

## Stefan Gerlach: Macroprudential policy in Ireland

Address by Mr Stefan Gerlach, Deputy Governor of the Central Bank of Ireland, at the seminar on “Reform in the aftermath of the crisis”, University of Limerick, Limerick, 19 September 2013.

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*I am grateful to Mark Joy for his help in preparing these remarks.*

Thank you very much for the invitation to speak at this seminar on *Reform in the Aftermath of the Crisis* here at the University of Limerick. This is my first visit to Limerick so I am particularly pleased to be here.

As all of you know, the Central Bank of Ireland regulates and supervises *individual* financial institutions, that is, we are the *microprudential* supervisor, here in Ireland. This is an area that Fiona Muldoon, who will speak later this afternoon, and her colleagues on the Bank’s regulatory side have done much to strengthen in recent years. The motivation for microprudential policy is that by seeking to reduce the risk of failure of individual financial institutions, the health and stability of the overall financial system can be promoted.

But we know from the financial crisis that the financial system is more than the sum of its parts. Unfortunately, it is easy to imagine a situation in which individual market participants appear safe and sound, but the system overall is not. For instance, consider a situation in which financial institutions’ individual balance sheets look healthy but they hold similar market positions. If for some reason these institutions decide to limit their exposures by reducing their positions, by selling collectively they might cause the market to become one sided and prices to fall rapidly. As that happens, they may redouble their efforts to get out of the market, leading to fire sales, massive valuation losses and to contagion to other investors. The risk that markets may herd, and for financial institutions to have similar positions, may thus cause problems that microprudential supervisors may not spot.

What is less well known is that the Central Bank is also the *macroprudential* policy maker in Ireland.<sup>1</sup> As such we monitor developments in the *financial system* to limit the likelihood of another financial crisis. Macroprudential policies are very much a response to the financial crisis and an example of how central banks and financial regulators are drawing the lessons from the crisis and reforming the way they go about ensuring financial stability.

Since the notion of macroprudential policy is much less well known among the public, today I will take the opportunity to talk about it.

### 1. What is macroprudential policy?

It is useful to start with a definition: by macroprudential policy we mean efforts by the macroprudential policy makers to limit systemic risk, that is, the risk of disruptions to the provision of financial services caused by an impairment of the financial system, with serious negative consequences for the real economy and welfare.<sup>2</sup> The tools that are used are primarily the prudential tools that microprudential supervisors are using to limit the risk to the soundness of individual financial firms.

I emphasise that while there are many policies that can be used to strengthen the overall financial system, only those under the control of the macroprudential policy maker constitute

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<sup>1</sup> The Central Bank of Ireland’s mandate for macroprudential oversight stems from its responsibilities regarding the stability of the financial system: The Central Bank Reform Act 2010 lists “the stability of the financial system overall” as one of the institution’s central objectives.

<sup>2</sup> See the discussion in Lim et al. (2011).

macroprudential policy. For instance, tax policy can be an effective tool for combatting housing bubbles, but is not macroprudential policy.

## 2. Why do we need macroprudential policy?

The recent global financial crisis has highlighted the fact that traditional macroeconomic stabilisation and microprudential policies are not enough to ensure the stability of the broader financial system. The reason for this is that actions of individual firms can create interdependencies, potentially leading to systemic risk developing.

The rationale for using macroprudential policy rests on three factors.<sup>3</sup> First, the tendency of the financial system to *amplify* shocks. For instance, banks may respond to a downturn in the economy by cutting new lending, reinforcing the downturn.

Second, *feedback* mechanisms that can result in an overexposure to adverse aggregate shocks. For instance, the interdependencies between credit and asset prices can lead to a situation in which bank lending drives up asset prices and therefore collateral values, leading to additional lending and further asset price increases.

Third, *financial linkages* that increase the vulnerability of the system to shocks. While many of these may be in the form of direct exposures, linkages may be under the radar screen of regulators and take the form of implicit guarantees or exposures in derivatives and funding markets.

## 3. What are the policy options?

Macroprudential policy has come to the fore of the international financial policy agenda only in the wake of the recent financial crisis and as a field of economic policy it is relatively untested (BIS, 2010). As a result, there is little consensus about best practise in this area and policymakers seeking to implement policy today face a wide range of difficult choices.

First, in addressing a particular systemic risk, the macroprudential policymaker must choose to exercise either *one* or *multiple* policy instruments. The use of multiple instruments has the advantage of allowing the policymaker to tackle different aspects of the same risk. The disadvantage is that more instruments may mean more unintended consequences, through what is often called, *regulatory leakage*. Recent research on UK banks (Aiyar et al., 2012), for instance, finds that regulated banks *reduce* lending, as expected, in response to tighter macroprudential capital requirements aimed at smoothing the credit cycle. However, unregulated banks *increase* lending in response to tighter capital requirements on a relevant reference group of regulated banks. This regulatory leakage is substantial.

Second, policymakers must choose between being either broad-based or targeted in their approach to systemic risk. Targeting specific types of transactions, for example, may make the policy instruments more precise and potentially more effective, but raises the risk of avoidance.

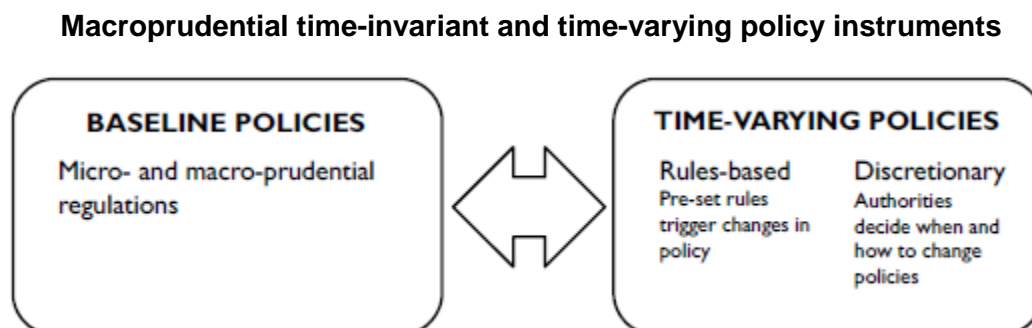
Third, macroprudential policymakers must strike a balance between rules and discretion. As their names suggest, rules-based instruments are activated according to some triggering rule, informed by indicators of systemic risk. Such rules act as a safeguard against forbearance and the policymaker's inability to fully anticipate the timing and magnitude of policy effects (Friedman, 1948) and the reactions of market participants (Kydland and Prescott, 1977). However, rules are difficult to design. Furthermore, discretion allows policymakers to learn from observing the interaction between macroprudential policy, the financial system and the economy.

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<sup>3</sup> IMF (2013a).

Fourth, policies may be fixed or may be calibrated over time. Effective macroprudential policy involves some combination of both: (i) time-invariant regulations make it hard for systemic risk to build up; and (ii) policies that are introduced or tightened when systemic risk is perceived as rising to dangerous levels (Figure 1).

Figure 1



#### 4. Time-invariant versus time-varying rules

Let me focus a little more on the arguments surrounding time-varying and time-invariant policies.

Currently central banks are focussing squarely on the design of time-varying macroprudential policy instruments. Such instruments focus on stabilising the financial system throughout the aggregate risk cycle by building cushions during good times so that financial institutions have the capacity to deal with risks when they materialise in bad times. Since we are in the wake of such a financially destructive boom and bust, the desire of global policymakers to minimise the risks inherent in future booms is understandable. However, policymakers must ask themselves whether we are in danger of relying too much on time-varying macroprudential policies.

To my mind, time-varying macroprudential policy instruments have profound limitations. Firstly, the effectiveness of these instruments assumes that the policymaker can detect accurately the build-up of systemic risk. Systemic risk is, however, hard to measure. While there are some reasons to believe that we can provide early warnings of dangerous build-ups in risks (Dell’Ariccia et al., 2012; Drehmann et al., 2012), there is little evidence that these warnings are reliable. The IMF shows, for instance, that even measures of systemic risk based on the growth rate and level of credit produced very low probabilities of crisis before 2007 (IMF, 2011). No model or method to assess systemic risk professes to be complete or adequate (Bisias et al., 2012). Confounding improvements in measurement is the fact that it is difficult to operationalize the concept of systemic risk.

A second limitation of time-varying macroprudential policy is that, even if a dangerous build-up of risk is detected, it is not clear what action the policymaker should take. This makes it likely that the policymaker will face heavy criticism from those likely to be affected by policy action, and therefore more likely to engage in forbearance. The idea that the public sector knows better than the collective wisdom of the market will always be controversial and disputed. Rules will be challenged, the integrity of indicators will be called into doubt and resistance will be high. It therefore seems hazardous to rely solely on time-varying macroprudential policy to ensure financial stability.

Macroprudential policy should therefore be built on a strong, time-invariant foundation of microprudential and macroprudential regulations that aim to ensure financial institutions are robust enough in normal times and are endowed in unstable times with characteristics, such as low leverage, that prevent or retard the build-up of systemic risk.

Currently policymakers across the globe are working towards stronger baseline policies through raising the quality and quantity of bank capital, broadening liquid assets, requiring systemically important financial institutions to hold additional capital and liquidity, and tightening oversight of securitisation, over the counter derivative markets and shadow banking. With higher capital and liquidity in the system, systemic risk will be lower. The lower is systemic risk, the lesser the need for a highly activist, time-varying macroprudential policy regime.

## 5. What policy instruments are available?

Perhaps surprisingly, the macroprudential policy instruments that are most likely to be used are those that microprudential policy makers are relying on today. Partially this may reflect some lack of ingenuity in thinking about new instruments to be used! However, it is also likely to reflect the lack of practical experience of implementing macroprudential policies.

The European Systemic Risk Board (ESRB) was established in 2011 in order to provide warnings of macroprudential risks and encourage the application of macroprudential instruments within the European Union. To help guide national macroprudential authorities, the ESRB has provided an indicative list of macroprudential policy instruments (see Table 1).

Table 1

### European Systemic Risk Board indicative list of macroprudential instruments

Intermediate objective	Instruments
<b>1. Mitigate and prevent excessive credit growth and leverage</b>	Counter-cyclical capital buffer Sectoral capital requirements Macroprudential leverage ratio Loan-to-value requirements Loan-to-income / debt (service)-to-income requirements
<b>2. Mitigate and prevent excessive maturity mismatch and market illiquidity</b>	Macroprudential adjustment to liquidity ratio (eg, liquidity coverage ratio) Macroprudential restrictions on funding sources (eg, net stable funding ratio) Macroprudential unweighted limit to less stable funding (eg, loan-to-deposit ratio) Margin and haircut requirements
<b>3. Limit direct and indirect exposure concentration</b>	Large exposures restrictions Central clearing party requirement
<b>4. Limit the systemic impact of misaligned incentives with a view to reducing moral hazard</b>	Systemically important financial institution capital surcharges
<b>5. Strengthen the resilience of financial infrastructures</b>	Margin and haircut requirements on CCP clearing Increased disclosure Structural systemic risk buffer

While the list in the Table is quite detailed, broadly speaking there are three basic types of instrument:

- i. *credit* instruments, which seek to limit dangerous build-ups or concentrations in bank lending. Credit instruments include both indirect measures such as caps on loan-to-value ratios and debt-to-income ratios, and direct measures such as ceilings on credit or credit growth.
- ii. *liquidity* instruments, to ensure that banks have sufficient liquidity to withstand shocks. These instruments include limits on maturity mismatch and reserve requirements.
- iii. *capital* instruments, which aim to reduce risky behaviour by raising the cost to banks of undertaking certain activities through increased capital requirements on these activities. Counter-cyclical capital buffers and dynamic loss provisioning are examples of capital instruments.

In addition, there are instruments associated with other policy fields, such as competition policy (either restricting or encouraging competition) or monetary policy (reserve requirements and the level of short-term interest rates), that might be used to support macroprudential policy. However, as I mentioned earlier, since these policy instruments are not under the control of the macroprudential policy maker, they do not constitute macroprudential policy and unlikely to play more than a secondary role at best.

## **6. Does macroprudential policy work?**

While both the ESRB and national authorities are seeking to identify the best tools available for macroprudential policy, the effectiveness, efficiency and legal feasibility of these tools continue to be investigated. The limited experience of countries including Canada, Croatia, Spain, New Zealand, the US, China, Hong Kong and South Korea, suggests that macroprudential policies can be effective in terms of their impact on intermediate targets such as credit growth, property price inflation and the availability of credit. But it is less obvious whether these policies have improved welfare, long-term financial stability or have allowed for the successful deflation of property bubbles (Elliott et al 2013; IMF 2013b).

According to an IMF survey conducted in 2010, two-thirds of 49 countries surveyed had activated macroprudential instruments since 2008 (Lim et al., 2011). Emerging-market economies have in the past been quicker and more willing to use macroprudential instruments than advanced economies, but the recent crisis has led many advanced countries, not least those of the European Union, both individually and as members of the ESRB, to contemplate using macroprudential instruments.

In Spain, the central bank introduced dynamic loss provisioning in 2000 in order to guide banks to build up loss provisions to account for expected losses on new loans and historical average losses on the outstanding stock of loans (Jimenez et al., 2012). Ex post, dynamic loss provisioning was effective in helping to cover credit losses in the banking sector. But with the onset of the financial crisis, coverage was far less than adequate.

In New Zealand, in 2010, the central bank introduced two liquidity ratios to increase banks' liquidity buffers and a core funding ratio to ensure banks were holding a higher percentage of more stable liabilities such as retail deposits and wholesale loans maturing in more than a year. These requirements were tightened again in 2013. They have met with success in as much as banks responded by changing their funding structures to meet the new requirements even before they were formally introduced.

The United States has arguably more than a century's worth of experience of using macroprudential policy tools, even if these tools were not couched at the time in terms of achieving explicitly macroprudential objectives, but more so to protect the soundness of the financial system (Elliott et al 2013). Policy tools were, in broad terms, aimed at regulating

either credit supply or credit demand. Margin requirements (stock market), limits on loan-to-value ratios and restrictions on loan maturities (mortgages) have been used to regulate the demand for credit. To control credit supply, reserve requirements (credit, repos, commercial paper), interest-rate ceilings (time and saving deposits), capital requirements and restrictions on the types of loans banks could hold in their portfolios, have been utilised. Successes were common but so too were unintended side-effects: In 1934 the Federal Reserve gained the authority to set margin requirements to counter increases in stock-market credit by curbing bank loans to stock brokers. By 1974, non-bank lending and derivatives had become so abundant as a compensatory source of credit that the Federal Reserve decided the policy tool was no longer effective.

Today, comprehensive methods to assess the net benefits of macroprudential policies remain, globally, at an early stage of development. A fully operational model of macroprudential policy must include not only a decision rule for when to act, but also a conceptual framework capable of assessing and quantifying, as much as possible, all the important policy variables: the probability of experiencing a crisis, the expected loss in output given a crisis occurs, the likely effectiveness of whatever policy tool is being considered in reducing both the probability of the crisis and the associated output loss, and the cost of the policy itself. Analytical tools must also be capable of assessing policy leakages. The IMF is doing good work in this field (IMF, 2013b) and contributions from academia are increasing in number and comprehensiveness (Angelini et al., 2012; Bianchi and Mendoza, 2011; Jeanne et al., 2013; Munakata et al., 2013) but more needs to be done to construct the apparatus necessary for calculating, reliably, the full welfare implications of macroprudential policy.

## **7. Could macroprudential policy have helped mitigate Ireland's financial crisis?**

The story of the Irish crisis is, at this stage, well-known to most. Let me simply point to three figures, to which policymakers, the public and banks themselves had access prior to the crisis:

- i. Overall bank lending increased 178 per cent between 2002 and 2007
- ii. At the same time, house prices increased 85 per cent and
- iii. Commercial property prices increased 66 per cent

Based on these figures, it seems clear that alarm bells should have been ringing.

What could macroprudential policy have done? Allow me to focus on one, admittedly time-varying, measure. As of 1 January 2014 new European Union legislation gives national authorities the right to demand that banks hold, in addition to all other capital, an additional counter-cyclical buffer up to 2.5 per cent of risk-weighted assets. The primary aim of a counter-cyclical capital buffer is to ensure the banking system has enough capital to protect the financial system from periods of excess aggregate credit growth that are associated with the build-up of systemic risk.

Activation of the counter-cyclical capital buffer is typically guided by deviations of aggregate credit as a share of GDP from its long-term trend. This is often called the *credit gap*. Threshold values of the credit gap are used to define the range of the gap at which the buffer should be deployed. If the gap is below the lower threshold, the counter-cyclical capital buffer is zero. If the gap is above the upper threshold the counter-cyclical capital buffer should be set at its maximum of 2.5 per cent of risk-weighted assets. Between the lower and upper threshold the counter-cyclical capital buffer should vary with the extent of the build-up of systemic risk.

Simulation exercises conducted by the IMF suggest that if Ireland had implemented a counter-cyclical capital buffer during the decade prior to the financial crisis it could have saved up to a quarter of the fiscal costs of the crisis for the Irish state (IMF, 2013b). If the buffer had been in place in Ireland from 1997, it would have, according to IMF calculations,

built up to its maximum (of 2.5 per cent of risk-weighted assets) roughly three years ahead of the financial crisis, providing a pre-emptive, dampening force on the huge credit upswing experienced in Ireland during the 2000s (Figure 2 and Figure 3).

Figure 2

**Ireland credit-to-GDP gap**

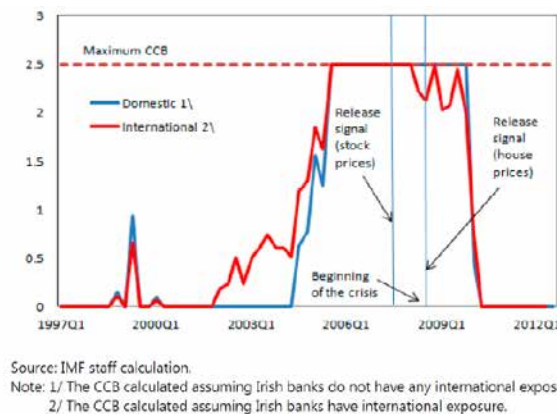
(per cent)



Figure 3

**Ireland: simulated counter-cyclical capital buffer**

(per cent of risk weighted assets)



However, while counter-cyclical capital buffers would have been helpful, they have shortcomings. Their effectiveness may be impaired, for instance, by the provision of credit through the shadow banking system, unreliable signals for activation and deactivation of the policy tool, and conflicts with microprudential policy – while the macroprudential authority may require lower buffers the banking supervisor may resist this on the basis of solvency concerns about the individual institution. Further using the above broad metric of credit, counter-cyclical capital buffers cannot be used to target risks in specific sectors or asset markets. Nor can they be tailored to allow less risky banks to face smaller buffers: all banks receive the same buffers regardless of their contribution to excess lending.

**8. Conclusions**

Overall then, while macroprudential policy is needed to fill a gap that exists currently between microprudential policy and traditional macroeconomic stabilisation policies (such as monetary and fiscal policy), there are reasons to be cautious about its design and implementation.

The effects of the current crisis, and the policy failures evident in hindsight, coupled with the limited international experience of implementing macroprudential policies suggest that some success is possible and that macroprudential instruments should be explored further.

However, implementation should not proceed without due regard for costs and benefits. Macroprudential policy is new and the potential for unintended side-effects is great. Costs include policy mistakes, policy leakages, a higher price and lower volume of financial intermediation in normal times, and regulation-induced growth in shadow banking (IMF, 2013c). Interactions with monetary, fiscal, competition, microprudential and crisis-management policies can promote, but may also inhibit, macroprudential objectives. While our understanding of these effects is improving, it remains incomplete and the implementation of any single macroprudential policy tool must be done with great care.

Difficulty in designing reliable rules for triggering macroprudential policy is another reason for caution. For a successful economic policy rule it is important to specify in advance what *policy action* that will be taken when a certain *event* happens. As a central banker, I naturally turn to a comparison with monetary policy; here both the *policy action*, raising short-term

interest rates, and the *event*, inflation, are well-defined. For macroprudential policy this is not the case. Potential policy actions are manifold and policy outcomes, the avoidance of systemic risk, is difficult to quantify.

Furthermore, for monetary policy, we can draw on a rich history of cross-country experience, data, and models to inform us how interest rates affect inflation. With macroprudential policy we are targeting rare events, so historical experience is of less value, not least because, as the financial system evolves, comparisons with past events may become less informative. The effectiveness of macroprudential policy will have to be measured using models that allow us to compare the present with fictional alternative paths for the economy. These models, as with all models, will be only as reliable as their underlying assumptions.

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