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Challenges for financial sector supervision

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Central bank and prudential supervisor of financial institutions

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I Introduction

The financial crisis demonstrated severe shortcomings in existing global, European and national regulatory and supervisory frameworks for the financial system. Although most attention was paid to regulatory flaws, the failure to prevent a near collapse of the financial system also triggered a global rethinking of what constitutes good financial supervision. Several pre-crisis key principles underlying supervision – such as a high trust in market participants’ ability to manage risks combined with a widespread belief that safeguarding the health of individual firms would guarantee system stability – and a general tendency towards light touch supervision, were strongly criticised (cf. FSA 2009; De Larosière 2009; Commissie de Wit 2010).

As will be discussed more elaborately in section 2, it became clear that supervising financial markets and institutions has become increasingly complicated over the past decades. This is firstly caused by the increased complexity of financial markets, firms and products. Financial institutions have become more globally active and their business has become ever more intricate as trade in highly complex products has expanded significantly. They have also become more interconnected. In addition, many firms have expanded in size and scope, being active in multiple business domains and in many different jurisdictions. Secondly, financial markets are highly dynamic, as financial market participants respond quickly to changed circumstances, such as innovations in information and communication technologies, new financial market regulation and changing business models. Regulation and supervision often lag behind developments and innovations at markets and supervised institutions. Thirdly, financial markets are regulated and influenced by many different actors (both public and private, operating at the international and national level). All these circumstances make financial supervision a demanding and challenging endeavour.

At the same time, political and public expectations of financial supervision are high. The legislative and executive branch of government often expect the supervisor to be a neutral executor of previously established public policy, focusing mainly on firms’ compliance with rules. Many citizens expect the supervisor to be able to guarantee financial stability and at all times prevent financial firms’ bankruptcies.

We argue that these circumstances necessitate a different perspective on the role, tasks and possibilities of financial supervision. Financial stability is determined

by several factors. Even though financial supervisors play a key role, in view of the existing organization of financial markets they cannot guarantee financial stability or always prevent the failure of financial institutions. Political and public expectations about the possibilities of financial supervision should therefore be modest. However, this does not imply that supervisors play only a marginal role in maintaining financial stability. If supervisors are proactive and adaptive and have an adequate degree of expertise, independence and capacity to act – while at the same time being accountable and transparent – they can use their unique position to play this crucial role to the best. Having such a proactive and adaptive attitude is a challenge for many supervisors.

The main objective of this study is to discuss the future challenges, dilemmas and tensions as faced by financial supervisors and the governance of financial supervision. We argue in section 3 that ensuring compliance with existing rules and norms is crucial but not sufficient for maintaining financial stability. This implies that the mandate of supervisors has to go beyond ensuring firms' compliance with existing rules, and that supervisors are given the freedom to do this by the legislative and executive branch of government, as well as by international policymaking authorities. As financial markets constantly evolve and adapt, supervisors should be as vigilant as possible in order to signal and articulate new threats for financial stability, and communicate them (to the extent that this is not counterproductive) to the supervised firms and to the policymaking authorities. We argue in section 4 that supervisors will also need to broaden their scope, focusing on system stability (a macro-prudential orientation) and using more forward looking indicators (such as the firm's business model, conduct and culture). Finally, in section 5 we argue that the supervisors' increased room for manoeuvre will also increase demands on methods to ensure their accountability. Supervisors should put more effort in being transparent on their conduct, the effects of supervision as well as the limits of supervision, in order to maintain public and political support. In section 6 we summarise the main arguments and challenges in view of the upcoming changes in financial supervision and its governance as discussed in this study.

This study mainly focuses on financial supervision and does not cover financial market regulation. It mainly discusses prudential supervision and does not address the supervision of business conduct. Although financial prudential supervision often also encompasses the supervision of pension funds, insurance companies, and other financial firms, the study focuses on banking supervision. Where appropriate, issues related to the supervision of other financial firms will be addressed. Finally, specific attention is paid to questions relating to the Dutch supervisory architecture.

2 Developments in financial markets and supervision

In this section we first describe some important developments in financial markets. Next, we discuss how financial supervision has been re-organised at the national and international level in response to these developments and in reaction to the financial crisis. After this, we argue that financial market supervisors are confronted with (1) a high degree of dependence on other actors (public and private); (2) fundamental uncertainty about financial market developments; and (3) a highly dynamic and adaptable sector.

2.1 Sector trends

The Dutch financial sector – like all OECD countries' financial sectors – has experienced a major transformation in the decades up to the financial crisis. This transformation can be briefly outlined by focusing on five, interrelated developments: (1) a great expansion of the banking sector; (2) sector consolidation and concentration; (3) a significant change in the nature of banking; (4) an expansion of cross-border activity and trade; and (5) the increased importance of new financial products and actors.

First, the size of the banking sector has expanded significantly in the past decades. In the Netherlands, like many advanced economies, total financial sector assets grew substantially relative to domestic GDP (see table 1). This implied that the functioning of the real economy became increasingly dependent on the stability of the financial sector. As shown in table 1, the size of the banking sector declined after the crisis to 469% of GDP in 2011.

Table 1 Growth of financial sector 1995-2011

Consolidated assets of commercial banks over GDP

	US	Germany	UK	Spain	Netherlands	Switzerland
1995	56%	214%	241%	196%	184%	354%
2000	61%	297%	289%	203%	390%	503%
2007	77%	313%	451%	304%	591%	664%
2011	82%	311%	480%	365%	469%	494%

Source: Houben (2013)

Second, the financial sector has been characterized by consolidation and increased concentration. Especially from the 1990s onwards, banks have merged with other banks (e.g. ABN and Amro in 1991) or with insurance companies (e.g. SNS and Reaal) (cf. DNB 2010a: 35-36).¹ Consolidation led to concentration: the sector is dominated by a few systemically important banks. When looked at balance sheets, in 2008 five banks accounted for 85% of the banking sector, having grown from approximately 73% in 1990. In fact, this domination is increasing. In 2012, the collective market share of the top 3 banks in the mortgage market was 84%, against 78% in 2003 (Jansen et al. 2013).

Third, there has been a significant change in the nature of banking (cf. Turner 2010; Liikanen 2012). In particular for the big financial firms, the relative weight of banking activities has shifted from traditional activities such as ‘deposit taking, lending, securities underwriting and trust services towards dealer and market-making activities, brokerage services, and own account trading’ (Liikanen 2012: 3). Banks have increasingly become oriented towards transactions with other banks. Consequently, the banking sector has become more interwoven. Banks have also become increasingly active on the mortgage market, with home mortgages accounting for an increasing share of banks’ balance sheets. However, in the Netherlands, extensive mortgage lending over the years did not keep pace with the growth of the deposit base. This resulted in a so-called ‘retail funding gap’. This implied that banks increasingly had to rely on funding from wholesale markets, making the Dutch banking sector vulnerable to unfavourable conditions on wholesale financial markets (Jansen et al. 2013).

1 Since the crisis, the bankassurance-model that came up in the early 1990s is firmly on the decline. First of all this is because expected advantages of the model, such as cross-selling, have not sufficiently materialized. More importantly, bankassurance conglomerates have proven to be rather complex to manage, and hard to resolve in times of crisis. However, this does not mean that bankassurance has completely disappeared. In fact, many insurance companies have in recent years set up banking entities attracting retail savings and engaging in mortgage lending.

Fourth, there has been an expansion of cross-border activities and trade. The internationalization of the Dutch financial sector was mainly the result of cross-border acquisitions and the establishment of foreign branches (DNB 2010a: 36). Moreover, financial firms became increasingly active in trade with foreign financial firms and therefore got strongly interwoven with the global financial system. As a consequence of the financial crisis and national regulatory responses, banks have refocused their activities to their home markets across Europe. Whereas the foreign business of Dutch banks amounted to at least 30% of their consolidated balance sheets in the years before the crisis, today it is less than 15%.² To some degree, this trend is still continuing today.

Fifth, over the past decades there has been a remarkable rise in the trade in new financial products and the emergence of new financial actors (Commissie de Wit 2010; DNB 2010a: 90). In line with this international trend, Dutch financial firms became more and more active in trade in new financial products, such as credit derivatives, that were often not traded on securities exchanges but ‘over the counter’. Besides, banks increasingly securitized the loans on their balance sheet, selling these products to other financial actors, attempting to diversify risks and freeing up room to extend more loans. Financial firms in the Netherlands also acquired these financial products from other, foreign financial firms, thereby exposing them to risks on foreign markets (especially US mortgage markets). Apart from product innovations, the financial sector has also seen the emergence of relatively new financial actors, such as hedge funds, money market funds and private equity funds. In the run up to the crisis, these actors operated largely outside the regulatory perimeter. After the crisis, regulators have sought to broaden the perimeter of financial supervision, encompassing credit rating agencies, hedge funds, and entities performing ‘bank-like’ functions (so-called ‘shadow banks’) that were hitherto not being subject to regulation and supervision (see section 2.2).

In sum, ‘[f]inancial sector growth thus took place with greater interconnectedness, within institutions, between institutions, cross-sector and cross-border’ (Houben 2013: 219). It should be emphasized that these changes were caused by a plethora of developments, such as macro-economic circumstances, innovations in information and communication technologies, changed financial market regulation and adapting and innovating business models. The result has been the emergence

² This is a rough estimate of the participation of Dutch banks in foreign entities. The foreign activities are estimated on the basis of the difference between the total activities according to the consolidated balance sheet and the domestic activities according to the domestic MFI balance sheet. These statistics are available at the website of DNB (www.statistics.dnb.nl). Using non-publicly available information the figures have been corrected for securitizations and intra-group positions. Another possibility is to calculate the exposure of Dutch banks to non-residents as a percentage of their total exposure. This gives an estimated decline of the foreign exposure of more than 60 percent before the crisis to about 35 percent now, which is in line with the trend described in the main text.

of a highly dynamic and complex sector, in which market actors are constantly affected by – and have to adapt to – changing market developments and changing regulations and supervisory practices.

As a consequence of the crisis, the sustainability of certain bank business models has been challenged. Notably, business models that exploit the generous fiscal treatment of household mortgage debt are put to the test by changing political views towards this fiscal treatment and the high household indebtedness that results from it (see section 4). Likewise, doubts arose whether the current structure of the banking sector, which is dominated by systemically important internationally operating banks, is sustainable. This is due to two lessons learned from the current crisis: (1) too-big-to-fail issues and the absence of effective instruments for resolution have caused heavy tax-payer involvement during the crisis, further entangling individual Member States' public finances with the health of the banking sector; and (2) the framework for cross-border supervision and resolution has proven to be seriously flawed. As a consequence, a large and cross-border banking industry poses additional risks to financial stability in the absence of effective cross-border supervision and resolution (see section 3).

2.2 Trends in supervision

In response to financial market developments described above, financial market regulation and supervision have also seen a significant change in the past decades. Supervision in the Netherlands was reorganized along functional lines, in response to the growing interconnectedness between financial firms and the blurring of the boundaries between these institutions. In the so-called Twin Peaks model, De Nederlandsche Bank (DNB) became responsible for prudential supervision, focusing on the soundness of financial firms and on financial sector stability, while the Authority for the Financial Markets (Autoriteit Financiële Markten, AFM) became responsible for business conduct supervision. In pursuing its mandate, DNB predominantly focused on safeguarding the financial soundness of individual financial firms (banks, insurance companies and pension funds).

In response to the increased complexity of financial firms, financial market supervision also increasingly relied on risk management strategies. This encompassed both an increased reliance of the supervisors on the risk management strategies of individual financial firms, as well as a shift towards risk-based supervision of the financial supervisors themselves (cf. DNB 2010a: 44-48).³ Moreover, in response to the dynamic nature of the financial sector, financial supervisors increasingly relied

³ See Power (2004) for a discussion of the general trend towards risk-based governance.

on principle-based supervision, giving firms increased freedom to develop their own strategies in order to comply with existing rules (Black 2011).

The increased internationalization of financial markets was to a significant degree the result of changed regulation, at the national, European and global level. Of crucial importance was the ambition to complete the single European market for financial services from the 1990s onwards (DNB 2010a: 35). As a central component of this project, the single banking passport regime gave EU banks licensed by another EU Member State the freedom to set up branches in any EU country without having to apply for a new license. EU supervision was based on the ‘home state control model’: the ‘home supervisor’ had the prime responsibility for supervising these banks, including their foreign branches; the host supervisor was only entitled to supervise the branch’s liquidity. In the run up to the crisis, international supervision of cross-border banks was not particularly developed, although national supervisors convened in the Lamfalussy committees and in so-called supervisory colleges shared information – on a voluntary basis – about the conduct of financial firms and supervisory practices (Ottow 2011).

The financial crisis demonstrated the shortcomings in the existing global, European and Dutch regulatory and supervisory framework. As regards regulation, key problems that were identified were inadequate capital and liquidity requirements, the procyclicality of certain rules (e.g. capital requirements, fair-value accounting, the use of credit ratings) and the absence of regulation for many financial actors (cf. FSA 2009; De Larosière 2009). In response, regulations governing the financial sector were tightened along many dimensions. Basel III, representing a tightening of capital and liquidity requirements for banks, will enter into force in Europe in 2014 through the Capital Requirements Directive/Regulation IV (CRD/CRR IV). Also, tighter regulation covers areas as diverse as securitization, remuneration policies, resolution plans and counterparty credit risk. In addition, regulators have sought to broaden the perimeter of financial supervision, encompassing credit rating agencies and hedge funds (De Haan and Amtenbrink, 2012a,b; Quaglia 2011).

Whereas regulatory developments have been in the centre of attention, changes in financial supervision are less well documented. The failure to prevent a near collapse of the financial system triggered a rethinking of some of the pre-crisis principles of supervision (Viñals and Fiecher 2010; Hilbers and Rijsbergen 2013).

First, the shift towards more principle-based supervision came under scrutiny, as many observers argued that this in practice implied ‘light touch supervision’ (De Vries 2013). However, it is far from clear that a return towards more ‘rule-based supervision’ is the answer in this respect (Black 2011). Although at the regulatory level there has been a tendency to develop more and more detailed rules to ensure compliance (Haldane 2010), the case for a sufficient degree of principle-based

regulation in a dynamic and complex sector is strong. Although rules do not require continuous justification or explicit decisions, circumvention of rules becomes easier over time (Borio 2011a: 11). This implies that in the future, supervisors will need to strike a delicate balance between rule-based and principle-based supervision (see section 3).

Second, the institutional framework of supervision was challenged, particularly the absence of a well developed European framework (Ottow 2011). In response, following the recommendations of the De Larosière report published in 2009, the European System of Financial Supervisors (ESFS) was created in 2011. An important feature of the ESFS is the creation of three European Supervisory Agencies, with new tasks, powers and instruments to harmonize supervisory practices throughout the EU single market. These new agencies replaced the Lamfalussy committees.⁴ Another important element of the ESFS was the creation of the European Systemic Risk Board (ESRB), which is responsible for macroprudential supervision. A related development, mainly as a response to the Euro zone debt crisis, is the development of a European Banking Union, bringing elements of banking supervision, resolution and deposit guarantee schemes to the European level (Ferran and Babis 2013; see section 3).⁵

Third, the idea was challenged that focusing on individual firms' compliance with existing rules – and a focus on capital and liquidity – was by and large sufficient to guarantee financial market stability. In response, one lesson learned was that supervision has to become more forward looking, not only keeping an eye on financial indicators that to some extent are backward looking by nature, but also delving into less well-known areas, such as the business model, culture and conduct, and the governance of an institution (Hilbers 2011). Flawed business models are powerful indicators of financial trouble down the road. The supervisor needs to have a thorough understanding of the way a financial firm earns its money and

4 There were three such committees: the Committee of European Banking Supervisors (CEBS), the Committee of European Securities Regulators (CESR) and the Committee of European Insurance and Occupational Pensions Supervisors (CEIOPS). These committees were composed of high-ranking representatives from the national supervisory authorities. The Banking Supervision Committee also included representatives from the national central banks. Apart from advising and assisting the European Commission in the development of technical implementing measures, these committees also dealt with the exchange of supervisory information, the consistent implementation of European legal acts and the harmonization of supervisory practices in the European market for financial services.

5 In the Netherlands, the crisis did not trigger big institutional changes. The Twin Peaks model, in which DNB is responsible for prudential supervision and the AFM for business conduct supervision, was not called into question. At the same, DNB and AFM took the episode as an opportunity to further strengthen their cooperation. Since the crisis, many other countries have introduced their own variant of the Twin Peaks model, indicating that this institutional framework is widely seen as having important benefits. However, according to Masciandaro et al. (2011), there is little evidence that the precise architecture of the supervisory framework has much impact on financial sector stability. This should act as a warning not to expect that changes in the supervisory architecture will by itself diminish the risk of financial sector instability.

needs to form an opinion on its long-run sustainability given external, sector and regulatory trends. Similarly, during the crisis, culture, conduct and governance of a financial firm have proven to be of crucial importance to its long-run viability. This requires that supervisors go beyond the numbers, making expert judgment more important and also from time to time taking legal risk, as the regulatory framework in these areas is not yet well developed (see section 4).

Another lesson learned in this respect was that financial institutions are far more interconnected with each other and with the real economy than had previously been thought. In response, supervisors have been developing their macro-prudential analysis capacity, in order to better understand this interconnectedness and to scan the horizon for macroeconomic and systemic risks. Also, macro-prudential instruments are being developed to address these risks in an early stage, most importantly the countercyclical capital buffer that has been agreed upon in the context of Basel III (see section 4).

Finally, the crisis demonstrated an increased demand for accountability and transparency of independent financial supervisors. Supervisors themselves have come to realize that being more accountable and open can actually help them to improve their supervision. The current information society – in which news travels at the speed of light, also when it is false – forces supervisors to be more open in order to try to steer the information flow to some extent. The challenge here is to be as transparent as possible, while complying with statutory secrecy obligations (see section 5).

2.3 Key challenges for financial supervision

In section 2.1, we have identified financial sector trends in the past decades. Financial firms have become more complex, more internationally oriented, and thereby more interconnected with global financial markets. The financial sector has grown substantially relative to GDP. Due to internationalization, consolidation and concentration, systemically important financial firms were created. Although the financial crisis triggered a partial reversal of these trends, it is not to be expected that in the near future we will see a completely different financial sector. Arguably, the financial sector will continue to be characterized by three intertwining key features: it is dynamic, complex and highly adaptive.

This is a very challenging environment for prudential supervisors to fulfil their mandate. A first challenge for supervisors is that financial stability depends on a wide variety of actors (public and private, operating at the international and national level) and circumstances (macro-economic developments, public trust in the financial sector, financial market sentiments, etc.). This implies that financial supervisors cannot guarantee financial stability. A second challenge facing

supervisors is that they are confronted with fundamental uncertainty as to future market developments (Houben 2013). Supervisors – like market participants – will therefore have only limited ability to foresee future developments that may possibly affect financial market stability. A third challenge is that the dynamic and adaptive nature of the financial sector implies that (supervisory) regulation often lags behind developments and innovations at supervised institutions, in part because formulating rules is a time-consuming process, particularly at the international level.

At the same time, however, the task of the prudential supervisor is to contribute to financial market stability. We argue that if the financial supervisor is proactive and adaptive and has an adequate degree of expertise, independence and capacity to act – while being accountable and transparent – it can use its unique position to successfully play this crucial role. In the next sections we will discuss the challenges faced by supervisors in fulfilling this role.

3 The governance of financial supervision

This section discusses several challenges relating to the future positioning of financial supervision in the European and national regulatory architecture. We argue that the dynamic and complex nature of the financial sector warrants an adaptable financial supervisory system, being outcome focused and with an adequate degree of supervisory discretion. Moreover, it requires a vigilant and proactive supervisor that signals, articulates and responds to financial market developments that potentially threaten financial stability, and that communicates these findings to relevant policy making authorities in order to improve financial market regulation (section 3.1). Second, we argue that this requires an adequate degree of independence of the financial supervisor from policy-making authorities and financial firms, in order to ensure an unbiased focus on financial stability concerns (section 3.2). Finally, we address the Europeanization of financial regulation and supervision, identifying potential positive and negative aspects of the harmonization of financial regulation and the centralization of certain supervisory powers. We argue that this potentially reduces the possibility of regulatory competition and a related race to the bottom. However, an overly rigid regulatory and supervisory architecture might also threaten the emergence of an adaptive and dynamic supervisory system, in which supervisors have an appropriate degree of discretion to respond to emerging threats to financial stability (section 3.3).

3.1 The relationship between supervision and regulation

The effectiveness of supervision largely depends on the institutional conditions in which the supervisor operates. A requirement for effective supervision is that other forms of internal and external supervision function properly. Examples of internal supervision are the involvement of the board, including both executive and non-executive directors, and internal control departments, such as the audit, risk management and compliance departments. Also external accountants and rating agencies play an important role as they monitor the external reporting by financial institutions, both quantitatively and also increasingly in a qualitative way. Supervisors face the challenge to find a proper balance between their own supervision and that of these internal and external parties. In a complex and dynamic environment, supervisors obviously will rely on the work and insights of all these parties and therefore depend on them. However, after the crisis the

functioning of these parties has been questioned and supervisors will therefore have to make up their mind to what extent they can still rely on them. If it turns out that these parties' supervision is insufficient, it has to be strengthened.

Another requirement for effective supervision is a legal framework offering high-quality supervisory instruments. The financial crisis made clear that – among other things – the supervisory instruments as currently provided by global, European or national regulations were not up to par in certain areas. As emphasised in the previous section, supervisory regulations often lag behind developments and innovations at supervised institutions, partly because developing regulations often is a time-consuming process, and partly because financial markets are very dynamic. Another factor is that regulations are the outcome of negotiations in which both national interests and the interests of the sector are at play. Combined with pressure on the national supervisor to refrain from imposing additional requirements on top of (sometimes insufficient) international standards (so-called 'gold plating'), this can restrict the supervisor's ability to respond quickly and effectively to risks.⁶

Supervisors are often portrayed as actors at the end of the policy-making process, merely checking compliance with the rules that were developed in the political process. Such a compliance-based perspective on financial supervision is difficult to square with the complexity and adaptive nature of the financial sector. It wrongly assumes that compliance with rules will by itself guarantee the policy objective (i.e. financial stability) and that the financial supervisor will succeed in ensuring full compliance with all rules. Given the dynamic nature of the financial sector, it is important that supervisors can adapt their supervisory strategy quickly to new market developments (Black 2012a). This puts to the fore the question of how supervision and regulation relate to one another. Three specific issues in this area deserve further attention. The first is how supervision based on open norms – an important characteristic of principle-based regulation – can be implemented effectively. The second is how supervisors can be outcome-focused without overstepping their supervisory mandate. The third is how supervisors can contribute to the quality of financial policies and supervisory regulations.

3.1.1 *The use of open norms*

Financial sector regulation contains many open norms. Examples in Dutch law are 'control and integrity of business operations' and the prudent person principle. These elements of principle-based regulation fit the complexity and diversity of the financial sector which make it impossible to capture everything in rules. Open norms also allow for responding to changes in the financial sector without the need

⁶ Institution-specific measures are possible under the second pillar of Basle III/CRD-IV.

to change legislation. Finally, they encourage compliance with the spirit rather than the letter of the law (De Vries 2013).

Working with open norms raises several challenges for supervisors. One such challenge is how to provide guidance on desirable (acceptable) outcomes without ending up with detailed rules after all. While it is difficult to disagree with the idea of open norms given the advantages mentioned above, it places higher demands on both the sector and the supervisor. Not surprisingly, financial institutions – in particular smaller institutions – often ask for more detailed guidance. And so do supervisory inspectors in order to ensure a consistent treatment of institutions (Black 2011). In addition, there is a tension between principle-based regulation and the tendency that societies become increasingly litigious. In order not to be successfully challenged in court, supervisors must provide *ex ante* clarity on what they expect from financial institutions without mimicking a compliance-based set of rules. A third complication is that the financial crisis has reduced the level of trust between supervisors and supervised institutions. Given that trust is essential for effective principle-based regulation, it raises the question of whether principle-based regulation can withstand this blow. The reduced level of trust may also explain why financial sector regulators are currently less inclined to engage into horizontal supervision or allow for a large degree of self-regulation.⁷ Given lessons learned from the financial crisis, this should come as no big surprise. Financial firms' ability to adequately manage the risks they were exposed to proved to be greatly overestimated, both by firms themselves as well as by regulators (FSA 2009).

3.1.2 Outcome-focused

A second issue at the intersection of regulation and supervision is how to be outcome-focused without overstepping the supervisory mandate. Outcome-focused supervision tries to achieve a higher goal, not just compliance with the rules. As Sparrow (2000) points out, not everything that is harmful is illegal, and vice versa. Examples in the context of the Dutch financial sector are Icesave and DSB Bank, two small banks that failed in 2008-09. Whereas the former had an overly risky business model, the latter was selling products that were not in the best interest of its customers. Outcome-focused supervisors endeavour to end harmful situations. At the same time, they need to stay within the limits set by the law, i.e. accept that courts will test (non-)compliance with the law rather than harmful behaviour. An 'open norms' and outcome-oriented supervisory approach implies that a supervisor will have to accept that its decisions are now and then overruled in court. Supervisors who never lose court cases probably do not press hard enough. The recent limitation of liability makes it easier for DNB not to err on the side of caution all of the time.

⁷ See Commissie Horizontaal Toezicht Belastingdienst (2012, in Dutch) for an evaluation of horizontal supervision by the Dutch national tax authority.

3.1.3 *Contribution to regulation*

A third issue is how the supervisor can adequately contribute to the quality of financial policies and supervisory regulations. Financial supervisors are in a unique position to gain a view of financial sector developments. The supervisor will therefore need to communicate actively with relevant policy-makers (at the national and international level) and other supervisors what potentially harmful developments are emerging and whether existing policy is adequate to deal with these threats. Moreover, the supervisor will also have to assess what (unintended) consequences existing regulations have for market developments (De Grauwe 2008; Nouy 2013). For instance, it has been widely acknowledged that Basel rules contributed to the displacement of financial market activity outside the supervisory purview. A vigilant and alert supervisor will communicate these developments to the relevant policymaking authorities, in order to contribute to the continuous improvement and modification of financial market rules.

It is thus important to establish a feedback mechanism to the legislative part of government. A good supervisor will inform the government on relevant financial market developments and how these relate to existing rules and regulations. It will ask for rules that promote the achievement of its goals. It does so not only through informal contacts but also in a more formal and transparent manner. In the Netherlands, DNB and the AFM have introduced a yearly legislative letter ('wetgevingsbrief') to the minister of finance and the minister of social affairs to signal shortcomings in the law.⁸ A more informal – but well-established – procedure is for the supervisor to contribute to the preparation of new legislation in order to improve the quality of the rules so that compliance with these rules can effectively be monitored.

3.2 **Independence of financial supervision**

During the last two decades, many countries granted their monetary authorities greater independence. It is widely believed that central banks otherwise will give in to pressure from politicians who may be motivated by short-run electoral considerations or may value short-run economic expansions highly while discounting the longer-run inflationary consequences of expansionary policies. There is strong evidence for a negative causal relationship between central bank independence and inflation (Klomp and de Haan 2010).

There is a similar, but much smaller line of research on the independence of financial supervisors. Supervisors should be sufficiently independent from political

⁸ This practice of sending legislative letters was introduced in 2010. The ministers have established a habit of forwarding these letters to parliament, accompanied by a written response.

interference. According to Quintyn and Taylor (2003), in almost all of the systemic financial sector crises of the 1990s, political interference in the supervisory process leading to regulatory forbearance was a major factor contributing to the weakening of banks in the run-up to the crisis. Supervisors should also be independent from the financial sector they supervise. Several authors have argued that financial supervisors are prone to capture by the financial sector (cf. Barth et al. 2012). This section discusses the independence of financial supervisors, identifying several positive aspects of independence of the supervisor, as well as potential pitfalls.

Quintyn and Taylor (2003) distinguish four dimensions of independence: (1) regulatory; (2) supervisory; (3) institutional; and (4) budgetary independence. Regulatory independence in the financial sector means that regulators have wide autonomy in setting prudential regulations within the confines of the law. The extent of regulatory independence depends on the extent to which financial supervision laws in place leave scope for regulatory discretion (cf. Black 2012a). Supervisory (operational) independence ensures there is no interference with the work of supervisors, either by politicians or by the industry. Institutional independence refers to (1) clear rules governing the appointment and dismissal of supervisors; (2) a multimember commission structure of governance; and (3) transparency, enabling both the public and the industry to scrutinize regulatory decisions. Finally, budgetary independence is determined by the role of the executive or the legislative branch in determining the agency's budget and how it is used. If funding comes from the government budget, the supervisory budget should be proposed and justified by the agency itself. If funding comes from industry fees, the budget should be jointly determined by the agency and the government.⁹

3.2.1 *Independent from political interference*

There are several reasons why independence of supervisors from political interference may be beneficial for maintaining financial stability. Independence may help to overcome an inaction bias. As pointed out by Quintyn and Taylor (2003), the incentives for politicians to rescue failing banks are similar to those for inaction in the face of inflation. The decision to close a failing bank is usually unpopular as costs must be incurred in the short term in order to make long-term gains, which makes regulatory forbearance (postponement in the near term) an attractive option.¹⁰ Politicians eager to avoid a necessary closure may therefore be tempted to pressure supervisors to organize a bailout or to excuse the failing bank from regulatory requirements, even at the risk of worsening the problem and increasing the long-

⁹ According to Dickson (2013), a model based on industry fees seems preferable to one derived from government budgets as it helps guarantee a more stable funding source over the cycle and shields supervisory agencies from fiscal vacillations.

¹⁰ These costs include the reduced borrowing capacity that may result from supervisory interventions. An authority dependent on the political cycle, or exposed to political pressure in some other way, will therefore tend to postpone such policy measures.

term costs of resolving it. Another explanation for the inaction bias is uncertainty, which causes a tendency for policymakers to prefer to make a type-1 mistake (in other words, incorrectly assuming that things will work out well) than a type-2 mistake (incorrectly assuming that things will go wrong). A supervisor captured by political interests associated with weak financial institutions may not be able to enforce strong and timely prudential action (Čihák 2007).

Another reason why independence of the financial supervisor may be beneficial is that there are in fact multiple values and interests at stake in financial market regulation. Politicians and/or policy-makers (whether or not influenced by sector interests) may want to boost the position of the national financial industry, pressuring the supervisor for a lenient approach towards national financial firms (cf. Pagliari 2012). Establishing a clear mandate (i.e. contributing to financial stability) and explicitly assigning policy responsibility to an independent authority will create a strong impulse to actively seek to achieve a stated objective, especially when this is matched by adequate accountability and transparency measures. Essentially this argument in favour of supervisory independence, linked to a clear mandate, is comparable to that relating to monetary decisions. The independent status is important as a means of ensuring that the authority is at all times able to take the required action. When coupled with adequate accountability and transparency measures, an independent status will also facilitate that the supervisor in fact takes actions when necessary. Agency independence thus entails an important concern, namely, the need for accountability. An independent agency might pursue an agenda of its own, going against the wishes of the political majority. These arguments demonstrate the need for proper forms of accountability (see section 5).

However, as pointed out in the previous section, financial stability is determined by a wide range of actors and factors. The relationship between supervisory independence and financial stability may therefore not be straightforward, as supervisors have incomplete control over outcomes in the area of financial stability (cf. Čihák 2007). It is therefore not surprising that there is little empirical evidence suggesting that supervisory independence by itself greatly contributes to financial stability.¹¹

11 A notable exception is the study by Das et al. (2004), but these authors focus on the relationship between regulatory governance (including independence) and a Financial System Stability Index (FSSI). The FSSI is composed of two quantitative variables: the capital adequacy ratio (CAR) and the ratio of non-performing loans (NPLs). The CAR is the ultimate indicator of the resilience of a financial institution to shocks to its balance sheet, while the ratio of NPLs signals the quality of the financial institutions' portfolio. The construction of the governance index (RGI) is computed as the weighted combination of the country's compliance with the BCBS's principles concerning independence, accountability, transparency, and integrity derived from the assessments undertaken as part of the FSAP. The positive relationship between both indices is confirmed by econometric estimates by which the authors estimate the impact of regulatory governance on financial system soundness, along with the impact of a set of control variables covering macroeconomic conditions, the structure of the financial system, and aspects of the quality of institutions and public sector governance. The results consistently confirm the importance of good regulatory governance for financial system soundness.

3.2.2 *Independent from industry pressures*

Apart from independence from government, supervisors should be independent from industry. As Stigler (1971) pointed out in a seminal article, supervisory and regulatory agencies tend to respond to the wishes of the best-organized interest groups. When supervisors are free from political control, the risk of ‘capture’ by other groups – in particular, the industry they supervise – grows. Agencies that suffer from such capture come to identify industry interests (or even the interests of individual firms) with the public interest. And industry capture can undermine the effectiveness of supervision just as political pressure can. Supervisors may, for example, pursue strategies so as to minimize industry costs rather than strike an appropriate balance between those costs and public benefits. They may also apply rules inconsistently and exempt individual firms from regulatory requirements.

According to Barth et al. (2012: 15), an ‘overwhelming body of evidence suggests that the financial services industry unduly influences financial policy, whether it is through campaign contributions, the close professional and personal connections between regulators and financiers, ideological capture, or the conforming behavioural influences of the home crowd – the financial services industry – on regulators’. There is indeed evidence suggesting that in the run-up to the financial crisis the financial sector – and especially large financial institutions – had an impact on financial regulation. For instance, Basle II has been influenced by the financial sector lobby so that it became in fact weaker than its predecessor and was beneficial for large financial institutions (Claessens et al. 2008). Also in other domains the financial sector has had strong influence on the regulation of financial markets (cf. Mügge 2010). However, evidence in recent years has been mixed, as the weakening of the industry affected the effectiveness of its opposition against rule-makers.

Barth et al. (2012) point to a more subtle way supervisors may be ‘captured’, namely the home bias. Referees in several types of sport are found biased in favour of the home-playing team and this may be true for supervisors as well.¹² This type of capture may best be prevented by giving the supervisor a clear mandate to pursue the public interest of financial stability. Mandates that suggest that supervisors also ought to promote the interests of the financial sector may adversely affect financial supervisors’ incentives (Pagliari 2012), and may make them more prone to ‘home biased’ capture. It also implies that impartiality on the side of the regulator is at least as important as formal independence.

¹² As Barth et al. (2012: 8) put it: ‘For regulatory officials, the ‘home crowd’ is the financial services industry. People from the financial services industry ‘surround’ regulatory officials; they meet with regulators daily. It is the financiers who will immediately jeer and taunt officials if they do not like their ‘calls’. Since regulators might have recently worked for the financial services industry and might soon be going to work there, it would be natural for regulators to identify fairly closely with the financial services ‘community’ that envelops them.’

Another subtle way that ‘capture’ may operate in the financial sector is directly caused by the complexity and dynamic nature of the financial sector. As the financial industry is constantly developing new, often complicated, financial products and/or risk management strategies, it is difficult for the supervisor to assess the potential benefits and threats of these innovations. In these circumstances, the supervisor is highly dependent on the ways in which financial market actors legitimate their business practices. In this way, ‘cognitive capture’ can occur, in which the supervisor steers on the positive framing of the industry of new market practices (Pagliari 2012).

This underscores the importance of sufficient expertise at the side of the supervisor, in order for the supervisor to be able to form an independent judgement on the benefits and potential dangers of new financial market practices. It also requires a more independent positioning of the supervisor vis-à-vis financial market actors, especially by applying the precautionary principle. This involves a reversal in the ‘burden of proof’: rather than supervisors having to prove the riskiness of new practices or instruments before taking measures, the supervisor will now only refrain from action when supervised institutions demonstrate that the risk is not significant, of course taking into account other principles such as proportionality and cost effectiveness (Houben 2013).

3.3 Europeanization of supervision

The start of the Economic and Monetary Union (EMU) in 1999 greatly stimulated the cross-border activity of European financial institutions, reinforcing the need for harmonization of regulation and supervisory practices in order to foster a level playing field and preventing regulatory arbitrage. Before the crisis, harmonization in regulation usually took the shape of Directives, providing substantial flexibility for national authorities to deviate from the European minimum-standards. As a corollary, under the so-called Lamfalussy-structure, European cooperation between supervisors was mostly voluntary. The crisis, where in some instances this cooperation virtually broke down under pressure of national financial stability interests, gave new impetus to European harmonization of regulation and supervision.

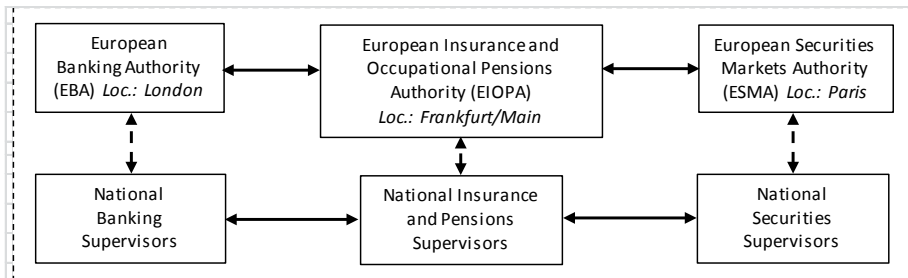
In this context, two interrelated developments are relevant. The first is the attempt to further harmonize financial market rules and practices (also concerning financial supervision) in the EU. The second is the shift of certain supervisory powers from the national to the European level. This section discusses the potential benefits of these developments, but also the potential pitfalls.

3.3.1 *The harmonization of rules*

As regards the first development – the harmonization of rules on financial market supervision – it is worth mentioning that the De Larosière report (2009) identified the inconsistent implementation of rules as the main problem in the system of EU

financial regulation. The high degree of freedom for national authorities to diverge from EU rules was identified as an obstacle to the European single market and a potential threat to financial stability. In response, the key trend in the EU has been to eliminate differences in national regulatory frameworks. At the regulatory level, this trend involved the increased use of EU Regulations rather than EU Directives, with EU Regulations being directly binding and leaving no room for national discretion (so-called maximum harmonization). At the organizational level, this involved the birth of the European System of Financial Supervisors (ESFS) in 2011, replacing the Lamfalussy committees. An important feature of the ESFS is the creation of three European Supervisory Agencies (ESAs), with new tasks, powers and instruments to harmonize regulation and supervisory practices throughout the EU single market (see figure 1).

Figure 1. European Supervisory Agencies



An important step in the elimination of differences on the regulatory front is the Capital Requirements Directive/Regulation IV (CRD/CRR IV), where important provisions implementing the new Basel III requirements for banks are to take shape as a Regulation, being directly binding and leaving no scope for national discretion. A key aspect of the CRD/CRR IV package is the ‘Single Rule Book’ as developed by EBA, that consists of the issuance of Binding Technical Standards (BTS): lower regulation that provides binding interpretation of CRD/CRR-provisions. An example of an area in which the EBA could issue binding standards is the ‘definition of capital’, ensuring that across the EU the same standards apply concerning the types of instruments that qualify as high quality capital, to prevent regulatory competition in determining capital adequacy ratios (cf. Enria 2011). Also, the ESAs received important powers in the area of stress testing, information gathering and crisis management.

Another initiative that will impact the future work of supervisors is the upcoming development of a Single Supervisory Handbook or Manual (cf. Enria 2011). Hitherto, harmonization of supervisory practices was to be achieved by peer review processes

and mutual learning. Now, the goal is to develop common EU procedures and processes in financial supervision.

The key future tension related to these harmonization processes is that the elimination of national differences in rules and supervisory practices can have both positive and negative aspects. A clear benefit of the harmonization process is that it limits the extent of regulatory competition. In the run up to the crisis, national discretion was often used to choose more lenient approaches to attract business in local markets and to favour national champions. Further harmonization could limit such ‘race to the bottom’ practices. Moreover, it facilitates the smooth functioning of the EU single market, especially if there is an institutional framework in place to regulate and supervise EU-wide active financial firms (see below).

However, the elimination of national discretion could pose a challenge for financial supervisors aiming to ‘err on the side of caution’. The ‘maximum harmonization’ aspect of EU rules is understandable from a ‘Single Market perspective’, but from a ‘financial stability perspective’ this could pose future challenges (cf. HM Treasury 2012). Supervisors aiming to (temporarily) impose more stringent standards on financial firms if circumstances so require (for instance, to reduce systemic risk; see section 4) could face restrictions, thereby potentially hampering the fulfilment of their mandate. Another potential negative aspect is that it could make the EU regulatory and supervisory framework overly rigid, which is problematic when taking the dynamic nature of markets into account. As Black (2012b) argues, complex and adaptive systems (such as financial markets) require regulatory and supervisory systems that are adaptable and dynamic as well. The current trend in the EU towards complete harmonization could introduce a regulatory system that is too rigid to be able to quickly adapt and respond to new developments at financial markets and financial institutions.¹³

3.3.2 *The shift of supervisory powers to the EU level*

As regards the second development – the shift of direct supervisory powers to the European level – the most significant development is the creation of the European Banking Union. The Euro zone debt-crisis brought home the drawbacks of having an Economic and Monetary Union without parallel arrangements in the area of financial supervision. The European Council decided in June 2012 for a European Banking Union. In essence, the European Banking Union involves three mutually

¹³ Nevertheless, it should be stressed that achieving full harmonization is very complicated and will face significant obstacles. For instance, the ESA’s powers currently stopped short of really prescribing national supervisors how to supervise their institutions. One of the reasons is that, except for the Binding Technical Standards, the ESA’s powers are based on soft law, allowing national supervisors to deviate as long as they explain why. Also, especially in the case of the European Banking Authority (EBA), its crisis management powers are confined to the ones that do not have an impact on national public finances.

reinforcing elements. Firstly, the so-called Single Supervisory Mechanism implies that important powers on the prudential supervision of banks will move from national supervisors to the ECB.¹⁴ The second building block of the banking union is the development of a Single Resolution Mechanism comprising a European resolution authority and a single fund.¹⁵ The third building block of the banking union, a European deposit guarantee scheme, may be added as the final element at a later stage to further break the negative interaction. To that end, the harmonization of national guarantee schemes would constitute a major step forward.

A first important challenge is the timing of the implementation of these measures. It is questionable whether a European supervisory mechanism can function adequately while a resolution mechanism, including funding, is not set up simultaneously (Ferran and Babis 2013). This was also emphasised in the conclusions of the European government leaders, who seek to implement the resolution mechanism before June 2014. A situation in which only supervision is delegated to the European level, but in which the resolution mechanism remains national for the time being, could give rise to conflicts of interest. For example, supervisory decisions to withdraw the licence of a bank would be taken at a central level whereas the bill of such decisions would have to be footed at a national level. This would put tremendous pressure on the European supervisor not to pull the trigger but instead to exercise forbearance.

A second challenge relates to the issue of the EU28 (the EU at large) versus EU18 (the adopters of the euro). Measures to strengthen EU18 could undermine the integrity of EU28 (Ferran and Babis 2013: 22). In the envisaged Single Supervisory Mechanism with the ECB at its centre there is, of course, the issue of participation of EU Member States outside the euro area. This tension was, to a certain extent, resolved by giving the authorities of non-euro area Member States the option to participate in the SSM. By giving non-euro area Member States full membership and voting rights in the Supervisory Board – the body responsible for the preparation of decisions on supervisory matters – they are placed on an equal footing with euro-area Member States. The role of the ECB Governing Council in the SSM is reduced to the possibility of accepting or rejecting the decisions of the Supervisory

¹⁴ Whereas the ECB's direct supervisory responsibility focuses on the largest and many of the medium-sized banks, the national supervisors will remain responsible for supervision of the smaller banks. However, the ECB will be 'exclusively competent' regarding the supervision of all banks, setting the overall policy framework, guarding supervisory quality and consistency, and taking over supervision from national supervisors if it deems necessary.

¹⁵ The resolution authority should be able to settle a bank failure in an orderly fashion and seek to find solutions in which shareholders and, where necessary, creditors are the first to sustain the losses. Temporary funding may be provided from the resolution fund, which will be financed *ex ante* by European banks. A resolution fund at the European level will limit the financial risks for European governments as, in principle, banks are liquidated without national public funding. European governments will jointly provide a safety net only as a last resort, for example, by means of the European Stability Mechanism (ESM). The ESM provides financial assistance to euro area countries experiencing or threatened by financing difficulties.

Board (Constâncio 2013). Another issue in this context relates to the distribution of responsibilities between the ECB and EU28 institutions such as the European Banking Authority and the European Systemic Risk Board (Ferran and Babis 2013: 23-29). For instance, as both the EBA and the ECB are developing supervisory manuals, '[t]he possibility of overlaps and/or conflicts between the two sets of supervisory rules cannot be excluded' (ibid: 23). How these possible tensions play out in the future and what consequences they have remains to be seen, but they are evidently of crucial importance for the future of financial supervision.

A third challenge, with important implications for national financial supervisors, is whether the EU will in the future move to a 'single supervisory authority' rather than a 'single supervisory mechanism' (Ferran and Babis 2013: 9). The degree of centralization within the Single Supervisory Mechanism will of course have implications for national supervisors. The main benefit of the centralization of prudential supervision is that it reduces existing shortcomings in EU supervisory arrangements (for instance, the dependence of 'host supervisors' on the diligent work of the 'home supervisors'). A key question will be what future role is envisaged for national financial supervisors given the increased trend of centralization of supervisory powers, especially when it concerns systemic banks. This is particularly relevant for the Dutch financial supervisory framework, as the Dutch banking system is highly concentrated and dominated by a few systemic financial firms.

3.4 Conclusion

In this section we have discussed the challenges relating to the future position of financial supervision in the European and national regulatory architecture. Important tensions relate to the degree to which national supervisors can exercise supervisory discretion, given existing and future (supervisory) regulations at both the national and international level. In a dynamic sector, supervisors will need to be adaptive, being able to respond quickly to newly emerging threats to the stability and integrity of the financial system. Hence, it calls for an adaptive and dynamic supervisory architecture. Moreover, supervisors should be active in contributing to the regulatory process, as they are in a good position to assess whether existing rules accomplish the desired results or whether these rules in fact have counterproductive effects. This adaptive and proactive role for the supervisor will require a sufficient degree of independence, both from political interference and industry interests. Independence is not only guaranteed by formal institutional arrangements, but also requires an independent attitude and sufficient capabilities on the side of the supervisor to in fact be able to exercise unbiased supervision.

Finally, it is important that the current trend towards further harmonization of financial regulation and the centralization of supervisory powers will be balanced: on the one hand, it should not result in a lack of control during the transition process,

while at the same time it should leave sufficient room for flexibility. The former is a real risk, because the transition from national to international supervision will certainly not be an easy one, and there is little experience with such a fundamental process. Another key question is whether centralization and harmonization will result in an adaptive EU supervisory architecture without becoming overly rigid.

4 A shift in focus of financial supervision

Traditionally, prudential supervision has mainly focused on assessing whether individual financial institutions meet the statutory requirements in terms of solvency, liquidity and operations. The crisis showed that it takes more to realize the goal of protecting the stability of the financial system and the soundness of institutions. One crucial lesson was that individual institutions' compliance with rules does not guarantee financial system stability (cf. Borio 2011a). Many observers argued for the need for a wider look at the financial system, calling for a macro-prudential or system approach (see section 4.1). As pointed out by Sijbrand and Rijsbergen (2013), another lesson learned was that financial supervision should pay more attention to financial firms' business models, conduct and culture (see section 4.2).

4.1 Macro-prudential supervision

One of the most significant flaws in the regulatory and supervisory architecture in the run up to the crisis was the failure to recognize that focusing on the stability of individual financial institutions is not sufficient to ensure the stability of the whole (FSA 2009; Borio 2011a). A new consensus emerged that alongside monetary policy and micro-prudential supervision, macro-prudential regulation and supervision is also needed in order to maintain financial stability (Galati and Moessner 2013; Borio 2011a, 2011b; Baker 2013).

In this section we discuss several future challenges for implementing macro-prudential supervision. First, we argue that there may be tensions between micro- and macro-prudential supervision, which calls for an adequate distribution of responsibilities between the different actors responsible for these domains. Second, we discuss the international dimension of macro-prudential supervision, arguing that a pan-European approach is crucial but that sufficient national responsibilities are both desirable as well as likely. Third, we discuss challenges related to the fact that macro-prudential analysis and supervision are still in their infancy. This calls for an experimental approach, in which instruments are not a priori excluded and in which the supervisor takes a proactive stance. Finally, the fact that systemic

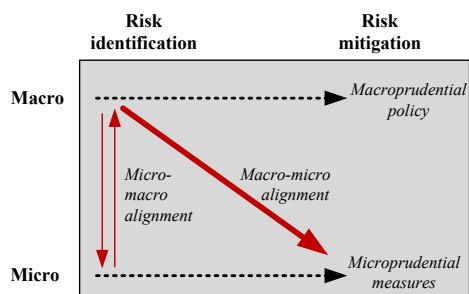
risks often emerge in the interaction between regulated and unregulated institutions warrants the call for an increased scope of prudential supervision.

4.1.1 *Micro- and macro-prudential supervision*

While micro-prudential supervision focuses primarily on individual institutions, macro-prudential supervision targets developments that could threaten the stability of the entire financial system. A key difference is that macro-prudential supervisors take account of the interaction between financial institutions and their environment – i.e. other institutions, financial markets, infrastructure and the real economy (the structural dimension) – and at the collective behaviour of firms and second-round effects (the cyclical dimension), while micro-prudential supervisors take these risks as given, since they assume them to be independent of the behaviour of an individual firm (Borio 2011a; De Haan et al. 2012; Houben 2013).

To be effective, macro-prudential analysis needs to feed into supervision at the micro-level. By incorporating macro risks, micro-prudential supervision contributes to the stability of the system as a whole. Conversely, macro-prudential analysis needs to assess information from micro-prudential supervision in order to capture risks in systemic institutions, common exposures and nascent risks stemming from new financial products (Houben 2013). Figure 2 displays the interlinkages between macro- and micro-prudential supervision. Apart from the difference between a macro versus a micro perspective, a distinction can be made between risk identification and risk mitigation. The top left-hand panel thus covers macro-prudential analysis. The top horizontal arrow reflects the conversion of this analysis into macro-prudential policy. This relates to instruments aimed at mitigating system-wide imbalances, rather than addressing the specifics of an individual institution at a given point in time. The bottom left panel concerns micro-prudential risk identification, which is the bedrock of traditional supervisory activities. This comprises the customary risk factors (such as credit, market, operational, interest rate, country, strategic and liquidity risks) and disregards second order effects. These risks are translated into micro-prudential supervisory measures.

Figure 2. Alignment of micro- and macro-prudential supervision



Source: Houben (2013)

The alignment of macro- and micro-prudential supervision occurs between these two levels, with two-way traffic. This creates synergy. On the one hand, micro-prudential information enriches macro-prudential analysis, for instance, by identifying common exposures, concentration risk and network resilience. On the other hand, macro-prudential input is essential for an adequate assessment of risks to individual financial entities. Indeed, this is arguably where supervision can be most readily strengthened and where most lessons can be drawn from the financial crisis.

Even though both types of supervision can be mutually supportive, the different perspectives of micro- and macro-prudential supervision may also prescribe opposite measures (Schoenmaker 2012). For example, in times of system-wide liquidity strains, a macro-prudential authority may stimulate institutions to lend out available funds, while a micro-prudential supervisor may request institutions to limit their risks by hoarding liquidity. Similarly, in a cyclical downturn the macro-prudential supervisor may advocate a release of capital to foster recovery, while the micro-prudential supervisor will tend to prescribe higher capital to offset increasing risks. This implies that a crucial future challenge is what considerations will prevail in times of stress. The complex and dynamic character of the financial sector will make it very difficult for supervisors to assess how macro-prudential measures, if they are deemed more appropriate, will affect individual institutions and how this, in turn, will affect financial stability.

It also raises the question of how macro-tasks are allocated. The most common structure is that these responsibilities are primarily assigned to the central bank. Alternatively, the responsibility for macro-prudential policy may be vested in a committee representing the various authorities involved. There are a number of arguments in favour of assigning a key role to the central bank: it generally enjoys a high degree of independence, while also having the required monetary and macro-economic expertise and being the ultimate source of emergency funding in the event of financial instability (Ingves et al. 2011).¹⁶ The central bank is also generally perceived as being responsible for financial stability, which applies even more so in the case of integrated central bank supervisors. There are also considerations that favour a committee structure. Such a structure can promote the exchange of information and policy coordination among the various bodies that influence financial stability. In this way a committee structure can help achieve cooperative policy solutions, also with regard to the use of policy instruments not primarily focused on financial stability.

¹⁶ The flip-side of this argument is that putting macro-prudential supervision under one roof with the central bank could undermine the independence of the central bank.

The Netherlands opted for a mix of both models. DNB is primarily responsible for financial stability, which involves both a micro- and macro-prudential mandate, while the so-called Financial Stability Committee has the task to identify financial stability risks and to come up with recommendations to mitigate these risks. This Committee was established in November 2012 and consists of representatives of DNB, AFM and the Ministry of Finance. It meets twice a year. A crucial issue is how DNB will integrate macro-prudential considerations, flowing from analyses of DNB and the Financial Stability Committee, in micro-prudential supervision.¹⁷

4.1.2 *The international dimension*

The issue of distribution of responsibilities not only applies at the national level between micro- and macro-prudential supervisors, but also at the national versus international level. Macro-prudential supervision is desirable at the international and European level, as the growing international connectedness between financial markets warrants an overarching perspective (cf. De Larosière 2009). Since 2011, the European Systemic Risk Board (ESRB) has been responsible within the European Union (EU) for macro-prudential supervision of the EU financial system. The ESRB does not have instruments it can deploy, but can only issue warnings and make recommendations. Although these recommendations are not binding, the authorities addressed are obliged to respond under the principle of ‘comply or explain’ (i.e. they must follow the recommendation, or explain why they are not doing so). In addition, by making its warnings and recommendations public, the ESRB can exert more pressure on authorities to respond to risks identified. In this way, its policy recommendations can definitely have an impact. Moreover, in the context of the European Banking Union, the ECB will likely have a macro-prudential mandate. This will probably allow the ECB to challenge national macro-prudential measures, and to apply directly to institutions more stringent measures than those applied by national authorities (Ferran and Babis 2013: 28).

It is nevertheless likely that primary responsibility for macro-prudential policy remains with the EU Member States, and that the effectiveness of European macro-prudential policy stands or falls with the way in which macro-prudential policy is structured at the national level. There are also good reasons to allow for Member States’ discretion in the application of macro-prudential tools, as the pre-crisis period showed that individual countries had diverse experiences with the development of system wide imbalances, with excessive credit and property booms in Spain and Ireland but, for instance, none in Germany (Turner 2013).

¹⁷ In the UK, for example, a debate has ensued how to ensure that macro-prudential considerations are effectively applied by micro-prudential supervisors (cf. HM Treasury 2012). In the UK case, the Financial Policy Committee (an independent department at the Bank of England) may issue directions to the supervisors on the measures to be taken (such as additional capital requirements for real estate assets). The supervisors will have to act on a ‘comply or explain’ basis and have to report back on the steps taken.

4.1.3 *Limited experience with macro-prudential supervision*

Experience with the analysis of system risk and the deployment of macro-prudential policy instruments of the individual European countries are still very much in their infancy.

First, macro-prudential analysis requires a deep understanding of how system-wide risks emerge and how they will likely materialise. The crisis showed that the financial system can be highly fragile even when commonly used indicators suggest that the system is stable (FSA 2009). There may also be a significant lag between the points in time when risks are taken and when their consequences materialise, making it very difficult for the prudential supervisor to prove that immediate action is necessary (Borio 2011a). Due to the nature of financial markets, financial supervisors are confronted with fundamental (Knightian) uncertainties that cannot be quantified. A key lesson is not to expect too much from highly complicated and ‘sophisticated’ risk assessment models, as sometimes simplicity is to be preferred over complexity (Haldane 2012): ‘it is better to be approximately right than precisely wrong’ (Borio 2011a: 10). This requires the supervisor to take the ‘precautionary principle’ seriously, with a proactive stance in which it would explicitly err on the side of caution (Houben 2013). It also implies that operational independence of the supervisor is crucial to insulate the supervisor from lobbying or political pressures on the supervisor to exercise regulatory forbearance.

Second, macro-prudential policy tools are still rudimentary, in contrast to micro-prudential instruments which are well developed.¹⁸ Indeed, notwithstanding the growing consensus on the need for active macro-prudential policies, practical experience with their application in developed countries is limited. The instruments of macro-prudential policy focus primarily on financial stability and act directly on financial relationships within economic sectors (such as Loan-to-Value (LTV) limits for household mortgages) – at financial institutions (as in the case of cyclical capital requirements for banks) or in financial markets (as, for example, with margin requirements for repo transactions) – or indirectly influence the behaviour of parties in the financial markets (in, for example, communications about risks).¹⁹ Moreover, a recent IMF survey found that the fifteen European supervisory authorities questioned had varying preferences regarding macro-prudential instruments. Their

¹⁸ The objective of macro-prudential policy is to protect financial stability, which can be defined as the ability of the financial sector to efficiently allocate financial resources to expenditure, to manage risks and to absorb external shocks, while not being a source of disruption itself. Financial stability is largely determined outside the domain of macro-prudential policymakers and by exogenous shocks and other policy fields.

¹⁹ See Galati and Moessner (2013) for a discussion of instruments and Lim et al. (2011) for an analysis of country experiences. Using cross-country regression analysis on data from a group of 49 countries, these authors conclude that the following instruments may help dampen procyclicality: caps on the loan-to-value ratio, caps on the debt-to-income ratio, ceilings on credit or credit growth, reserve requirements, countercyclical capital requirements and time-varying/dynamic provisioning.

answers to questions about the instruments they would wish to include in their arsenals showed that LTV limits, counter-cyclical capital requirements, margin requirements, restrictions on profit distributions and capital surcharges for system-relevant banks enjoyed greatest popularity (De Haan et al. 2012). The supervisor needs an appropriate toolkit with which it can experiment and get acquainted with. This will thus also require that the supervisor tries to develop an appropriate understanding of the effects of different policy instruments and learns from other supervisors' experiences.

4.1.4 *The scope of macro-prudential supervision*

Finally, a significant future tension relates to the scope of macro-prudential policy. The scope should be such that it covers all potential sources of financial instability. This means that macro-prudential policy must also be capable of extending to developments at institutions or in markets that are not subject to micro-prudential or conduct supervision (e.g. institutions active in the shadow banking system). One lesson learned from the crisis is that it is precisely in the interaction between regulated financial institutions and non-regulated or less well-regulated financial institutions and markets that systemic risks can arise (De Haan et al. 2012). In the run up to the crisis, many financial activities were displaced to highly leveraged institutions that were largely unregulated (the so-called shadow banking system; cf. FSA 2009: 20). Systemic risks could thus emerge without the supervisor having a good idea of the nature of these risks, let alone do something about them. The crisis showed that regulated and unregulated institutions were in fact closely connected, as, for example, many financial institutions took the assets of the off-balance sheet vehicles back on their balance sheet when these vehicles came into trouble.

This implies that future steps to extend the scope of supervision – so that it also includes current unregulated institutions – should be considered. At the minimum, it implies that regulated institutions should provide the supervisor with adequate information as to their exposure to unregulated financial institutions, and that unregulated institutions should provide the supervisor with sufficient information as to their financial position and their relation to other financial firms.

4.2 **The use of soft indicators in supervision**

Another major lesson learned from the financial crisis is that supervisors should be asking questions in the area of business models, corporate strategies, conduct and culture (Hilbers 2011). The crisis showed that failures of financial institutions are often related to fundamental problems in these areas. The implication is that supervision must probe to a deeper level. It must track down and tackle the possible sources of future problems before they translate into deteriorating solvency and liquidity ratios. This is necessary given the increased speed at which developments in the financial sector arise and can escalate into a crisis. By giving more attention

to ‘soft indicators’, supervision becomes more forward-looking (DNB 2010b). In this section we discuss two categories of ‘soft indicators’– (1) business models and strategies; and (2) conduct and culture – and identify several challenges faced by supervisors assessing these indicators.

4.2.1 *The assessment of business models and strategies*

An important category of soft indicators consists of business models and strategies (cf. Cavelaars and Passenier 2012). Relevant questions in this area are: how does the institution create competitive advantages? How does it retain its customers’ trust? How efficient is it? To what extent is the institution’s strategy endorsed by its stakeholders and capable of withstanding external dynamics?

Analysing business models helps to understand risks in financial institutions (cf. Boot and Thakor 2000; Stiroh 2004; Arnold and Van Ewijk 2011). Financial institutions make money by accepting risk. Therefore, supervisors need to understand the strategic choices underlying financial institutions’ balance sheet. Banks may, for instance, have a long balance sheet (combining low-risk assets with high leverage in order to enhance profitability), an ‘originate to distribute’ model (originating loans and selling them) or use carry trade (involving a systematic exposure to currency/country risk, by attracting deposits in a low-interest country and lending in a high-interest country) to generate profits.

It is equally important for supervisors to understand why specific activities are profitable, and especially so if they are highly profitable. The reverse is also true: activities that are structurally loss-making may indicate that management finds it difficult, for whatever reason, to downsize these particular activities. In any case, activities that are an outlier in terms of profitability often deserve further attention. Sources of profits cannot always be attributed to a single line of business, as the calculated profitability of individual activities is usually sensitive to the allocation of overhead costs. Therefore, supervisors may want to focus on a breakdown of revenues rather than profits, or look at personal salaries to identify which departments are making money.

Supervisors also have to assess the sustainability of profits. Business models may be unsustainable for a number of reasons. For instance, business models using large-scale cross-subsidies between products are likely to be unsustainable, as competitors will enter the market and start to offer the products that are priced above marginal costs. Business models based on abuse of consumer misperceptions or lack of knowledge are also unsustainable. Examples of such behaviour are miss-selling and excessive lending. Over time, the public gets informed and by that time the bank involved may be subject to severe reputational damage.

The financial crisis laid bare certain common vulnerabilities in the business models of banks that were particularly hard hit by the crisis (cf. Altunbas et al. 2011; Fitch 2011; Chow and Surti 2011; Liikanen 2012). Financial supervisors can draw lessons from the crisis as to what indicators may warn for future trouble, while it should be noted that past experiences are not always indicative in this respect. A key lesson was that banks with a great reliance on short-term market funding and aggressive credit growth had a very high-risk exposure (Altunbas et al. 2011; Fitch 2011). Trading risks were also identified as an indicator of the risk of financial distress (Chow and Surti 2011; Liikanen 2012; cf. Boot and Ratnovski 2012).

DNB regularly evaluates the strategic choices made by financial institutions, starting when they apply for a license and continuing afterwards. This involves talks to management, analytical ‘deep-dives’ and panel sessions between supervisors and experts. Such evaluations may imply that financial institutions are required to make changes, sometimes far-reaching. The supervisor does not overtake management’s role, but challenges management and may demand an institution to act upon major risks at an early stage. Of course, here lies a certain tension, as it requires the supervisor to develop certain yardsticks in order to assess when a business model is viable and when it is not. Another question is whether an increased focus on business models implies that when the supervisor does not challenge a bank’s business model it implicitly means that the supervisor deems it safe.

4.2.2 *The conduct and culture at financial firms*

The conduct and culture at financial institutions is a second set of soft indicators. The crisis has reaffirmed that soundness not only has a solvency component but also an integrity component and that integrity is a pre-condition for regaining public trust in the financial sector. At a firm having a culture of integrity, management as well as employees can explain their actions and are held accountable. They not only respect the letter but also the spirit of the law.

An institution’s financial figures may suggest that its continuity is not at stake while at the same time its conduct and culture may pose risks to its long-term viability. DNB pays explicit attention to such matters as leadership and leadership styles, convictions and values of staff members, openness of discussions and unconscious group patterns of behaviour. For example, DNB carried out a thematic study focusing on balanced decision-making.²⁰ The examination has helped to convince the institutions concerned of the need to pay attention to risks in the area of culture and conduct. This has led some institutions to take measures on their own initiative. DNB has also informed the entire financial sector about the main findings of the study, enabling the sector to become further acquainted with the nature of the

²⁰ See, for instance, Brown and Sarma (2007) and De Dreu et al. (2008) on decision-making in firms.

supervision of conduct and culture, and helping to raise awareness about the risks involved (cf. Nuijts and de Haan 2013).

By reacting alertly to risks related to conduct and culture, intervention is possible before the risks materialize. Importantly, supervisors can try to make an institution aware of potential risks related to conduct and culture and how they may contribute to the origination and continuation of prudential and integrity risks. In this way, supervision of conduct and culture contributes in a preventive manner to the realization of supervisory objectives: safeguarding the soundness and integrity of both individual institutions and the financial system as a whole.

4.2.3 Using soft indicators: challenges

The use of soft indicators in supervision involves several challenges. First, the analysis of ‘soft’ risk indicators requires a different set of knowledge and skills compared to ‘traditional’ supervision. There has to be adequate expertise at the supervisor to understand and judge the sustainability of firms’ strategies, especially at highly complex and internationally active firms. Moreover, judging the business culture requires different expertise than judging the solvency ratio. For example, DNB hired organizational psychologists and change experts to complement the existing staff to cope with this challenge. These new specialists work alongside auditors, economists and legal experts. Second, and this applies mainly to the assessment of business models, the increased speed of financial market developments implies that supervisors will have to be alert and responsive to changing market circumstances affecting business models, or changing business models affecting market circumstances. Third, one needs to overcome hesitation from the supervised financial institutions (and sometimes within the supervisory authority itself) about the importance of soft indicators. Finally, questions related to business models, strategies, conduct and culture are typically more difficult to address. They require a deep understanding of the business and the courage to question the functioning of an institution’s board. Identifying and solving problems of this nature demands more alertness, assertiveness and persistence on the part of the supervisor.

4.3 Conclusion

In this section we have discussed issues related to an expansion of the scope of financial supervision. The crisis demonstrated that supervision has to go beyond checking firms’ compliance with existing rules, but also has to look at the stability of the system as a whole and at ‘softer’, more forward looking indicators of potential future threats to financial stability. A key challenge is that supervisors currently have only limited experiences with these new focus points. There is no real consensus as to what instruments will be most productive in contributing to system stability, and what potential negative side effects these instruments may have. This warrants an approach in which instruments are not excluded a priori but are tested in practice.

Supervisors will have to learn from each other's experiences. Moreover, the focus on 'soft indicators' is relatively new, and supervisors have to learn what features of firms' business model and conduct and culture are key indicators of future trouble. It will require a more intrusive stance on the side of the supervisor, becoming more involved in the actual conduct of financial firms. How this will play out in the future remains a key question.

5 Accountability and expectations of financial supervision

In the previous two sections we have argued for a more proactive supervisory role. To fulfil its mandate to contribute to the stability and integrity of the financial system, the supervisor needs an adequate degree of supervisory discretion and needs to broaden its scope to become more system- oriented and more forward looking. This, however, also necessitates an adequate degree of accountability to the political domain and the general public. Supervisors need to put more effort in being transparent on their conduct, the effects of supervision, and the limits of supervision, in order to maintain public and political support. However, this comes with several challenges and tensions. In this section we address several of these difficulties. In section 5.1 we address issues related to increased transparency on the supervisors' conduct and the effects of supervision. In section 5.2 we discuss the difficulties for supervisors to live up to the public's high expectations of the possibilities of financial supervision, arguing that supervisors should become more active in the public debate on the possibilities and limits of financial supervision.

5.1 **Accountability and learning: transparency and effect measurement**

The global financial crisis has raised questions concerning the accountability of financial supervisors. It became clear that information regarding the supervisory activities and the impact of these activities was inadequate to assess the degree to which supervisors were fulfilling their mandate adequately. Calls were made to give the public and the legislative and executive branches of government more insight as to whether supervisors were performing the right tasks and whether they were performing their tasks well. In this section we discuss the benefits and dangers for supervisors to be more transparent about their work. We first discuss some general aspects of being more transparent, arguing that transparency may help the supervisor fulfil its mandate adequately, but may also undermine financial stability (section 5.1.1). We then discuss the potential for giving more insights in the performance of the supervisor, arguing that there can be a tension between measuring effects for accountability purposes and for analysis purposes (section 5.1.2).

5.1.1 *Transparency*

The debate on supervisory transparency has been complicated by the fact that it is a qualitative concept for which few measures exist.²¹ Transparency refers to an environment in which the objectives of policy; its legal, institutional, and economic framework; policy decisions and their rationale; data and information related to policies; and the terms of agencies' accountability, are provided to the public in a comprehensible, accessible, and timely manner (IMF 2000). Transparency is thus a crucial component for ensuring accountability. Although other arrangements concerning accountability naturally exist, information concerning the conduct of supervisors is essential for the assessment of their performance.

Various arguments can be put forward why transparency of banking supervisors may be beneficial (Liedorp et al. 2013). First, transparency may enhance the legitimacy of the supervisor. As a supervisory authority is an independent organization in which unelected officials take important decisions, ensuring legitimacy is vital. Especially in times of financial turmoil, the legitimacy of the authorities responsible for banking supervision is crucial. Transparency may thus also safeguard an adequate degree of independence for the supervisor. By making actions and decisions transparent, chances for undue interference based on an inaccurate perception of the supervisor's conduct are reduced. Second, transparency may increase the predictability of the supervisor, which, in turn, may stimulate banks to adhere to existing regulation. Indeed, Arnone et al. (2007) report a positive correlation between the transparency of the supervisor (measured as the extent to which countries implement the IMF Transparency Code on Banking Supervision) and the effectiveness of banking supervision. As transparency may help shape expectations, it can improve the robustness of linkages across institutions and markets. As pointed out by Sundararajan et al. (2003), uncertainty about the policy framework and its intent could itself contribute to abrupt and destabilizing market behaviour.

Indeed, supervisors are increasingly endorsing transparency. As such, it is mentioned in the Basel Core Principles for Effective Banking Supervision as a key component:

'[a]n effective system of banking supervision will have clear responsibilities and objectives for each agency involved in the supervision of banks. Each such authority should possess operational independence, transparent processes, sound governance and adequate resources, and be accountable for the discharge of its duties' (Basel Committee on Banking Supervision 2006: 2).

²¹ Recently, Liedorp et al. (2013) have proposed a way to measure transparency of banking supervisors, following the methodology proposed by Eijffinger and Geraats (2006) for measuring transparency of monetary policy makers.

However, there are also important arguments in favour of secrecy about banking supervision. First, the revelation of information about a financial institution does not function as a neutral mirror of the firm's financial position but may in fact trigger events that influence that position. This is the 'reflexive nature' of financial markets, meaning that market participants' perspectives on financial markets may in fact drive financial market activity. For instance, exposing liquidity problems at particular firms may freeze the inter-bank market or trigger bank runs, in effect worsening the firms' liquidity problems. A good example is the money market turmoil starting in the summer of 2007. Second, lack of transparency is needed for 'constructive ambiguity', which is one instrument of limiting moral hazard by the lender of last resort. By introducing an element of uncertainty into the provision of support, pressure can be maintained on banks to act prudently, since the latter will not know individually whether they will be rescued or not. Finally, financial supervisors face more restrictions in being transparent than monetary policy makers. For instance, they cannot reveal much information on individual financial institutions. Most supervisors face legal restrictions in this regard.

These observations lead to two general implications for the future transparency of supervisors. First, supervisors will have to assess what information they can be transparent about and what information they cannot. It seems obvious that there are certain limits as to the transparency on information about the financial position of individual firms, given legal restrictions and the 'reflexive' nature of financial markets. Nevertheless, DNB has started a project to assess how the public can be better informed about the soundness of financial institutions (Knot 2013). In addition, resistance against transparency on the conduct of supervisors should be reduced. Increased disclosure regarding the general strategy and policy objectives of supervisors can contribute to ensuring an adequate degree of accountability. In this case, the supervisor should of course remain alert as to the (unintended) effects this increased transparency has on financial firms and other market participants (Gerritse 2012). Second, it is important to distinguish between different audiences. Accountability to the legislative branch of government may involve closed sessions in which the supervisor discloses relevant information about its conduct on a confidential basis, in so far as legal restrictions are not breached. This will contribute to democratic accountability, while an adequate degree of secrecy is maintained.

5.1.2 Measuring the effects of supervision in the financial sector

Strongly related to the discussion above, the global financial crisis has raised questions concerning the performance of financial supervisors. As their work is being scrutinised, financial supervisors need to become better at demonstrating that their efforts and actions lead to results. Hence, measuring the effects of supervision must become an integral part of the supervisory process and is becoming increasingly important for financial supervisors such as DNB. In this section we discuss some

difficulties and opportunities for measuring effects, and indicate a possible tension between effect measurement for analysis purposes and for accountability purposes.

In financial supervisory practice measuring effectiveness is not straightforward (Hilbers et al. 2013).²² This is mainly due to the difficulty of proving causality. A change in a financial institution's risk profile, for instance, might have little or nothing to do with a supervisory intervention, as it could simply be the result of a change in economic conditions or some other exogenous factor. Moreover, financial supervisors typically face the legal question of whether they are allowed to report on their interventions, as discussed above. As a result of these challenges, performance measurement in financial supervision is still at an early stage.

At the same time, financial supervisors have increasingly realized that while performance measurement is challenging, it is certainly not impossible. For one, it is important to define an objective for performance measurement and consequently select appropriate and useful indicators for measuring the effect. The choice of indicators is strongly related to the objective, as the objective will determine whether effects are to be measured at a strategic, tactical or operational level. At the strategic level, supervisors typically strive to present the strategic outcome of their actions to the government or general public. This, for instance, may refer to the extent to which supervisory efforts contributed to the overarching goal of financial stability. Performance measurement at the tactical and operational level, on the other hand, is more focused on improving the quality and efficiency of the supervisory processes. If effects are to be measured strategically, the indicators chosen will need to show effects at a more aggregated level, while a lower level of abstraction will apply if effects are to be measured at a tactical or operational level.

In general, more and more financial supervisors are developing objective indicators for measuring supervisory effectiveness. DNB, for example, has worked on developing a coherent set of key performance indicators. In practice, the observed key performance indicators can be either classified as 'hard' or 'soft'. Hard indicators are based on quantitative data, for instance indicators based on market data that give an assessment of the risk profile of a financial institution. Another type of 'hard' performance indicator is related to the number of bankruptcies and the amount of losses accompanied by these defaults. The Australian prudential supervisor APRA, for instance, uses the Performance Entity Ratio (PER) which reflects the number of supervised institutions that meet their commitments to beneficiaries in a given year, divided by the total number of supervised institutions. The advantage of

²² Academic research on the effect of financial regulation and supervision on bank soundness mainly consists of cross-country studies. The results of these studies are mixed. See Klomp and de Haan (2012) for a discussion and some new evidence.

'hard' performance indicators is that many of these indicators are relatively easy to interpret and monitor through time.

Soft indicators, on the other hand, are typically based on qualitative information. They have the advantage of being able to measure qualitative aspects of supervision, but tend to be less objective than hard indicators. An example of a soft indicator is the migration of financial institutions within pre-defined supervisory regimes or risk scores. This type of migration parameter is not only part of DNB's key performance indicators, but is also reported by the Canadian OSFI and the Australian APRA. Public confidence in financial institutions and the financial supervisor is another example of a soft performance indicator. Furthermore, performance indicators can also be based on the outcome of external or peer reviews that measure the level of compliance with (inter)national supervisory standards (such as the IMF FSAP analysis). An international comparison of outcomes between peers (or an analysis of developments in time) can be an effective way of measuring the performance of financial supervision.

Apart from difficulties of assessing the performance of supervisors, a key question is for what purposes these findings are used. Measuring effects can be used both to hold supervisors to account, as well as to learn from experience. These objectives are not necessarily compatible (cf. Welp 2012). Near miss analyses, for instance, may greatly contribute to future improvements in supervisory practices, but may be avoided in case such information is primarily used for 'attributing blame'. There is also the issue of transparency on performance measurement. If the supervisor discloses that its conduct contributed to the avoidance of a firm's bankruptcy, this information might also contribute to future troubles as market participants suspect that other financial institutions might also be in trouble (i.e. the 'market reflexivity' argument discussed above).

5.2 Expectations and demands of supervision

Supervisors operate in an arena in which they have to strike a balance between different demands of multiple actors. In fulfilling their mandate, prudential supervisors have to pay attention to expectations of the legislative and executive branch, the supervised institutions, depositors, and the 'general public'. These demands may shift over time and may be conflicting. The legislative branch of government may, for example, expect the supervisor to guarantee firms' compliance with existing policy in order to prevent incidents from happening, but may also expect the supervisor not to put too big of an administrative burden on financial firms. The executive branch may focus on the efficiency of supervision, paying attention to the possibilities of achieving maximum results with a minimum of costs. The supervised firms expect the supervisor to put trust in their compliance with rules and norms and therefore not be too intrusive, while at the same time expecting the supervisor to guarantee compliance with rules and norms of other

financial firms. Depositors expect the supervisor to guarantee that their money is safe, in effect expecting the supervisor to prevent bankruptcies at all times. Finally, the general public expect the supervisor to be able to guarantee financial stability and prevent financial turmoil from occurring.

Supervisors are expected to live up to demands of the political domain, which itself has to live up to demands of the electorate. However, these demands and expectations may at some point be too high, in the sense that the public may to a certain extent expect the supervisor to be able to prevent all problems at all times. In this section we address the challenges faced by supervisors in coping with these demands. We argue that living up to certain expectations would in some instances undermine the supervisors' ability to adequately fulfil their mandate. We also argue that the supervisor can play a key role in informing a more general public debate about the limits of supervision and the possibilities for a financial market structure in which supervision can be more effectively exercised.

As European financial markets were relatively calm during the late 1990s and the beginning of the new millennium, and no major financial crises occurred within Europe, many commentators lauded a new era of financial stability, high growth and low and stable inflation (the so-called 'Great Moderation'). As banks were able to endure the implosion of the dot-com bubble (2000-2001) relatively unscathed, many believed that financial firms' risk management strategies had become very sophisticated and that future threats were minimal. Simultaneously, financial sectors were booming, and national policy in many countries became more market friendly. For instance, in the UK, the dominant perspective became that 'unnecessarily restrictive and intrusive regulation represented a key threat to the vitality, efficiency and productivity of the financial services sector' (Adams 2013). In effect, governments all across Europe and the US expected supervisors to be increasingly lenient and that supervision need not be too intrusive. Meanwhile, public attention for issues related to the regulation and supervision of financial market was generally low.

As the financial crisis put financial stability in the centre of attention and has since been a highly salient political topic, politics and the public now demand a more proactive and intrusive stance of the financial supervisor. Supervisors already have responded to these demands by formulating and implementing new, more intrusive supervisory strategies (cf. DNB 2010b). However, it should be emphasised that for the supervisor, living up to the high expectations of the public will in many cases be difficult.

Based on a survey in the Netherlands, Van der Crujssen et al. (2013) show that 63% of the respondents (totally) agreed with the view that supervisors have to ensure

that banks never go bankrupt.²³ A problem with this expectation is first that given the dynamic nature of financial markets, preventing financial failure at all times is impossible. In fact, it could be highly counterproductive if the supervisor would make ‘preventing defaults at all times’ a core part of its supervisory strategy, as it would introduce moral hazard problems, both at the level of firms and financial services customers. If a bank knows that the supervisor will at all times ensure that it will not go bankrupt, it may in fact become less prudent in its business conduct. Depositors will also pay marginal attention as to what financial firms they do business with, expecting the supervisor to prevent failure at all times. This could undermine market discipline in the financial sector.

Van der Crujisen et al. (2013) report that a majority of the respondents think that supervisors should inform the public when a bank has problems. However, as was already outlined in the previous section, this is often too dangerous because of the reflexivity of financial markets. Such a message could undermine confidence in the financial institution or even the financial system. The supervisor will therefore be cautious in communicating problems at financial firms, as it could work counterproductive. Hence, also on this front the supervisor will fail to fully live up to public expectations.

These findings suggest that supervisory authorities should more actively communicate the limits of supervision to the larger public. The timing of this is always difficult. Risks may build up in the financial sector when the economy is on the rise, (over)confidence is gaining the upper hand, and attention for risk mitigation is subdued in favour of potential lucrative opportunities. In such circumstances, the public is less receptive to supervisory warnings, especially when these come with new restrictive powers for the supervisor (Kellerman and Mosch 2013: 14-15).

However, it would not be correct to dismiss the high expectations of the general public as plain ignorance. The fact that public trust in financial institutions and in financial supervisors has diminished significantly in the past few years and that there has been a widespread call for reforms (both in the political and social domain) to make the financial system safer, should be a key message to financial supervisors. Proactive supervisors who contribute to the public interest of financial stability, should not shy away from a general public debate about the structure and nature of financial markets and firms and to what extent this structure facilitates or harms their ability to supervise financial firms effectively.

In fact, supervisors will have to become more active in the public debate about the pros and cons of particular reforms of the financial sector, of course solely to the

²³ The percentage is 86% if denoted as share of the respondents who expressed a view.

extent that this relates to their mandate. For instance, across Europe and the US public debates have ensued on the most desirable future structure of the banking sector (cf. Liikanen 2012). In the Netherlands, the committee Wijffels recently published a report containing several suggestions for reform of the financial sector (Commissie Structuur Nederlandse Banken 2013). Given its expertise and experience with financial supervision, the supervisor is in a good position to outline which reforms of the banking sector are beneficial to a stable financial system, and whether the reforms may improve the possibilities of the supervisor to maintain financial stability.

5.3 Conclusion

In this section we have discussed questions relating to ensuring an adequate degree of the supervisor's accountability to the political domain and the general public. We argue that transparency about the supervisor's conduct and the effects of supervision is paramount, but the supervisor has to strike a delicate balance between openness and secrecy. As financial markets are reflexive – i.e. market participants' perspectives on the functioning of the system can in fact drive financial market activity – the information that the supervisor discloses may potentially have disruptive effects. Moreover, it will in fact be very difficult for the supervisor to demonstrate the precise effects of supervision, as in a dynamic sector financial stability is influenced by many actors and factors. However, a key task for the supervisor lies precisely in finding ways to effectively communicate with different audiences (parliament, the public) about its conduct and results. The supervisor will also have to make clear the limits of supervision. This warrants that the supervisor becomes more active in the public debate about the future structure of the financial sector, indicating whether a reform of the structure may contribute to financial stability and to the ability of the supervisor to effectively fulfil its mandate.

6 Concluding remarks

Financial markets are dynamic, complex and highly adaptive. What does this imply for the limits and possibilities of financial supervision? In this study, this question was addressed by looking at several key future challenges for prudential supervisors.

Important trends in financial markets and financial supervision were identified. In the past decades, the financial system greatly expanded. The sector consolidated and became more concentrated. National markets became more and more interconnected as firms expanded their business globally. And the past decades saw a wave of financial innovations and the emergence of new financial actors. Financial markets thus became more interconnected and complex. Moreover, as firms continuously adapted their business models to new circumstances, such as the macroeconomic environment, innovations in ICT, modified regulation or new business models, financial markets have become highly dynamic. Financial market supervision responded to these new market circumstances, but the financial crisis laid bare some serious shortcomings in the existing regulatory and supervisory framework. It demonstrated that financial supervision is a demanding and challenging task.

We argued that given these characteristics of financial markets, we should have more modest expectations of what supervision can achieve. Financial supervision contributes to the public interest of financial system stability and integrity, but cannot provide guarantees. If financial supervisors are proactive and adaptive and have an adequate degree of independence and discretionary freedom, they can play their role to the best.

We argued in section 3 that this implies that ensuring compliance with existing financial market rules is key but not sufficient to contribute to financial market stability. Supervisors will have to go beyond ensuring compliance and enjoy a sufficient degree of independence to fulfil this task. In a complex and dynamic sector, supervisors will need to be adaptive themselves, being able to respond quickly to newly emerging threats to the stability and integrity of the financial system. They should communicate actively with other supervisory and regulatory authorities to achieve a concerted and quick response, to the extent that open

communication is not actually counterproductive. Moreover, supervisors should be active in contributing to the regulatory process, as they are in a good position to assess whether existing rules and norms achieve the intended results or whether they in fact have counterproductive effects.

In that section we also identified several challenges relating to the governance of financial supervision in the European and national regulatory architecture. Key tensions relate to the extent to which national supervisors can exercise supervisory discretion, given existing and future (supervisory) regulations at both the national and international level. This adaptive and proactive role for the supervisor will require a sufficient degree of independence, both from political interference and industry interests. Supervisors will require an independent attitude and sufficient capabilities to be able to exercise unbiased supervision focused on ensuring financial stability. As became evident during the financial crisis, a sufficient degree of harmonization of rules and centralization of supervisory powers at the EU level is necessary given the current organization of financial markets. It will be important that this process of harmonization and centralization is a balanced one.

In section 4 we argued that supervisors have to broaden their scope, focusing on the stability of the system rather than solely at the stability of individual firms (macroprudential regulation). We pointed out that prudential supervision has to become more forward looking, identifying whether the firms' business models, corporate governance structures, and conduct and culture do not harm the stability and integrity of financial firms. A key challenge is that supervisors at the moment have only limited experiences with these new focus points. Also, there is no consensus yet among supervisors what instruments will be most successful in contributing to financial system stability, and what potential negative side effects these instruments have. This calls for an approach in which supervisors learn from each other's experiences. Furthermore, the focus on 'soft indicators' is relatively new, and supervisors will have to learn what features of firms' business model and conduct and culture are key indicators of future trouble. Experiences of the financial crisis as to what indicators were particularly indicative of future troubles may be helpful in this respect. A focus on soft indicators will require a more intrusive stance of the supervisor, becoming more involved in the actual conduct of financial firms.

Finally, in section 5 we argued that supervisors have to match a sufficient degree of independence with accountability, communicating with different audiences about the possibilities, effects and limits of supervision, in so far as this is not counterproductive to the mandate of the supervisor. Gaining and maintaining political and public support for the agencies work is key, and supervisors sometimes have to venture in new territories to explore the borders of increased transparency.

Supervisors have to strike a delicate balance between transparency and secrecy. As financial markets are reflexive – i.e. market participants’ perspectives on the functioning of the financial system can in fact drive financial market activity – the information that supervisors disclose may potentially have disruptive effects. This is especially dangerous in a situation when financial institutions are in dire positions and market participants’ trust of the system’s stability is low. Another challenge lies in demonstrating the precise effects of supervision, as in a dynamic sector financial stability is influenced by many actors and factors. Nevertheless, a pertinent future task for supervisors lies precisely in finding ways to effectively communicate with different audiences (parliament, the public) about their conduct and the achieved results. Finally, supervisors have to make clear the limits of supervision, as they will not always be able to live up to the public’s expectations. This also necessitates that supervisors become more active in public debates about the future structure of the financial sector. They are in a good position to independently and impartially show the potential pros and cons of different options for financial sector reform, of course solely as this relates to financial stability and to the ability of the supervisor to effectively fulfil its mandate.

References

Adams, J. (2013). Supervising in Good Times and Bad: Public Opinion and Consistency of Supervisory Approach. In: *Financial Supervision in the 21st Century*, A.J. Kellermann, J. de Haan and F. de Vries (eds.), Heidelberg, Springer.

Altunbas, Y., S. Manganelli and D. Marquez-Ibanez (2011). Bank Risk During the Financial Crisis: Do Business Models Matter? ECB Working Paper 1394.

Arnold, I.J.M. and S.E. van Ewijk (2011). Can Pure Play Internet Banking Survive the Credit Crisis? *Journal of Banking and Finance*, 35 (4), 783-793.

Arnone, M., S.M. Darbar and A. Gambini (2007). *Banking Supervision: Quality and Governance*. IMF Working Paper 07/82.

Baker, A. (2013). The New Political Economy of the Macroprudential Ideational Shift. *New Political Economy*, 18 (1), 112-139.

Barth, J.R., G. Caprio and R. Levine (2012). *Guardians of Finance. Making Regulators Work for Us*. Cambridge (MA), MIT Press.

Basel Committee on Banking Supervision (2006). *Core Principles for Effective Banking Supervision*. Bank for International Settlements, Basle.

Beltratti, A. and R.M. Stulz (2012). The Credit Crisis Around the Globe: Why Did Some Banks Perform Better During the Credit Crisis? *Journal of Financial Economics* 105, 1-17.

Black, J. (2011). The Rise (and Fall?) of Principles Based Regulation. In: *Law Reform and Financial Markets*, A. Kern and N. Moloney (eds.), Cheltenham, Edward Elgar Publishing.

Black, J. (2012a). Paradoxes and Failures: New Governance Techniques and the Financial Crisis. *Modern Law Review*, 75 (6), 1037-1063.

- Black, J. (2012b). Restructuring Global and EU Financial Regulation: Character, Capacities and Learning. In: *Financial Regulation and Supervision: A Post-crisis Analysis*, E. Wymeersch, K.J. Hopt and G. Ferrarini (eds.), Oxford, Oxford University Press.
- Boot, A.W.A. and L. Ratnovski (2012). *Banking and Trading*. IMF Working Paper 12/238.
- Boot, A.W.A. and A.V. Thakor (2000). Can Relationship Banking Survive Competition? *The Journal of Finance*, 55 (2), 679-713.
- Borio, C. (2011a). Implementing a Macroprudential Framework: Blending Boldness and Realism. *Capitalism and Society*, 6 (1), article 1.
- Borio, C. (2011b). Rediscovering the Macroeconomic Roots of Financial Stability Policy: Journey, Challenges and a Way Forward. Bank for International Settlements, Basel.
- Brown, R. and N. Sarma (2007). CEO Overconfidence, CEO Dominance and Corporate Acquisitions. *Journal of Economics and Business*, 59 (5), 358-379.
- Cavelaars, P. and J. Passenier (2012). Follow the Money: What Does the Literature on Banking Tell Prudential Supervisors About Bank Business Models. *Journal of Financial Regulation and Compliance*, 20 (4), 402-416.
- Chow, J.T.A. and J. Surti (2011). Making Banks Safer: Can Volcker and Vickers Do It? IMF Working Paper 11/236.
- Čihák, M. (2007). Central Bank Independence and Financial Stability. IMF, mimeo.
- Claessens, S., G. Underhill and X. Zhang (2008). The Political Economy of Global Financial Governance: The Cost of Basle II for Poor Countries. *The World Economy*, 31 (3), 313-344.
- Commissie de Wit [Parliamentary Committee Inquiry Financial System] (2010). *Verloren Krediet*. Den Haag, Sdu Uitgevers.
- Commissie Horizontaal Toezicht Belastingdienst (2012). *Fiscaal Toezicht op Maat*. Rapport van de commissie-Stevens.
- Commissie Structuur Nederlandse Banken (2013). *Naar een Dienstbaar en Stabiel Bankwezen*. Kamerstukken II 2012/2013, 32 013, bijlage bij nr. 33.

Constâncio, V. (2013). Towards the Banking Union. Speech at the 2nd FIN-FSA Conference on EU Regulation and Supervision, Banking and Supervision under Transformation organized by the Financial Supervisory Authority, Helsinki, 12 February 2013.

Council of the European Union (2012). Proposal for a Council Regulation Conferring Specific Tasks on the ECB Concerning Policies Relating to the Prudential Supervision of Credit Institutions. Brussels, EC.

Crujisen, C.A.B. van der, D. Jansen, J. de Haan and R.H.J. Mosch. (2013). Knowledge and Opinions About Banking Supervision: Evidence From a Survey of Dutch Households. *Journal of Financial Stability*, 9, 219-229.

Das, U.S., M. Quintyn and K. Chenard (2004). Does Regulatory Governance Matter for Financial System Stability? An Empirical Analysis. IMF Working Paper 04/89.

De Dreu, C.K.W., B.A. Nijstad and D. van Knippenberg (2008). Motivated Information Processing in Group Judgement and Decision Making. *Personality and Social Psychology Review*, 12 (1), 22-49.

De Grauwe, P. (2008). The Banking Crisis: Causes, Consequences, and Remedies. Centre for European Studies Policy Brief 178.

De Larosière, J. [The High-Level Group on Financial Supervision in the EU] (2009). De Larosière Report. Brussels, EC.

De Nederlandsche Bank (2010a). In het Spoor van de Crisis. Amsterdam, DNB.

De Nederlandsche Bank (2010b). Supervisory Strategy 2010-2014. Amsterdam: DNB.

Dickson, J. (2013). Supervision: Looking Ahead to the Next Decade. In: *Financial Supervision in the 21st Century*, A.J. Kellermann, J. de Haan and F. de Vries (eds.), Heidelberg, Springer.

Eijffinger, S.C.W. and P.M. Geraats (2006). How Transparent Are Central Banks? *European Journal of Political Economy*, 22, 1-21.

Enria, A. (2011). Banking Supervision: Towards an EU Single Rulebook. Speech at the Belgian Financial Forum, Brussels, 5 December 2011.

Ferran, E. and V.S.G. Babis (2013). The European Single Supervisory Mechanism. *Legal Studies Research Paper Series 10/2013*.

- Financial Services Authority (2009). *The Turner Review*. London, FSA.
- Fitch (2011). *Global Trading and Universal Bank Review*. Special report, December.
- Galati, G. and R. Moessner (2013). *Macroprudential Policy – A Literature Review*. *Journal of Economic Surveys*, 27 (5), 846-878.
- Gerritse, R. (2012). *Toezicht in de Schaduw van het Recht*. Speech for annual conference of VIDE. Available at: www.afm.nl/nl/nieuws/2012/juni/speech-rg-vide.aspx.
- Haan, J. de, A. Houben and R. van der Molen (2012). *Governance of Macroprudential Policy*. *Zeitschrift fuer Oeffentliches Recht*, 67 (2), 283-302.
- Haan, J. de and F. Amtenbrink (2012a). *Credit Rating Agencies*. In: *The Architecture of Regulation and Supervision*, S.C.W. Eijffinger and D. Masciandaro (eds.), Cheltenham, Edward Elgar.
- Haan, J. de and F. Amtenbrink (2012b). *Taming the Beast? New European Regulation for Credit Rating Agencies*. *Zeitschrift für Staats- und Europawissenschaften (ZSE)*, 4, 433-458.
- Haldane, A.G. (2012). *The Dog and the Frisbee*. Speech given at the Federal Reserve Bank of Kansas City's 366th economic policy symposium, *The Changing Policy Landscape*, Jackson Hole, Wyoming.
- Hilbers, P.L.C. (2011). *Supervision 2.0*. Inaugural address, Nyenrode Business University.
- Hilbers, P.L.C. and D.R. Rijsbergen (2013). *International Trends in Financial Sector Supervision*. In: *Gorillas, Markets and the Search for Economic Values. Rethinking Lehman Brothers and the Global Financial Crises. A Nyenrode Perspective*, B. Hoogenboom, M. Pheijffer, E. Karasing (eds.), Assen, Van Gorcum.
- Hilbers, P.L.C., D.R. Rijsbergen, K. Raaijmakers and F. de Vries (2013). *Measuring the Effects of Financial Sector Supervision*. DNB Working Paper 388.
- HM Treasury (2012). *The Financial Services Bill: The Financial Policy Committee's Macro-prudential Tools*. London, HM Treasury.
- Houben, A. (2013). *Aligning Macro- and Microprudential Supervision*. In: *Financial Supervision in the 21st Century*, A.J. Kellermann, J. de Haan and F. de Vries (eds.), Heidelberg, Springer.

IMF (2000). Supporting Document to the Code of Good Practices on Transparency in Monetary and Financial Policies. Washington, IMF.

Ingves, S. et al. (2011). Central Bank Governance and Financial Stability. BIS report by a Study Group chaired by S. Ingves, Basle, BIS.

International Monetary Fund (2000). Supporting Document to the Code of Good Practices on Transparency in Monetary and Financial Policies. Washington DC, IMF.

Jansen, J., M. Bijlsma, M. Kruidhof and C. Pattipeilohy (2013). Financieringsproblemen in de Hypotheekmarkt. DNB Occasional Studies 11 (1).

Kellerman, A.J. and R.H. Mosch (2013). Good Supervision and Its Limits in the post-Lehman era. In: Financial Supervision in the 21st Century, A.J. Kellermann, J. de Haan and F. de Vries (eds.), Heidelberg, Springer.

Klomp, J. and J. de Haan (2010). Inflation and Central Bank Independence: A Meta Regression Analysis. *Journal of Economic Surveys*, 24 (4), 593-621.

Klomp, J. and J. de Haan (2012). Banking Risk and Regulation: Does One Size Fit All? *Journal of Banking and Finance*, 36, 3197-3212.

Knot, K. (2013). Machiavelli Lecture (in Dutch). Available at: www.DNB.nl/nieuws/nieuwsoverzicht-en-archief/speech-2013/DNB285360.jsp.

Liedorp, F., R.H. Mosch, C.A.B. van der Cruijssen and J. de Haan (2013). Transparency of Banking Supervisors. *IMF Economic Review*, 61(2), 310-335.

Liikanen, E. [High-level Expert Group on Reforming the Structure of the EU Banking Sector] (2012). Final Report. Brussels, EC.

Lim C., Columba F., Costa A., Kongsamut P., Otani A., Saiyid M., Wezel T., Wu X. (2011). Macropprudential Policy: What Instruments and How to Use Them? Lessons from Country Experiences. IMF Working Paper 11/238.

Masciandaro, D., R.V. Pansini and M. Quintyn (2011). The Economic Crisis: Did Financial Supervision Matter? IMF Working Paper 11/261.

Masciandaro, D., M. Quintyn and M.W. Taylor (2008). Inside and Outside the Central Bank: Independence and Accountability in Financial Supervision Trends and Determinants. *European Journal of Political Economy*, 24, 833-848.

- Mügge, D.K. (2010). *Widen the Market, Narrow the Competition*, Colchester, ECPR Press.
- Nuijts, W. and J. de Haan (2013). DNB supervision of Conduct and Culture. In: A.J. Kellermann, J. de Haan and F. de Vries (eds), *Financial Supervision in the 21st Century*, Heidelberg, Springer.
- Ottow, A. (2011). *European Supervision of the Financial Markets*. Europa Institute Working Paper 02/11.
- Pagliari, S., (ed.) (2012). *Making Good Financial Regulation: Towards a Policy Response to Regulatory Capture*. London, Grosvenor House Publishing.
- Power, M. (2004). *The Risk Management of Everything. Rethinking the Politics of Uncertainty*. London, Demos.
- Quaglia, L. (2011). The 'Old' and 'New' Political Economy of Hedge Fund Regulation in the European Union. *West European Politics*, 34 (4), 665-682.
- Quintyn, M. and M.W. Taylor (2003). Regulatory and Supervisory Independence and Financial Stability. *CESifo Economics Studies*, 49 (2), 259-294.
- Schoenmaker, D. (2012). *The Missing Link in Banking Union: Macro-Prudential Supervision*. DSF Policy Briefs 21.
- Sijbrand, J. and D. Rijsbergen (2013). *Managing the Quality of Financial Supervision*. In: A.J. Kellermann, J. de Haan and F. de Vries (eds.) *Financial Supervision in the 21st Century*, Heidelberg, Springer.
- Sparrow, M. (2000). *The Regulatory Craft: Controlling Risks, Solving Problems and Managing Compliance*. Washington, Brookings Press.
- Stigler, G. (1971). The Theory of Economic Regulation. *Bell Journal of Economics and Management Science*, 6 (2), 114-141.
- Stiroh, K.J. (2004). Diversification in Banking: Is Non-interest Income the Answer? *Journal of Money, Credit and Banking*, 36 (5), 853-882.
- Sundararajan, V., U.S. Das and P. Yossifov (2003). *Cross-Country and Cross-Sector Analysis of Transparency of Monetary and Financial Policies*. IMF Working Paper 03/94.

Turner, A. (2010). What Do Banks Do? Why Do Credit Booms and Busts Occur and What Can Public Policy Do About It? In: The Future of Finance. The LSE report, A. Turner et al. (eds.), London, LSE.

Turner, A. (2013). Global Financial and Eurozone Reform: Five Questions on a Common Theme. Speech at Sveriges Riksbank, Stockholm, 18 February 2013.

Viñals, J. and J. Fiechter (2010). The Making of Good Supervision, Learning to Say No. IMF Staff Position Note, May 2010.

Vries, F. de (2013). How Can Principles-based Regulation Contribute to Good Supervision? In: A.J. Kellermann, J. de Haan and F. de Vries (eds), Financial Supervision in the 21st Century, Heidelberg, Springer.

Welp, P. (2012). Effectiviteit van Toezicht: Tijd voor Responsive Evaluation. Tijdschrift voor Toezicht, 3 (2), 7-22.

Welp, P., M. Bokhorst, K. Faddegon, P. de Goede, E. Ijskes and A. Knottnerus (eds.) (2013). De Staat van Toezicht. Sector- en Themastudies. WRR-verkenningen 27, Amsterdam, Amsterdam University Press.

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