-up much costlier than was foreseen.

This has led to an alternative view that one should err on the side of caution during booms, by leaning against the wind using all tools available, including monetary policy, to avoid the high cost of financial crises.[7]

But the extent to which one should use monetary policy to lean against the wind depends to a large degree on one's view of the relevance of the risk-taking channel of monetary policy. Leaning against the wind requires not just that the risk-taking channel is empirically relevant, but also that it is inefficient.

Prior to the crisis, the effect of changes in interest rates on financial stability were broadly seen as operating through two different channels: the balance sheet channel and the leverage channel. The balance sheet channel predicts a positive effect of monetary accommodation on financial stability. A reduction in interest rates, by reducing interest rate burdens and an increase in the value of legacy assets, leads to a general improvement in the financial conditions of households and firms, boosting aggregate demand, profits, and employment. The leverage channel, on the other hand, by considering the endogenous response of leverage to changes in interest rates, predicts a negative effect of monetary accommodation on financial stability. A reduction in interest rates leads to an increase in leverage as borrowing costs decrease, reducing resilience to future shocks.

The risk taking channel of monetary policy is different from these more traditional channels because it also considers the impact of interest rate changes on the quality of credit.

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[6] Laeven and Valencia (2012, 2013).

[7] At least semantically, most central banks at least indirectly have always considered financial stability implications for the real economy, including as their role as lenders of last resort (Goodhart 1988). Indeed, the ECB's two-pillar monetary policy approach involving monetary analysis can be seen as implicitly incorporating an element of leaning against the wind. However, with the emergence of inflation targeting, there was a shift in focus toward price stability as the main objective.

Different theoretical approaches deliver different predictions on the relationship between the monetary policy rate and bank risk taking.[8] [9]

Most portfolio allocation models will predict that an exogenous decrease in the yield on safe assets will lead to greater risk taking to achieve the same return in expectation. Similarly, under limited liability and asymmetric information, there could be a "search for yield" effect for financial intermediaries with long-term liabilities and shorter-term assets (i.e., negative maturity mismatches), such as life insurance companies and pension funds[10]. These financial intermediaries may be induced to switch to riskier assets with higher expected yields when a monetary easing lowers the yield on their short-term assets relative to that on their long-term liabilities, and this effect would be more pronounced for lowly capitalized financial institutions.

Focusing instead on the liability side of the balance sheet, a growing number of models that incorporate asymmetric information and funding liquidity risk predict that banks may engage in riskier activities when real interest rates are low by increasing short-term market funding[11].

In contrast, in models with limited liability and risk shifting, a decrease in interest rates may reduce risk taking by reducing the bank's funding cost. A lower funding cost may increase bank profits when the pass-through to lending rates is partial and thereby increase in the franchise value of the bank. Under asymmetric information, this will lessen risk shifting and reduce bank risk taking. Further, the strength of this risk shifting effect depends on the leverage/capital of banks. It is the strongest for the least capitalized banks. These banks are more exposed to agency problems, which become more severe when interest rates are higher and their intermediation margins are compressed[12]. So, in traditional risk-shifting models, the least capitalized banks will be the most sensitive to interest rate changes.

The net effect of interest rates on bank risk taking, and its interaction with bank leverage, is therefore an empirical question. A more negative effect for highly capitalized banks would be consistent with the classical risk shifting effect while a more negative effect for lowly capitalized banks would be consistent with a "search for yield".

Recent empirical research broadly supports the existence of a negative link between interest rates and bank risk taking: lower interest rates promote risk taking, by affecting the quality of credit. However, not surprisingly given the opposite forces at work, results on the derivative of this effect with respect

[8] See Altunbas et al. (2010); Chodorow-Reich (2014); and Dell'Ariccia and Marquez (2013).
[9] Most models of the risk-taking channel are cast in terms of real, not nominal, interest rates. The empirical predictions from these models are valid as long as monetary policy, by setting the policy rate, has a direct influence on short-term real interest rates, which is the case as long as rigidities prevent prices from adjusting immediately. Indeed, the correlation between nominal and real interest rates in the US is high (0.9 over the past 20 years).
[10] Rajan (2005); and Dell'Ariccia and Marquez (2013).
[11] For instance, Adrian and Shin (2010) and Dell'Ariccia, Laeven, and Marquez (2014).
[12] Stiglitz and Weiss (1981) and Hellman et al. (2000).

to bank leverage are mixed. Using detailed credit register data on corporate loans in Spain, Jimenez et al. (2014) find that the negative effect of interest rates on the riskiness of loans is more pronounced when bank capital is low, consistent with a search for yield channel. In contrast, in recent work with Giovanni Dell'Ariccia and Gustavo Suarez[13], using detailed data on the internal risk ratings of individual bank loans in the US, we find that the effect of interest rates on bank risk taking is less pronounced for poorly capitalized banks, consistent with a traditional risk-shifting channel. By restricting our attention to the extension of new loans, we can focus on ex-ante risk taking, contrary to studies that analyse ex-post loan performance which could be affected by subsequent events.

While the effects differ, both studies provide support for the presence of a risk-taking channel of monetary policy. Does this imply that central banks should incorporate financial stability considerations in the conduct of monetary policy?

While results are statistically significant and robust, their economic magnitude is relatively small. At one level this is not surprising given that the underlying channels at work—portfolio rebalancing and risk shifting—point in opposite directions, such that the net effect on risk taking is small. At the same time, the effect is not trivial, given that even in the most closely scrutinized part of the banking business (i.e., making loans) banks appear to engage in this form of risk taking at a detectable scale.

Further, these empirical results are not well suited to answer whether or not the additional risk taking of banks facing more accommodative monetary policy is excessive from a social welfare standpoint.[14]

It is also important to note that these results focus on a very specific margin of risk taking: the riskiness of new loans. While we find similar effects for banks' holdings of risky securities, the effect on the overall asset portfolio of banks could be different. And there are several other channels through which interest rate policy can affect bank stability: leverage, liquidity, maturity mismatches, etc.[15]Moreover risky activity may flow from banks to other parts of the financial system[16]. As it has been the case for the lending channel literature, it might be easier to establish the existence of a risk taking channel than to quantify reliably its importance[17].

More generally, the discussion on the risk taking channel of monetary policy is rather limited in its analysis. All papers focus on interest rate policy as the main margin of monetary policy. But monetary policy has many more instruments than interest rate policy alone. Liquidity provision was instrumental

[13] Dell'Ariccia, Laeven and Suarez (2015).
[14] For an exception, see Stein (2012).
[15] Adrian and Shin (2009).
[16] See, for instance, Chodorow-Reich (2014), and the discussion in Vissing-Jorgensen (2014).
[17] See, for instance, Kashyap and Stein (2000).

in preventing a financial collapse during the recent crisis.[18] A comprehensive assessment would need to consider all available monetary policy tools, including non-standard measures.

Is macro-prudential policy effective in preventing the occurrence of financial instability?

Both views of how central banks should deal with financial stability hold that prudential regulation needs to take a more macro prudential perspective, concerned with the stability of the financial system rather than that of individual financial institutions. Macro prudential policy in principle offers a more targeted approach than monetary policy to prevent unsustainable credit booms and increase resilience to busts.

However the views differ in the extent to which central banks should be involved in the setting of macro prudential regulation. Under the traditional view, monetary authorities should remain focused on price stability, and macro prudential regulation should be the purview of a macro-prudential authority with a mandate to safeguard financial stability. Under the risk taking view of monetary policy, macro prudential policy and monetary policy should be used in combination to manage financial imbalances.

Under either view, a critical element is the effectiveness of macro prudential regulation.

Much of the research on the effectiveness of macro prudential instruments focusing on their preventive role during credit booms. This is not surprising given that credit growth is a powerful predictor of financial crises.[19] The recent global financial crisis has reinforced this notion. After all, one of the roots of the crisis was the rapid increase of mortgage loans in the United States. And the US regions that had experienced greater booms during the expansion were exactly the same as those that suffered greater increases in credit delinquency during the crisis[20]. In addition, across countries, many of the hardest-hit economies, such as Iceland, Ireland, Latvia, Spain, and Ukraine, had their own home-grown credit booms[21].

Credit booms had also preceded many of the largest banking crises of the past 30 years: Chile (1982), Denmark, Finland, Norway, and Sweden (1990/91), Mexico (1994), and Korea, Malaysia, Philippines, and Thailand (1997/98).

Overall, there is still limited experience with macro prudential policies in advanced economies as policy frameworks have mostly only recently been established. While most macro-prudential instruments are from the micro-prudential toolkit, their use and application is different, and some macro prudential

[18] An example is the ECB's full allotment policy, which offered unlimited liquidity support to banks.
[19] Borio and Lowe (2002); Schularick and Taylor (2012).
[20] Dell'Ariccia, Igan, and Laeven (2012).
[21] Claessens et al. (2010).

instruments are altogether different, especially those that operate on the borrower side. There also exist many tools to choose from, with potentially complex interactions, and identifying each their individual impact when they are used in combination is challenging.

Most of the evidence on its effectiveness comes from experiences in emerging market economies, which often use macro prudential policies to stem surges in capital inflows that can foster dangerous credit booms. This raises the question of how relevant this evidence is for advanced economies.

Moreover country experiences are difficult to compare because of differences in the intensity of the use of macro-prudential instruments. Weak results could indicate that the effectiveness of these instruments is limited, for instance due to circumvention of rules, or that the dosage has been too small. For instance, a study by Jimenez et al. (2014) on the effectiveness of dynamic provisioning rules in Spain found that they helped tame the credit cycle, building buffers to help absorb the fallout during the credit bust, but that the overall effect was too small in scale.

The most comprehensive study to date is based on a recent IMF survey on the use of macro-prudential policies in 119 countries over the past 15 years.[22] This paper shows that emerging economies use macro-prudential policies most frequently, especially those aimed at foreign currency risk and capital inflows, while advanced countries focus mostly on borrower-based policies such as LTV and DTI ratios rather than those that target banks directly, such as countercyclical capital requirements or provisioning rules. Usage of instruments is generally associated with lower growth in credit, notably in household credit. Effects are weaker in financially more developed and open economies, and usage comes with greater cross-border borrowing, suggesting some avoidance. And while macro-prudential policies can help manage credit cycles, they work less well in busts.

Overall, the empirical literature supports the use of macro-prudential instruments in reducing the procyclicality of credit but the extent to which they alone can effectively manage credit cycles and reduce systemic risk depends on circumstances.

Circumvention of rules is a prime concern. In emerging economies experiencing rapid surges in capital inflows, banks will be hard pressed to find ways to circumvent rules. And in advanced economies with large shadow banking systems and developed capital markets, macro-prudential regulation that is limited to the regulated part of the financial system risks having a limited impact as activity may shift outside regulatory boundaries. One advantage of monetary policy is that it is more likely to reach the entire financial system and “get in all its cracks”. However this concern can be mitigated by expanding the regulatory perimeter.

[22] Cerutti, Claessens and Laeven (2015).

Another concern is the politics of booms. Macro prudential policy, by targeting specific asset classes or borrowers, may face stiff political pressures from interest groups that would stand to lose from such targeted interventions. More generally, "nobody wants to stop a credit boom". A blunt tool like monetary policy may be more palatable as its effects are less targeted. But therein lies also the risk of using monetary policy for financial stability means. It could well be used in excess to support insolvent borrowers under the guise of financial stability considerations. This reinforces the point that price stability should be monetary policy's primary objective.

Macro-prudential policy may also have unintended consequences. First, by insuring against aggregate fluctuations, macro-prudential policy may increase risk taking in the cross-sectional dimension. Coordination with micro-prudential policy is therefore important. And when set in uncoordinated fashion with monetary policy, there is a risk of "push me-pull you" outcomes when the policies move in opposite directions over the cycle, and a risk of overtightening of financial conditions when both policies reinforce each other.

One additional complication is that no generally agreed concept of financial stability exists to date, much more so than is the case for price stability. Indeed some have argued that financial instability is inherently more difficult to measure than price stability, raising questions about whether macro-prudential policy should be conducted by central banks under a dual mandate.[23] A key priority should therefore be to develop generally accepted measures of financial instability. I believe that credit growth offers a good starting point.

Credit booms are a good predictor of crises: 1-in-3 credit booms[24] end up in a crisis for a sample of 170 countries over the period 1970-2010.[25] Credit booms that last longer and grow faster are more dangerous. And more precision can be gained by looking at disaggregated information.

For instance, in the US in the boom period leading up to the subprime crisis, low growth rates in overall credit masked rapid growth rates in mortgage loans[26]. Most crises follow a period of financial imbalances: sectoral imbalances, maturity mismatches, currency mismatches, and high leverage. And real estate booms are particularly vulnerable. This suggests that simple measures of excess credit growth can be used to track financial instability over time.

But not all credit booms are bad, and intervention therefore comes at a cost of reduced financial development that may have benefitted growth. This implies that the cost of intervening too early and running the risk of stopping a good boom have to be carefully weighed against the desire to prevent financial crises.

[23] Blanchard, Dell'Ariccia, and Di Mauro (2013).
[24] Defined either on the basis of real credit growth or deviations from trend.
[25] Dell'Ariccia, Igan, Laeven, and Tong (2015).
[26] Dell'Ariccia, Igan and Laeven (2012).

Should bank capital be raised to support financial stability?

This brings me to my third and final question: Should bank capital be raised?

Bank capital serves at least two important roles. It builds buffers to absorb shocks and, under limited liability, lowers incentives for risk taking. Higher capital requirements are desirable for two reasons. First, higher capital requirements will increase the likelihood that buffers will be sufficient to absorb shocks, increasing the resilience of the financial system. While macroeconomic stabilization policies can in principle also reduce financial imbalances and help absorb shocks, their emphasis is more geared toward managing the cycle rather than building a resilient financial system. Moreover the politics of booms is such that the expectation is that too little will be done when relying exclusively on cyclical policies. Second, higher capital buffers will reduce the need for monetary policy to act in support of financial stability, allowing it to focus more on its primary mandate of price stability.

A recent IMF paper shows that an increase in capital to between 15 and 23 percent of risk weighted assets would have been sufficient to absorb the shocks emanating from about 85% of past crises[27]. Raising capital to such levels and maintaining it at such levels, and rebuilding it following crises, would be akin to a countercyclical capital rule. And when differentiating based on systemic risk contribution would go a long way to implementing macro-prudential policy that otherwise faces technical and political challenges.

Higher capital also lowers incentives for risk taking by reducing the downside protection offered by limited liability. When increasing capital requirements, financial firms will not only reduce leverage but also endogenously respond by lowering the riskiness of their assets, thus improving their survival rate. One lesson from the crisis is that more consideration should be given to the role of incentives in the financial sector, including in the design of regulation.

The desirability of raising capital requirements of course ultimately depends on its effects on the real economy. The same paper suggests that raising capital requirements to levels of 15 to 23 percent would come with minimal costs for the real economy if raised gradually. Set against the capacity of capital to reduce the likelihood of financial crises and to build buffers to absorb such shocks when they occur, the general direction of higher capital requirements taken by the Basel Committee seems right.

But what if the effectiveness of higher capital requirements in improving incentives depends on the governance structure of the bank and the regulatory enforcement of such requirements? What if the governance of banks is intrinsically linked to bank risk? And what if bank governance interacts with regulation to shape bank stability?

[27] Dell'Ariccia, Laeven, Ratnovski and Tong (2015).

Ongoing financial reforms and re-regulations in response to the global financial crisis virtually ignore bank governance, including the ownership of banks and the incentives and conflicts that arise between bank owners and managers. For instance, in the area of capital regulation, the general approach is that more capital is better, irrespective of who provides this capital.

This emphasis on using regulations to induce sound banking, while ignoring the role of bank governance, is surprising because corporate governance theory suggests that ownership structure influences corporate risk taking[28]. For example, shareholders with larger voting and cash flow rights have correspondingly greater power and incentives to shape corporate behaviour than smaller owners[29]. This means that the same regulations could have different effects on bank risk taking depending on the comparative power of shareholders within the ownership structure of each bank.

For instance, there is evidence that shareholder controlled banks exhibit higher risk taking behaviour than banks controlled by managers with relatively small shareholdings, and who enjoy large private benefits from the survival of the bank, and that these differences in risk become more pronounced following financial deregulation which relaxes regulatory constraints on shareholders to take risks[30].

Recent research also shows that bank risk is generally higher in banks with more concentrated ownership, consistent with theories predicting that owners with substantial cash flow rights induce banks to increase risk taking[31].

The incentives of supervisors to enforce regulations also matter. Intervention will depend on the reputational costs facing supervisors and on the degree of regulatory capture[32]. For instance, pressures not to intervene in national champions can be very large. In practice, regulatory forbearance is much reduced by an effective and credible resolution framework for banks, and the establishment of the SRM in the euro area is therefore a major step forward.

Conclusions

Let me conclude.

The costs of financial crises are very large: the need to build a robust financial system is evident.

[28] Jensen and Meckling (1976).
[29] Shleifer and Vishny (1986).
[30] Saunders, Strock, and Travlos (1990).
[31] Laeven and Levine (2009) and Beltratti and Stulz (2012).
[32] Agarwal et al. (2014) and Carletti et al. (2015).

Macro-prudential policy should be the first line of defence against financial excesses. It is more targeted than monetary policy, and when effective would allow monetary policy to focus on its primary objective of price stability. And the evidence suggests that interest rates would have to be raised substantially to curb risk taking, with potential undesirable consequences for the overall economy.[33]

There is growing evidence that macro-prudential tools can be effectively deployed to stem credit booms, although circumvention often proves a challenge.

At the same time, there is evidence that monetary policy affects risk taking. Until macro-prudential frameworks are operational and effective, monetary policy may therefore need to play a role in preserving financial stability.

This is not without risks. First, as financial crises may nevertheless occur there is a risk that the reputation of the central bank is damaged, which may affect its overall independence and credibility. Second, a dual mandate of price and financial stability may give rise to time-inconsistency problems, including the incentive for monetary policy to inflate away part of the debt arising from financial crises. Third, a conflict may arise when using monetary policy toward both objectives. For instance when interest rates are held low for a prolonged period of time in response to a crisis this may lead to a search for yield, which could seed the next crisis, even though in the aftermath of a crisis economies typically suffer from too little rather than too much risk taking.

To mitigate these risks, it is important that price stability remains the primary objective of monetary policy, dominating financial stability considerations. But the framework should be flexible enough to allow the central bank to temporarily lean against the wind at times of growing financial imbalances, while maintaining its primary focus on price stability in the medium term.[34]

Given the challenges facing the implementation of macro-prudential policy, there is a strong case for raising bank capitalization levels above pre-crisis levels. Higher capital requirements, by increasing capital buffers to absorb shocks and improving incentives for risk taking, will improve the resilience of the financial system, and provide strong support to countercyclical policies. Moreover to achieve financial stability it is critical that the macro-prudential framework is supported by strong and effective supervision, to ensure circumvention of rules is minimised. To this end, the shared responsibility for financial stability across multiple authorities poses significant coordination challenges.

The prevention of financial crises requires a multifaceted approach which uses a combination of macroeconomic and prudential policies and accounts for systemic risk and the endogenous response to policy. However many questions remain unanswered on the optimal mix and design of such policies,

[33] Dell'Ariccia, Laeven and Suarez (2015).
[34] Smets (2014).

including the organizational setup to implement such policies. I look forward to the discussions at this conference which I am sure will improve our understanding of these issues.

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