

# Macroprudential Supervision: A Key Lesson from the Financial Crisis

*In this paper we argue that the introduction of macroprudential supervision constitutes the key lesson from the crisis for financial regulation and supervision. We discuss the complex legal and institutional frameworks of macroprudential supervision in Austria and in the EU. In Austria, we identify room for improving the current institutional setup, e.g. by enhancing the role of the supervisory authority and the central bank, defining a comprehensive macroprudential strategy (including a communication strategy) and implementing an internal governance structure that avoids blameshifting among the relevant institutions. At the EU level, we find that the ongoing macroprudential review should address the politico-economic challenges posed by the wide-ranging macroprudential powers of the Single Supervisory Mechanism (SSM) to ensure adequate political control. Moreover, we show that traditional microprudential instruments (e.g. Pillar 2) are conceptually ill-suited to pursue macroprudential objectives. We therefore suggest prioritizing macroprudential measures over Pillar 2 measures in the ongoing macroprudential review.*

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Banking crises such as the latest financial crisis of 2008–09 have a major impact on the real economy, reveal fragilities in financial markets and shed light on (often severe) gaps in banking regulation and supervision. Obviously, during the current crisis, banks had inadequate capital and liquidity buffers to absorb shocks. At the moment, a reform of microprudential regulation is well under way within the framework first established more than 25 years ago by the Basel Capital Accord. However, recent literature on the economics of banking regulation highlights that a more innovative approach is required to deal with the three main crisis catalysts as revealed by the current financial crisis:<sup>2</sup>

- The financial system has become substantially more interconnected and complex over the last twenty years. In addition, more complex contagion

channels have emerged (e.g. derivative exposures), and shocks can now spread throughout the global financial system almost immediately.

- The adverse impact of the financial system's inherent cyclicity on financial stability was severely underestimated.
- Many banks today are too big to fail. They cannot exit the market without causing substantial negative externalities for other financial institutions and the real economy. As a consequence, they are bailed out by the public sector if necessary.<sup>3</sup> This implicit government guarantee leads to severe incentive problems, which in turn result in an inefficient allocation of capital and risk within the economy. At the European level, these issues are addressed i.a. by the Bank Recovery and Resolution Directive (BRRD), the Single Resolution Mechanism (SRM), the

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<sup>2</sup> See High Level Group on Financial Supervision in the EU (2009) and Nowotny (2013).

<sup>3</sup> For an analysis of the negative long-term financial stability effects of EU bailouts, see Posch et al. (2009).

Single Supervisory Mechanism (SSM), the Capital Requirements Directive IV (CRD IV) and the Capital Requirements Regulation (CRR).<sup>4</sup> The CRD IV and the CRR are of particular importance as they introduce EU-wide macroprudential supervision by offering a new set of instruments and an elaborate institutional framework to proactively address system-wide risks in the banking sector.

The objective of macroprudential supervision is to contribute to the stability of the financial system as a whole, which requires strengthening the resilience of financial intermediaries and of the financial infrastructure, and limiting the buildup of systemic risks in the economy (e.g. house price bubbles). Ultimately, macroprudential supervision aims at safeguarding the sustainable contribution of the financial sector to economic growth (ESRB, 2011). Macroprudential supervision complements microprudential supervision, monetary policy and fiscal policy.<sup>5</sup>

This paper is structured along the following lines. First, we analyze the costs of banking crises. Second, we present the legal and institutional framework of macroprudential supervision in Austria and the EU. The third section summarizes the available policy instruments, and the fourth section addresses the main challenges of macroprudential impact assessments. The final section concludes.

## 1 Macroprudential Supervision: An Indispensable Counterpart to Microprudential Supervision

Financial crises usually entail substantial costs for the economy – in terms of both output losses and fiscal costs. Banking crises that follow excessive credit growth tend to last longer and have bigger (negative) real and fiscal impacts (Claessens and Kose, 2013) than other banking crises. Using data provided by Laeven and Valencia (2012), we derive that, on average, banking crises<sup>6</sup> cause an output loss of 32% of GDP and fiscal costs of 8% of GDP in the first three crisis years (see the left-hand bars in chart 1). But banking crises following excessive credit growth are even more costly: They entail output losses that are more than twice as high and fiscal costs that are even three times as high (see middle bars of chart 1) as the comparable losses and costs caused by banking crises that do not follow a credit boom (right-hand bars)<sup>7</sup>.

With its focus on individual banks, a pure microprudential policy framework is not able to address systemic risk adequately as it only allows supervisors to tackle idiosyncratic risk at the level of individual banks (via Pillar 2 measures)<sup>8</sup>. To deal with the increasing risk exposure in the entire banking system, supervisors would have to turn to the legislator to adapt microprudential regulation. In general, however, the

<sup>4</sup> For an overview, see European Commission (2014a).

<sup>5</sup> For more details on complementarity and conflicts with other policy areas, see e.g. Liebeg and Posch (2011).

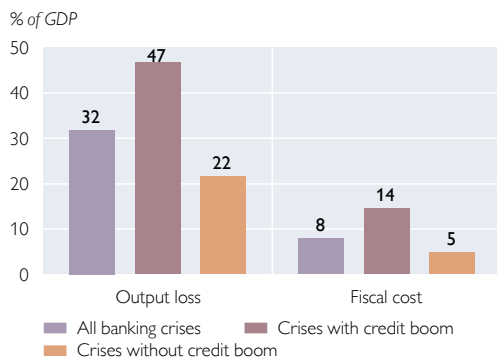
<sup>6</sup> The selected sample consists of 35 systemic banking crises in EFTA countries from 1977 to 2008, which is a subsample of the data provided by Laeven and Valencia (2012). The authors define a systemic banking crisis as a situation that meets two conditions: (1) the banking system shows signs of significant financial distress (as indicated by significant bank runs, losses in the banking system and/or bank liquidations) and (2) significant banking policy intervention measures are taken in response to significant losses in the banking system.

<sup>7</sup> Laeven and Valencia (2012) define credit boom years as years in which the deviation of the credit-to-GDP ratio relative to its trend is greater than 1.5 times its historical standard deviation and its annual growth rate exceeds 10%, or as years in which the annual growth rate of the credit-to-GDP ratio exceeds 20%.

<sup>8</sup> Pillar 2 refers to the supervisory review that links a bank's risk profile, risk management and risk mitigation systems to its internal capital planning.

Chart 1

### The Cost of Banking Crises



Source: Laeven and Valencia (2012), OeNB.

Note: Output loss is computed as the cumulative sum of the differences between actual and trend real GDP during the first three years of a crisis, expressed as a percentage of trend real GDP. Fiscal costs are defined as the component of gross fiscal outlays related to financial sector restructuring. They include fiscal costs associated with bank recapitalizations but exclude asset purchases and direct liquidity assistance from the Treasury.

legislative process takes too long for any such adaptations to be effective in due time, e.g. against a house price bubble.

With the full harmonization of EU banking regulation required under the CRD IV and the CRR, adapting national microprudential regulation to address temporary systemic risk within a Member State has become even less of an option. Macroprudential supervision, by contrast, provides some national discretion to allow Member States to identify potential systemic risk at the national level and to intervene well before it materializes. The macroprudential toolbox contains measures that reduce the probability and the impact of future banking crises.

## 2 Macroprudential Supervision as a Fundamental Innovation in Financial Supervision

Considering the introduction of the SSM, which aims to centralize banking

supervision at the supranational level, it might seem somewhat surprising that the primary competence in macroprudential supervision rests with the Member States. Financial cycles vary between Member States, as the crisis aptly demonstrated, and the full harmonization of EU microprudential regulation under the CRR restricts Member States' ability to deal with this heterogeneity. This, in turn, gives rise to politico-economic tensions at the EU level: On the one hand, Member States should be equipped with the appropriate tools to address country-specific systemic risk (e.g. national house price bubbles); on the other hand, such national peculiarities must not be misused to undermine the full harmonization of banking regulation across the EU. Therefore, national macroprudential supervision is embedded in a complex institutional framework at the EU level: Under certain conditions, the European Systemic Risk Board (ESRB)<sup>9</sup>, the European Banking Authority (EBA), the European Parliament, the European Commission and/or the Council have to be notified of individual macroprudential measures taken by the Member States. In some cases, these institutions have the right to object to national measures. In addition, any potential national inaction bias could be mitigated by the powers of the SSM, which, in case of inaction or insufficient action at the national level, may top up measures taken by, or even take measures in lieu of, the national designated authorities (NDAs). Moreover, the ESRB may also intervene in case of inaction by issuing recommendations and warnings.

This new legal framework has been set up to provide financial supervisors with the power and tools to address

<sup>9</sup> The ESRB is part of the European System of Financial Supervision (ESFS). Its purpose is to oversee financial system stability in the EU. For more details on the institutional setup in Austria and the EU, see e.g. Liebeg and Trachta (2013).

systemic risk in a timely and effective manner. The NDA, for instance, may increase capital requirements for all banks within its jurisdiction – a right that has so far been reserved to national and EU legislation. Within the framework of macroprudential supervision, public sector officials are granted the power to infringe individual property rights. As such, the new framework represents a major politico-economic innovation in financial supervision at the national level. Prior to the introduction of macroprudential supervision, the right to increase minimum capital requirements (and similar minimum regulatory requirements) was strictly reserved to national legislation (within EU law). To reconcile the need for timely and effective intervention in the buildup of systemic risk and the protection of property rights, the Member States developed institutional frameworks that aim at ensuring the political control of macroprudential supervision.

In this context, Austria established the Financial Market Stability Board (FMSB) in 2014. All relevant national financial stability stakeholders are represented on the FMSB: the Federal Ministry of Finance, the Austrian Fiscal Advisory Council, the Austrian Financial Market Authority (FMA) and the Oesterreichische Nationalbank (OeNB). The FMSB may issue recommendations to the FMA, release warnings on questions of systemic risk and publish its decisions and warnings. The FMA is the Austrian NDA, but the Ministry of Finance has to formally approve most macroprudential measures the FMA takes. The OeNB plays a pivotal role within the Austrian macroprudential supervision framework. It is responsible

for identifying prospective systemic risk and for providing the analytical underpinning of macroprudential measures (including impact assessments of policy measures). In addition, it provides the secretariat to the FMSB.

These rather complex decision-making structures aim at ensuring accountability, legitimacy and transparency in the face of such extensive powers.<sup>10</sup> The dominant role of the Ministry of Finance is intended to ensure the political control of independent institutions like the OeNB and the FMA. Accountability and transparency are increased by the fact that the FMSB reports to Parliament. However, we regard these safeguards as incomplete. To become more transparent and effective, the FMSB should develop a comprehensive communication strategy. This includes making its deliberations public by issuing regular press statements and the minutes of its meetings, providing information about its regular assessments of key risks and giving reasons for or against taking action. Even then, the FMSB's complex structure and composition might induce an additional inaction bias and allow for blameshifting among the relevant players. To mitigate this risk, a clear internal governance structure including the aforementioned communication strategy is called for.<sup>11</sup> Finally, assigning a more prominent role to the central bank and the supervisory authority would align Austria's institutional framework for macroprudential supervision with the respective ESRB recommendation and international best practice. Currently, the FMA and the OeNB each nominate only one of six members to the FMSB, while the Ministry of Finance nomi-

<sup>10</sup> See IMF (2013).

<sup>11</sup> Here we draw on the recommendations the Financial Stability Board (FSB) made in its peer review on macroprudential supervision in Germany, which has a very similar institutional structure (FSB, 2013).

nates two, which are the FMSB chair and vice-chair (with a casting vote). The Ministry of Finance also nominates one member of the Fiscal Advisory Council to participate in the FMSB, while the sixth FMSB member is the chair of the Fiscal Advisory Council.

### 3 Challenging Objective Requires Comprehensive Set of Instruments

Macroprudential supervision is still in the early stages of development.<sup>12</sup> Currently, its main focus is on the banking sector, although its scope is wider. Its ultimate objective of ensuring financial stability is to be reached via five intermediate objectives (ESRB, 2013):

- mitigating excessive credit growth, which is a key driver of financial crises, and reducing leverage, which is a crisis amplifier,
- avoiding excessive maturity mismatches that cause unstable funding,
- preventing direct and indirect exposure concentrations to reduce vulnerabilities to common shocks,
- addressing negative incentives that lead to moral hazard, and
- strengthening the resilience of financial market infrastructures.

To avoid situations in which individual instruments become subject to conflicting intermediate objectives, macroprudential supervisors aim at having at least one instrument at their disposal to tackle each of these intermediate objectives. Consequently, effective macroprudential supervision is based on a comprehensive and complementary set of instruments. Some of these e.g. address banks' balance sheet structure by requiring higher capital buffers. Oth-

ers put limits on the terms and conditions governing new loans, e.g. by defining maximum values for loan-to-value and loan-to-income ratios. Finally, macroprudential supervisors may address inappropriate incentive structures by capital surcharges and stricter public disclosure requirements.

The key instruments in this context are probably the different types of capital buffers specified in the CRD IV: the countercyclical capital buffer (CCB), the global systemically important institutions (G-SII) buffer, the other systemically important institutions (O-SII) buffer and the systemic risk buffer (SRB). In Austria, this capital buffer regime is transposed into national law by Articles 23 to 23d Austrian Banking Act. What these capital buffers have in common is that they are applied on top of the minimum capital requirements and that they must be held in core equity tier 1 (CET1) capital. In principle, they can also be combined; however, there are certain limitations to such combinations to ensure a floor or cap on the aggregate impact of macroprudential measures on specific credit institutions, both at the consolidated and subsidiary levels.<sup>13</sup> If a credit institution fails to meet its combined buffer requirement, restrictions on dividend payouts will apply and a capital conservation plan has to be prepared.

The CCB (Article 130 CRD IV) is designed to smooth the pronounced cyclicity in the financial system. During a phase of excessive credit growth, additional capital requirements can be imposed on banks, which are then released again during a phase of weak credit supply. The CCB aims at damp-

<sup>12</sup> Nevertheless, a number of Member States have already announced or imposed measures of macroprudential supervision (e.g. Belgium, Croatia, the Netherlands and Sweden). See Box 3 – Overview of Macroprudential Measures in the EU, in this issue.

<sup>13</sup> See ESRB (2014b) for more details on tools addressing systemically important banks and structural systemic risks.



ening excessive credit growth during an upturn and at avoiding excessive credit supply restrictions during a downturn. The competent authorities have to follow a set of principles and calculate a reference rate as a benchmark to guide their judgment in determining whether credit growth is excessive. According to this benchmark, the CCB will usually be set at a rate of between 0% and 2.5% of risk-weighted assets, but it could be higher than that under certain circumstances.

The G-SII and the O-SII buffers (Article 131 CRD IV) apply to credit institutions which are systemically important at the global or domestic level, respectively. Shocks to such institutions are likely to cause contagion within the respective financial system and to produce serious negative consequences for the real economy. As of 2016, it will be possible to set the capital surcharge for G-SIIs at between 1% and 3.5% of risk-weighted assets. The introduction of the O-SII buffer empowers authorities to impose capital charges of up to 2% on systemically important institutions that are not identified as G-SIIs. To promote common supervisory practice, the EBA will publish guidelines on how to identify O-SIIs.

The SRB (Article 133 CRD IV) addresses structural systemic risks. It can be applied to all banks or to a subset of banks starting from 2014. It does not have a cap. If imposed, its capital surcharge is at least 1% of risk-weighted assets. Capital surcharges that exceed 3% need to be authorized by the European Commission, however.

Finally, Article 458 CRR empowers NDAs to raise microprudential requirements if systemic risk increases and is found to have the potential to seriously damage the real economy. However, Article 458 CRR requires an explanation as to why such measures are deemed to

be suitable, effective and proportionate. Microprudential requirements may only be raised if all other available measures are found to inadequately address the specific source of systemic risk. Strict notification, consultation and nonobjection procedures apply, depending on the nature and calibration of the respective measure, and involving authorities such as the EU Council, the EBA, the ESRB, the European Parliament and the European Commission. Moreover, Articles 124 and 164 CRR allow macroprudential supervisors to set higher risk weights (up to 150%) in the standardized approach and stricter loss given default (LGD) parameters in internal ratings-based (IRB) models for exposures secured by mortgages on immovable property.

In addition to the above measures, the Pillar 2 instruments under Basel III may be tightened if a credit institution is found to pose systemic risks. Pillar 2 should ensure that banks prudently model their capital requirements on the basis of the risks they face; but no matter how prudent banks' models are, they will not be able to capture the systemic risk that emanates from banks themselves. To address systemic risks via Pillar 2 measures, a thorough Pillar 2 assessment would have to be conducted for each bank individually; this causes "red tape" (high administrative cost for both banks and supervisors). The politico-economic checks and balances required for macroprudential supervision are not in place for Pillar 2 measures, however. Pillar 2 measures are imposed by banking supervisors for individual banks.

The communication of macroprudential policy to the public is an important tool in itself. In fact, most macroprudential measures are announced publicly, while the reasoning behind Pillar 2 measures and the underlying

individual bank data are confidential. Still, the ongoing macroprudential review (Article 513 CRR) should, in principle, aim at maintaining the availability of Pillar 2 measures for reaching macroprudential objectives. But it should be ensured that Pillar 2 does not restrict the implementation of other macroprudential instruments (i.e. SRB, Article 458 CRR).

In addition to the macroprudential instruments covered by EU law, Member States may implement macroprudential instruments under national law (ESRB, 2014a). These include instruments such as defining maximum loan-to-value (LTV) and loan-to-income (LTI) ratios as well as imposing leverage ratio restrictions. At the current juncture, however, Austrian law does not provide for such instruments – a major shortcoming in Austria’s macroprudential framework. A differentiated macroprudential toolbox would have the major advantage of making macroprudential policy efficient because these tools are flexible and allow targeted application.

Notwithstanding all of the above, macroprudential supervision faces the following challenges:

- Forward-looking risk identification is methodologically difficult.
- Some of the data necessary for prospective risk identification are not available, and some of the available time series are relatively short. In Austria, for instance, LTV and LTI data have not been collected so far; the collection of these data should be started as soon as possible.
- Macroprudential measures might potentially be circumvented via the shadow banking sector.

Historical experience with previous instruments targeting systemic risk is mixed. In Austria, traditional instruments aimed at allocating loans to productive investment rather than consumption were quite successful in the 1970s and 1980s.<sup>14</sup> Experience in other countries is more mixed.<sup>15</sup> In the early stages of the present crisis the Spanish approach, which relied on dynamic provisioning, was first hailed as a success story. A few years later, the collapse of the Spanish banking sector led to a sovereign debt crisis.<sup>16</sup> Given the above-mentioned challenges and historical experience, we would advise against considering macroprudential supervision a cure-all; it adds important instruments to responsible financial supervision, however.

Macroprudential measures are flexible and efficient in the sense that they are applied only if and as long as necessary, i.e. if a specific systemic risk is identified. Their calibration aims at reflecting the degree of systemic risk. They can be targeted at banks and/or on- and off-balance sheet positions exposed to the identified systemic risk.

#### 4 The Costs and Benefits of Macroprudential Regulation

Even if a threat to systemic risk is identified, a comprehensive impact assessment is required to ensure that the benefits of any risk-mitigating measure outweigh its costs. Evaluating the impact of potential macroprudential measures is a demanding task, which requires sophisticated models, reliable data and expert judgment. It is essential that the methodology, assumptions and data used in an impact assessment are made transparent to allow for evidence-based

<sup>14</sup> See Mooslechner et al. (2007).

<sup>15</sup> See Elliot et al. (2013), IMF (2013).

<sup>16</sup> See White (2013).

decision-making (Kopp et al., 2010; Ittner and Schmitz, 2013).

### Assessing Costs

Assessing the cost of macroprudential measures aims not only at quantifying the direct cost of these measures for banks, but also at gauging their macroeconomic impact. The following section discusses issues that play a role when assessing the costs of raising the capital requirements for banks – a key macroprudential measure.

First of all, the term “costs” requires a careful definition. It is crucial to distinguish between private costs (of refinancing incurred by banks) and social costs (the sum of private costs plus externalities). The redistribution of costs within society does not constitute additional social costs. For instance, if the too-big-to-fail (TBTF) problem is addressed effectively, banks’ debt financing costs increase.<sup>17</sup> From the point of view of banks, their private costs go up. But social costs do not increase because the government’s contingent liability is reduced accordingly. They might even decrease as the welfare loss caused by the TBTF-related moral hazard problem is addressed.

Another example draws on the impact of taxation on leverage and private costs. Higher capital requirements aim at reducing banks’ leverage. Banks will have to replace debt by capital (assuming constant risk-weighted assets). On the

one hand, this raises banks’ private costs, part of which consist of higher tax payments as the costs of capital – unlike the costs of debt – are not tax deductible. On the other hand, these higher tax payments constitute budget revenues and as such do not increase social costs.

Second, an economic impact assessment has to distinguish carefully between those adjustments in banks’ balance sheets that are merely a response to market expectations and those that actually result from regulatory reform.<sup>18</sup>

Third, substitution effects in the financing of the real economy should be considered. Higher credit cost for corporates and private households may be a consequence of banks’ increasing funding cost. However, banks’ rising interest margins should not be translated directly into higher long-term interest rates for the real economy because the real economy might be able to substitute bank loans by other sources of finance (e.g. direct access to debt and equity markets, internal funding and supplier credit).<sup>19</sup>

Fourth, second-round effects of regulatory reform need to be taken into consideration, e.g. the reaction of banks’ debt financing costs to lower leverage and banks’ behavioral adjustment to regulation are further aspects which impact macroeconomic cost estimates. Both need to be based on careful empirical analysis.

After identifying banks’ private costs of higher capital requirements, we esti-

<sup>17</sup> The TBTF problem arises if bond holders of a TBTF bank expect the government to bail out this bank if it is insolvent or illiquid. For the bank in question, this implicit government guarantee translates into lower debt financing costs at any given level of capitalization. As the bank is considered TBTF, the government would be expected to bail it out in case the bank runs into trouble, which constitutes a contingent liability for the government (see the experience of Ireland and Spain during the crisis).

<sup>18</sup> Before the current financial crisis, e.g., banks with a core tier 1 (CT1) ratio of 6% were considered well capitalized. With the beginning of the crisis in late 2008 – i.e. even before Basel III became effective – market expectations of an adequate CT1 ratio rose to ratios closer to 10%.

<sup>19</sup> From a macroprudential perspective, high credit growth associated with interest rates that do not cover credit and liquidity risk is not an economic policy objective. For a discussion of deleveraging, see Eidenberger, J., S. W. Schmitz and K. Steiner. 2014. *The Priorities of Deleveraging in the Euro Area and Austria and Its Implications for CESEE*, in this issue.



mate their macroeconomic impact on the basis of the OeNB’s macroeconomic model. To avoid misrepresenting rises in banks’ private cost as rises in social cost, we incorporate the offsetting effects discussed above into our macroeconomic model. As a result, the impact of individual macroprudential measures on macroeconomic variables like economic growth, employment and budget revenue can be quantified.

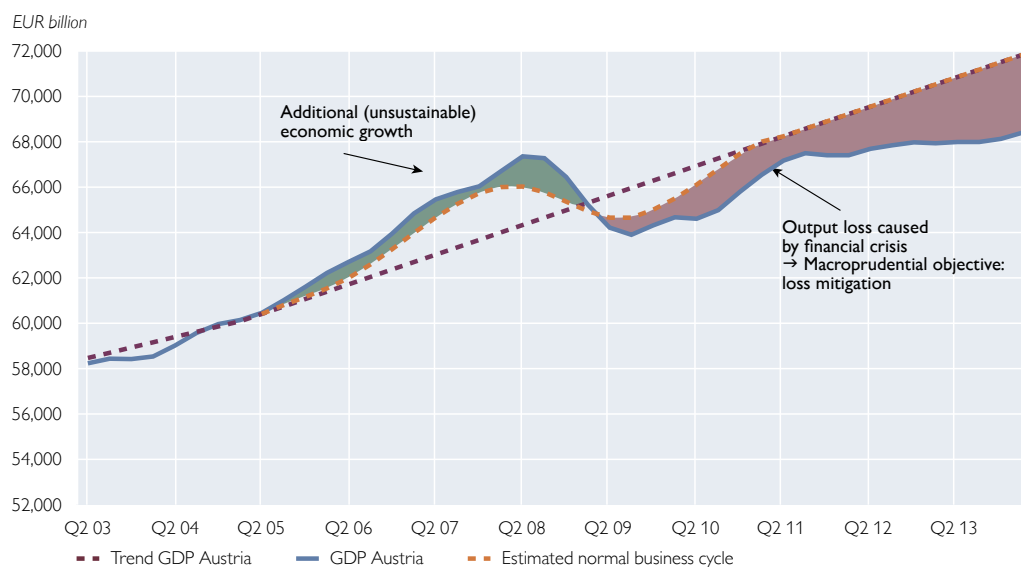
**Assessing Benefits**

The social cost of macroprudential measures is then compared to their social benefits, which are quantified by estimating the reduced likelihood and magnitude of financial crises. The potential negative impact on economic growth caused by the higher cost of credit can then be set in relation to the benefits of a more stable financial system, more sustainable funding for the real economy and more sustainable growth.

Chart 2 illustrates the principles of an impact assessment by drawing on the example of a hypothetical activation of the CCB in 2005. The straight dotted line depicts the precrisis Austrian GDP trend projection (based on quarterly data from 1995 to 2005). The solid line depicts the actual GDP path. It shows that as from the beginning of 2005, economic growth exceeded trend growth. However, at the end of 2008, quarterly GDP went down sharply following the collapse of Lehman Brothers. Since then, economic growth in Austria has remained significantly below its precrisis trend. For illustrative purposes, we engage in a thought experiment: We assume the CCB had been available and activated prior to 2005 and released again in December 2008. We further assume that it would have effectively increased loan margins, reduced loan growth and economic growth before the outbreak of the crisis and improved economic performance

Chart 2

**Hypothetical CCB Activation in 2005: Stylized Cost-Benefit Analysis for Austria**



Source: OeNB.

Note: The precrisis trend from which the projection for Austrian GDP was derived was calculated using a Hodrick-Prescott filter. The trend estimate is based on quarterly GDP data for the period from the first quarter of 1995 to the first quarter of 2005.

afterward.<sup>20</sup> The outcome of our assumption is depicted by the dotted curve in chart 2. We chose an approximation of a “normal” Austrian business cycle (i.e. without a banking crisis)<sup>21</sup>, because macroprudential supervision does not aim at eliminating business cycles. By doing so, we derive the costs and benefits of macroprudential policy measures. Their short-term costs comprise the loss of unsustainable economic growth during the precrisis credit boom (green area in chart 2); their benefits are that the probability of a banking crisis and its potential impact are reduced and that the resilience of the financial system is increased (red area in chart 2).

### Benefits Outweigh Costs

A comprehensive impact assessment compares the estimates of the costs and benefits of proposed measures to quantify their net effect. Kopp et al. (2010) conclude that the benefits of banking regulation in Austria outweigh its costs. In a metastudy on this issue, the Basel Committee on Banking Supervision concludes that, on average, a 1 percentage point increase in the capital adequacy ratio reduces GDP growth by 0.04 percentage points (MAG, 2010). Moreover, it estimates that (under the assumption of permanent welfare losses induced by crises) reducing the probability of a crisis by 1 percentage point increases long-term economic growth by 0.6 percentage points (BCBS, 2010).

Furthermore, Kopp et al. (2010) demonstrate that the cost of banking regulation is lower for banks whose

liquidity situation is more solid and which are better capitalized, have lower return-on-equity targets and are more flexible in adjusting their operative cost base to changing environments.

## 5 Conclusions

The introduction of macroprudential supervision constitutes a key lesson from the crisis for financial regulation and supervision. Macroprudential supervision offers a new set of instruments and an elaborate institutional framework to proactively address systemic risk within the financial system. The new instruments specified in the CRD IV and the CRR constitute the cornerstones of macroprudential supervision.

Great supervisory powers require democratic checks and balances. The respective institutional framework in Austria aims at balancing the need for timely action and that for accountability, transparency and legitimacy. This requires a comprehensive communication strategy that provides for information on regular assessments of key risks and explains the reasons for or against taking action. The Financial Market Stability Board (FMSB) should have a clear internal governance structure to reduce the risk that blameshifting may take place among the players involved on the back of complex decision-making structures. Moreover, the dominance of the Ministry of Finance in macroprudential supervision is at odds with the respective ESRB and IMF recommendations and with international best practice. A more prominent role of the supervisory authority and central bank should be ensured.

<sup>20</sup> At least, these are the objectives of the CCB. Nevertheless, the impact of higher capital requirements on the weighted average cost of capital is subject to controversy; similarly, their effects on loan margins, loan demand and economic growth are hard to prove empirically (e.g. SNB, 2014). For the purpose of this illustration, however, we simply assume these effects.

<sup>21</sup> Our approximation is based on the average duration and magnitude of the last three business cycles.

Pillar 2 of the Basel capital accord is found to be ill-suited for macroprudential supervision. It is designed to capture the risks banks are exposed to, but not the systemic risk that emanates from banks themselves. To effectively address systemic risk, a thorough Pillar 2 assessment would have to be conducted for each bank individually; such assessments cause high administrative costs for both banks and supervisors. The politico-economic safeguards required for macroprudential supervision are not in place for Pillar 2 measures.

Macroprudential supervision is flexible and efficient in the sense that it is applied only if, and for as long as,

necessary, i.e. when a systemic risk is identified. The calibration of macroprudential measures aims at reflecting the degree of systemic risk. They can target banks and/or on- and off-balance sheet positions that are exposed to specific risks. Despite adding substantial new powers and instruments to the supervisory toolbox, macroprudential supervision also faces substantial challenges and should not be considered a cure-all.

Finally, this paper discusses a number of challenges related to regulatory impact assessments that can have a substantial influence on assessment results.

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