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Macro-Prudential Supervision and Monetary Policy – Linkages and Demarcation Lines¹

It is a pleasure for me to contribute to the Oesterreichische Nationalbank's annual Economics Conference on the future of economic integration. In my remarks today, I would like to elaborate on the linkages and the dividing lines between macro-prudential supervision and monetary policy.

I will structure my presentation in two parts. First, I will discuss the interactions between monetary policy and the financial system, showing how monetary policy can create the conditions for financial stability. As a matter of fact, price stability is a necessary condition for financial stability, in that asset prices and financial volumes are bound to reflect and amplify erratic swings in inflation expectations – if and when a central bank allows these to happen. But price stability is not a sufficient condition for financial stability. I will elaborate on this insufficiency paradigm and the corollary that the ECB derives from it. I will also argue, inversely, that financial stability is a necessary precondition for monetary policy, in that it creates the conditions for monetary policy to attain its objective.

In the second part of my presentation I will illustrate the rationale for the main macro-prudential tools and discuss how they interact with monetary policy decisions.

1 Interactions between Monetary Policy and the Financial System

Let me start by briefly considering how monetary policy decisions can influence the financial sector's risk-taking behaviour, before moving on to discuss how the financial sector may itself also

affect monetary policy. I will argue that monetary policy can influence such behaviour, for instance, by affecting the overall level of leverage in the economy and the maturity structure of financial liabilities, or by changing attitudes held by those in the financial sector about assuming risk. In turn, this may crucially impact on the likelihood of asset and



credit bubbles forming and inflating, as they did before the global financial crisis.

According to recent studies that have reconsidered the role of financial intermediaries in monetary economics, monetary policy may be regarded as an extremely *powerful* tool. Those studies indicated that short-term policy rates are important per se – quite independently of their impact on long-term rates and on expectations of future short-term rates.² Of course, this marks a U-turn in monetary policy thinking. Mainstream macroeconomic doctrine had long built on a finance-less construct in which short-term rates matter only to the extent that they determine long-term rates, as risk-adjusted expectations of future short-term rates. The

¹ I wish to thank Lorenzo Cappiello, Marco Catenaro, Massimo Rostagno and Carmelo Salleo for their contributions to the speech. I remain solely responsible for the opinions contained herein.

² Adrian and Shin (2009).

crisis has suggested that finance is not a veil. It is a critical determinant of macro-economic facts; it is a source of shocks and an intricate – and partly unpredictable – amplifier of disturbances. A new series of studies and models show how finance and the macro-economy interact. In these models, short-term monetary policy instruments seem to be more powerful than previously thought – and therefore, more disruptive if misused.

But why would short-term rates be important in their own right? The bulk of finance for financial institutions, whether banks, broker-dealers, the so-called shadow banking system or hedge funds, is very much short-term. For example, broker-dealers fund themselves primarily in the repo market, mainly at overnight maturities, while shadow banks fund themselves in the commercial paper market and the majority of commercial banks rely on retail finance – chequing and savings deposits – which usually consists of sight or short-maturity instruments. Wholesale funding for commercial banks is, typically, very short-term as well. So, when a central bank decides on the short-term interest rate, it directly affects the marginal price of leverage for virtually the entire financial sector.

Problems arise when, due to low interest rates that make short-term funding cheap, the total debt raised by financial institutions goes beyond what may be considered as socially optimal. This is frequently the case for the unregulated or so-called “shadow” banking system, not subject to the stringent requirements of the regulated banking sector.³

Low funding rates can inspire risky business strategies. For example, ex-

treme forms of maturity transformation can become attractive, particularly if the risk adjustment calculus fails to make a proper correction for the expected gains. Business models based on “search for yield” with little or no concern for risk then become popular. In the search for a high nominal return on investment, financial institutions might be encouraged to buy assets, typically with long-term maturity and possibly illiquid, financing them with short-term liabilities, thus generating a large maturity and liquidity mismatch.

Such new and destabilising business models do not apply only to securities. Evidence both for the euro area and the USA shows that banks tend to accumulate risk during economic upturns by optimistically easing lending standards. The same evidence shows that much of the easing comes from supply-side adjustments. In other words, it is not warranted by improvements in the borrowers’ risk due to the more favourable economic conditions in which those borrowers operate.⁴ This is particularly true for mortgages and is considered one of the factors that fuelled the real estate bubble.

Furthermore, research has shown that the impact on risk-taking of low short-term interest rates is amplified when securitization activity is high – for it improves banks’ capital and liquidity position and reduces borrowers’ risk – and when banking supervision standards are weak. As for the euro area in particular, there is some evidence that low short-term interest rates induce banks to lend to borrowers with a poor credit history or none at all. Naturally, such loans also have a higher *hazard rate*, that is to say a high probability of default.⁵

³ Stein (2011).

⁴ Maddaloni and Peydró-Alcalde (2010).

⁵ Jiménez, Ongena, Peydró and Saurina (2010).

When financial intermediaries have built large risks into their balance sheet structures, a negative shock to confidence hits the financial system as a whole, in a rather indiscriminating fashion. A negative externality to the whole system will then ensue. This is what researchers have identified as a *fundamental* market failure – unregulated private money creation can expose the system fatally to a systemic crisis. A systemic crisis is in essence a colossal externality: fire sales and distressed de-leveraging are the *correct* response that each financial institution *in isolation* should have to a funding crisis. But *in the aggregate* fire sales and the concomitant shedding of exposures cause a systemic failure which can damage institutions that would be healthy in different macro-environments.

In a simple institutional environment, this externality could be addressed with conventional monetary policy, complemented with either deposit insurance or a lender-of-last-resort facility, acting *ex post*. But for policy-makers to intervene *ex post* is sub-optimal and exceedingly reliant on instruments whose effectiveness in distress conditions is subject to a great deal of uncertainty. *Ex ante* policies are required to control the risk factors which can undermine the system. This provides an important rationale for deploying a broad range of measures (e.g. financial stability regulation). I will come back to this point in the second part of my remarks.

What is clear from this narrative is that financial (in)stability has a profound role to play in creating the conditions in which monetary policy operates. Therefore, monetary authorities are very alert to developments that can have implications for financial stability,

although this is not explicitly stated in the mandate of many central banks. As a matter of fact, the original motivation for creating central banks in many countries was to temper the financial crises associated with unregulated “free banking” regimes.⁶

A central bank’s task of maintaining price stability is facilitated if there is no financial turmoil and such events are rare. Financial stability contributes to an orderly functioning of the transmission of monetary policy to the economy and, ultimately, to prices – a precondition for a central bank to be able to discharge its primary task of maintaining price stability. Therefore, the respective policy objectives of macro-prudential oversight and monetary policy, that is, contributing to financial stability and maintaining price stability, are mutually reinforcing.

But is there an *ex ante* role to play for the central bank alongside regulatory policies? Can it discourage risk-taking



behaviour by the financial sector before excessive balance sheet risk is created?

The developments in the run-up to the global financial crisis have shown that price stability, while being a necessary precondition, is not sufficient for financial stability. Low and stable inflation

⁶ Goodhart (1988).

rates before the crisis coincided with a build-up of financial imbalances, leading to an increase in systemic risk and, ultimately, serious risks to price stability later on. More generally, as a result of the establishment of credible low infla-



tion environments over the last two-and-a-half decades, with firmly anchored inflation expectations, ample liquidity conditions and unsustainable economic imbalances seem to manifest themselves first in the build-up of financial imbalances rather than in immediate inflationary pressures. One reason for this may be that economic agents find it preferable, under supposedly normal circumstances, to assume that in the future inflation will remain close to the central bank's objective, but will suddenly and – even rather abruptly – revise such expectations once actual inflation edges up and uncertainty about future increases. Due to such stickiness, the potential inflationary pressure in the economy may be stronger than current inflation expectations indicate.

That financial variables could be important for monetary policy settings

was recognised before the crisis and debated – somewhat absent-mindedly – in an academic world dominated by the inflation targeting doctrine. The debate had concentrated on whether asset prices should be included in the central bank's definition of the inflation target, or in their objective function, or at least as an argument, over and above inflation deviations, of their “feed-back rules”. The consensus conclusion was that asset prices should be considered only to the extent that they might help predict inflationary pressures.⁷

In a post-crisis world, the debate has taken a different tack. For one thing, it is not asset prices alone that should enter policy considerations. It is financial and monetary imbalances in general. This includes asset price over-valuations and measures of risk appreciation in financial instruments, of course. But it includes monetary and financial quantities as well: over-leveraging of sectors – and of the entire economy – and excessive creation of cash balances. It is by now established that monetary policy affects financial stability by influencing the leverage, maturity mismatch and risk-taking behaviour of the financial sector. One could even argue that, in a near-paradox, it is precisely the success of monetary policy in taming inflation and therefore being able to deliver lower interest rates that introduces an element of instability, due mainly to the financial sector's misperception that low interest rates are associated with a low-risk environment. When a financial crisis erupts, however, there is a risk that monetary policy and financial stability could lead to a so-called “low interest rate trap”, in that crises require low interest rates to keep the financial system alive; low interest rates maintained for long, in turn, induce too

⁷ *Bernanke and Gertler (2001).*

much risk-taking, thereby making a new crisis more likely.

How can financial imbalances enter the process of monetary policy setting in a way that makes monetary policy itself less prone to systematic mistakes?

The ECB has long practised a two-pillar approach to policy-making. But note the difference between a monetary pillar and a genuine *lean-against-the-wind attitude*, as was advocated by the early participants in the debate that I was mentioning before. It was discussed in a recent ECB paper.⁸

It is not asset prices *per se* that a central bank should incorporate in its policy framework. After all, the equilibrium value of assets – particularly real assets, such as claims on companies and houses – is difficult to compute and is certainly state-contingent. So, there is little merit in an unconditional monetary policy response to asset price changes. The policy response should be conditional. And the critical condition that a central bank should ascertain before judging if an asset price trend is policy-relevant is whether the market trend is causing – and/or is being fed by – a concomitant monetary imbalance.

A market bubble that progresses in symbiosis with a credit bubble, and which then spills over into excess money creation, is certainly a policy-relevant event. Being alert to the monetary imbalance means for a central bank being better able to discriminate between benign and less-benign phenomena in financial markets.

This being said, monetary policy needs support in its *ex ante* action to resist the formation and build-up of toxic financial imbalances. There is a clear need for a corresponding policy framework to foster financial stability;

we need to understand how it interacts with monetary policy in order to minimise frictions between the two and exploit possible synergies.

2 Macro-Prudential Policies and Monetary Policy Decisions

The goals of macro-prudential policies can be broadly defined as preserving financial stability by reducing the pro-cyclicality of the financial sector, and improving its resilience to adverse shocks. However, even though the goals are clear in theory, the means to reach them are still open to discussion.

Monetary policy has been at the centre of the debate in economics for almost a century, and there is now a high level of consensus about its goals, its tools, and how to gauge its effectiveness. However, the macro-prudential framework is still fuzzy, and being developed with the benefit of hindsight after the crisis that started in 2007 with the bursting of the sub-prime bubble.

I will describe briefly the main tools that are being developed, dividing them into those that address pro-cyclicality and those that attempt to improve resilience. I will discuss their interaction with monetary policy and the conduct of that policy, and draw some tentative conclusions about how they reinforce each other – and where I see possible problems.

In order to tame the pro-cyclicality of the financial sector, the main tool being devised is the aptly named counter-cyclical capital buffer. Without going into too many details, the main idea is that as the economy booms and credit is cheap, there is an inherent tendency to relax lending standards, take risks and over-leverage. Subsequently, as the economy slows down, over-extended borrowers go bust, mounting losses at

⁸ Fahr, Motto, Rostagno, Smets and Tristani (2011).

banks result in capital depletion and force them to reduce the loan supply. This can induce a credit crunch that turns a slowdown into an outright recession. Interest rates are generally set anti-cyclically, but they might not be enough to tame the swings of the financial sector, or might be too blunt an instrument if the boom (and subsequent bust) is concentrated in some specific sector, for example real estate. On the other hand, banks could be asked to build up more capital per unit of risk during the upswing, well above minimum requirements mandated by micro-prudential supervisors. This way, on the one hand, credit would become more expensive and therefore might slow down, while on the other hand, banks would not need to reduce the loan supply during the downswing since they could run down this buffer before reaching the binding constraint of capital regulation. This instrument aims to limit supply-driven credit expansions and to soften contractions.

One instrument which has similar effects but is designed more for demand-driven credit booms is a ceiling on the loan-to-value ratio for collateralised loans (and equivalently on margins and haircuts for securities lending). By forcing the borrower to put up more of its own funds, it makes credit more expensive and reduces demand. When the demand for loans heats up, macro-prudential authorities can decrease the loan-to-value ratio, thus increasing the cost of credit and slowing down or stopping its growth.

Both counter-cyclical capital buffers and loan-to-value ratios increase the cost of credit and thus limit its expansion, as does an increase in interest rates. So why do we need this second set of in-

struments, and how do they interact with monetary policy decisions?

The issue is one of timing and targets. Interest rates are generally set by looking at prices. Credit developments are also taken into account but mainly to the extent that they forecast an increase in inflation. However, financial stability might be endangered before credit expansion starts spilling over into inflation and might require an action that is both more vigorous and more targeted than an increase in interest rates.

While in normal times the coordination between monetary policy and macro-prudential policies might yield little benefit, when the shock to the financial system is severe there can be substantial gains if monetary policy “lends a hand” and temporarily puts more weight on restoring financial stability than on short-term price stability.⁹ This leads towards an institutional framework that involves central banks in macro-prudential decisions, such as the Financial Stability Oversight Council in the United States and the European Systemic Risk Board in the European Union.

While monetary policy and macro-prudential policy might gain from coordination, we should also consider whether they affect each other. For example, counter-cyclical capital buffers make banks increase their equity during upswings; however, better-capitalised banks are less responsive to monetary policy.¹⁰ This alteration of the lending channel (and the symmetric effect during the downswings of the economic cycle) should be taken into account when evaluating the impact of changes in interest rates. Conversely, prolonged bouts of low interest rates can so alter the perception of risk by investors

⁹ *Angelini et al. (2011)*.

¹⁰ *Gambacorta and Marques (2011)*.

that, in order to rein in risk-taking, macro-prudential brakes will have to be applied much more vigorously than in a normal business cycle situation. There is a dynamic interaction between the two types of policies that requires a constant assessment not only of how to combine them but also of their respective feedbacks.

Let me move on to measures that increase the resilience of the financial system. I will divide them into those that strengthen institutions taking them as given, and those that seek to change the structure of the industry.

In the first category we have mainly levies on systemically important financial institutions (SIFIs).

SIFIs are deemed to generate negative externalities for financial stability, due to their sheer size and interconnectedness. The failure of one of them would cause a financial crisis; however, this social cost is not borne by SIFIs' shareholders only. Furthermore, moral hazard can result from the fact that they are aware of their systemic relevance. This, and the externality illustrated above, would justify ad hoc regulation to ensure that SIFIs are extra-safe.

At first sight, there should be little interaction between additional requirements for SIFIs and monetary policy. During a crisis, however, SIFIs would be prime candidates for liquidity injections by the central bank.¹¹

In the second category of macro-prudential measures that increase the resilience of the financial system, we have market reforms such as a drive towards centralising exchanges wherever possible at central clearing counterparties (CCPs), and structural reforms aimed at separating commercial banking from other activities.

Centralising transactions should reduce counterparty risk and allow a better monitoring of financial flows, especially of derivatives, for which little data is available in general. The extra information should be useful for calibrating monetary policy. The concentration of transactions should reduce uncertainty about who holds what – an uncertainty which, during a crisis, can end up freezing entire markets and forcing central banks to intervene. Therefore, the development of CCPs seems beneficial to the conduct of monetary policy.



The separation of commercial banking from other activities helps to protect deposit holders by insulating them from excessive risk-taking activities by banks. It can take the form of a carve-out of some form of narrow bank,¹² or by limiting trading with own funds (something similar to the Volcker Rule adopted by the United States). It is unclear whether this separation reduces the overall amount of risk in the financial sector, or simply shifts it to institutions that are not deemed systemic.

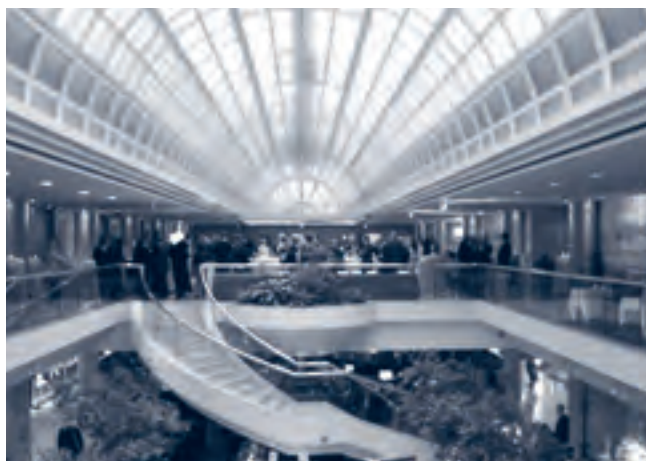
I would argue that if it is a mere redistribution it might be dangerous: how do we know that we will not have a repeat of 2007, when we saw that vast

¹¹ This has more to do with the implementation of monetary policy than with its setting.

¹² As suggested by Kay (2010).

pockets of risk had gone undetected and had grown to such an extent that they threatened the stability of the whole financial system? The whole point of such a separation should be to change the incentives for risk-taking. By separating two fundamentally different business cultures, investment and client services, it should be easier to redesign incentives to make the client part a safer place.¹³ At the moment, however, this second part of the structural reforms seems missing.

Such a separation would reshape the financial industry and affect the transmission channels of monetary policy in ways that are hard to predict. On the one hand, commercial banks would function in a more traditional way, reinforcing the lending channel; on the other hand, they might become relatively less important within the finan-



cial system, therefore reducing its impact. It would be an issue for empirical, policy-oriented research.

So far, I have dealt mostly with solvency issues. But just as monetary policy affects not only risk-taking (and

therefore solvency) but also general liquidity conditions, macro-prudential policies should also address liquidity risk.

Policies aimed at reducing liquidity risk are lagging behind those that improve the solvency of financial institutions. From a micro-prudential perspective, current proposals target liquidity and maturity mismatches of individual banks. Regulators have suggested that each bank holds sufficient liquidity to survive a sudden, relatively short-lived shock, and that it funds long-term assets with stable sources such as long-term debt and deposits. These requirements reduce liquidity risk for each institution but neglect the systemic dimension of liquidity, and might be very costly in terms of limitations to maturity transformation, an essential function of the financial system for which there is high demand.¹⁴ An alternative proposal would impose liquidity risk charges or levies that penalise short-term funding, still at the individual level;¹⁵ to help ease funding pressures on banks during a systemic liquidity crisis one could think of instruments with contingent maturity.¹⁶

In fact, at the moment the thinking on the prevention of liquidity crises is still ongoing; to mitigate acute liquidity shocks, as we have seen in the recent past, there is still no substitute for a determined intervention by central banks, even beyond the boundaries of their standard activity.

During a crisis, individual banks' liquidity positions matter since those perceived to be more risky might be excluded from the market;¹⁷ in this case, only the central bank can make the

¹³ *Giovannini (2008).*

¹⁴ *Caballero (2009).*

¹⁵ *Perotti and Suarez (2009).*

¹⁶ *Nicoletti Altimari and Salleo (2010).*

¹⁷ *Heider et al. (2009).*

market for liquidity function, by acting as a central counterparty. In the short run, central bank intermediation plays a stabilising role; however, in the medium run it can increase the persistence of the shock by interfering with a market-led adjustment and can lead to moral hazard.¹⁸

The bottom line here is that we need to develop macro-prudential policies that reduce liquidity risk *ex ante* in order to decrease the weight put on monetary policy tools during a crisis, since we don't yet know very well the long-run impact of prolonged, massive non-conventional interventions.

Conclusion

Let me finish with a few remarks on international coordination.

Our experience with the international interplay of monetary policies goes back decades. The degree of freedom given by floating exchange rates allows central banks, especially for large countries or areas, to target domestic inflation rates without the need for much coordination. On the other hand, the high degree of integration of capital markets achieved over the past few decades, while beneficial in terms

of the availability of funds, means that macro-prudential policies cannot be set in each country or region in an isolated way. Limits to credit growth in one country may entail a spillover of funds to another country, and imbalances building up on one side of the Atlantic can drag down the financial system on the other side. As macro-prudential policies are developed and become effective, there will be a need for further international cooperation.

Central banks have a long history of exchanging views and information; since they are very much involved in macro-prudential bodies this is solid ground on which to build effective mechanisms of cooperation in the macro-prudential field. Could there be consequences for the setting of monetary policy? It is too early to tell, but given the various levels of interplay with macro-prudential policies that I have described, and the need to coordinate the latter, we need to think more about the international dimension of monetary policy, which may be driven by financial stability concerns. This will be on our agenda for the coming years.

Thank you for your attention.

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