Proportional and effective supervision

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Summary

Over the past ten years, financial regulation and supervision have become both stricter and more comprehensive.

Necessarily so, as pre-crisis regulation was not strict enough, regulatory reporting was not granular enough, required capital was too low, liquidity requirements were uncommon and solid resolution mechanisms were absent. In some cases regulation even contributed to the crisis. Over the past ten years, regulation has become more comprehensive and has widened in scope, reporting has become more granular, required capital and its quality have been enhanced, liquidity requirements have been introduced and resolution mechanisms have been put in place. Post-crisis regulatory reforms were necessary to increase the resilience of individual institutions, restore financial stability and regain trust in the financial system. In particular, the risk-absorbing capital of financial institutions has increased significantly. Moreover, risk awareness and transparency have increased. Next to these intended effects, institutions may also adapt to the new regulation in other ways that are not always easy to predict.

Now, ten years after the start of the crisis, it is opportune to evaluate whether post-crisis regulations have any unintended effects.

The regulatory reforms have now been largely implemented or are gradually being phased in over time. Unintended effects may cause new vulnerabilities that need to be addressed at an early stage. It is therefore important to assess whether the introduction of new regulations has had effects which were not foreseen at the time the rules were introduced, in particular if these effects increase the risks for financial institutions, sector or system as a whole. For this purpose, we selected three areas of potential concern: proportionality of regulation and supervision, the impact of rules on the attention devoted to strategy and risk management in the boardroom, and the impact on risk taking. Firstly, it is important to evaluate whether expanded regulation remain sufficiently proportional to the size, complexity and risks of financial institutions. Secondly, it must be assessed whether institutions, despite pressure from increased regulatory requirements, still devote sufficient attention to their risk management and strategy. Thirdly, the impact of regulation on risk taking merits review. If financial institutions respond to specific regulations in similar ways by taking similar risks this can cause an increases in homogeneity among financial institutions and thus create new prudential risks for the financial system as a whole.

This report helps to identify unintended effects of new regulation at an early stage and proposes concrete policy actions to mitigate them.

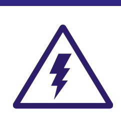
It looks back to evaluate unintended effects of post-crisis regulation. At the same time, it looks ahead to draw lessons for drafting new regulation and organising the supervisory practice effectively. Rather than reducing or relaxing regulation, it aims to suggest improvements in regulation and supervision by making it more proportional and more effective in mitigating risks.

Summary

This report answers three research questions:

Are regulation and supervision sufficiently proportional with regard to differences in size, complexity and risks?

Does pressure from regulatory compliance reduce boardroom attention devoted to risk management and strategy?



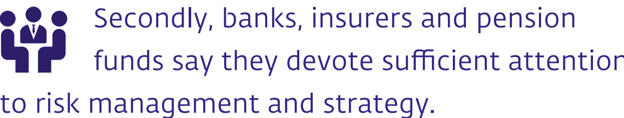
Does more stringent regulation lead to more homogeneity in business models among institutions and more systemic risk?

Key findings

The key findings with respect to these research questions are as follows.

Firstly, there is room for improving proportionality in regulation and supervision.

Regulation and supervision should be tailored to the size and complexity and, most of all, the risks borne by financial institutions. A proportional approach generally implies simpler rules for small, less complex institutions, but it can also take the form of additional regulations for large and more complex institutions which pose a higher risk to financial stability. Proportionality can facilitate compliance by smaller, less complex or less risky institutions. Also, more specialised institutions such as FinTech companies could benefit from a proportional approach if regulation and supervision are tailored to the specific risks inherent in their business models. Proportionality thereby contributes to more diversity and less concentration within sectors through a more balanced regulatory burden for small, less complex or more specialized institutions. In the banking sector, more diversity contributes to less concentration and thereby reduces systemic risk. The Dutch banking sector is highly concentrated and dominated by a small number of large banks undertaking a wide range of activities. In the insurance sector, diversity in business models contributes to heterogeneity in approaches towards risk selection and mitigation, as small local mutual insurers are closer to their customers. In the pension sector, diversity contributes to reduced homogeneity in investment strategies. Proportionality is also important for the supervisor in the effective use of its scarce supervisory resources, which must be allocated across institutions. Current regulation and supervision already apply proportionality in various respects. A point in case is the “basic” Solvency regime for small, non-complex insurers. Another example is supervisory engagement, which is much more intense for larger and systemically important institutions. At the same time, there is room for further improvements in proportionality. This report puts forward proposals to enhance proportionality for banks, insurers and pension funds.



Secondly, banks, insurers and pension funds say they devote sufficient attention to risk management and strategy.

Most institutions report that regulatory requirements lead to more – not less – attention for risk management and strategy. At the same time, the burden of regulation and supervision is perceived as high. The main causes cited are the complexity and level of detail of regulation, inconsistencies between different regulatory frameworks and the efforts required of the institutions in response to ad-hoc information requests and on-site inspections. The financial sector also acknowledges that there are benefits from regulation, citing regular interaction with the supervisor and improvements in data quality as the biggest advantages. Supervision could be improved by providing faster and more institution-specific feedback on investigations and creating more opportunities for dialogue with the supervisor.

Thirdly, while higher capital requirements and stricter rules make individual institutions safer, there are indications of increased homogeneity.

Safer individual institutions do not necessarily make the sector as a whole less prone to risk. The market currently perceives the banking sector as more homogenous: stock returns have become substantially more correlated over time. This may be an indication that banks are now exposed to similar risks and respond to new information in similar ways. Homogeneity among financial institutions is an uncertain factor for financial stability. There are various potential explanations for the observed indications of an increase in homogeneity. Regulation may be a factor of importance as it imposes similar restrictions that can have an impact on activities, balance sheets and risk management. Regulation for banks has become more detailed, complex and binding over time, and hence may have contributed to increased homogeneity in the banking sector.

There are also indications of increasing homogeneity in the insurance and pension sectors. Insurers apply investment and hedging policies that are influenced by regulatory valuation principles which collectively lead to more homogeneity. Most pension funds increased their interest rate risk exposure following new regulations, which also points to homogeneity.

Recommendations

We have sought to identify possible unintended effects of regulation and supervision at an early stage and address potential vulnerabilities. Our findings result in the following three recommendations:

Devote more attention to proportionality in regulation and supervision.

We therefore welcome any proposals aimed at improving proportionality in supervision. We will always assess them on the basis of a number of boundary conditions. One of these is that they may not compromise prudential objectives and principles.

While proportionality can lead to simpler rules for small or less complex institutions, these should not be less stringent. After all, the safety of financial services is of concern to the customers of all institutions, irrespective of the institution's size or complexity. This holds in particular for the customers of banks, life insurers and pension funds, as they typically rely on financial products offered by these institutions for maintaining a standard of living. Size should therefore never be the only eligibility criterion for simplified or reduced requirements. The business models of small institutions are not necessarily low-risk and can be of high prudential concern. The reverse also applies: there can be relatively large institutions that adopt rather simple low-risk business models and may therefore be of low prudential concern. Not only size, but also complexity and, most of all, the risks borne by an institution should therefore dominate the calibration of proportionality. From a financial stability perspective, however, it can make sense to differentiate prudential safety levels in terms of the size. The failure of a small, non-complex institution poses a smaller risk to the financial system than the failure of a large, systemically important institution. Therefore, regulatory requirements that follow from macro-prudential concerns mostly apply only to systemically important institutions. Another boundary condition for the assessment of proportionality proposals is that the regulatory framework must remain sufficiently risk-sensitive and must not become substantially more complex or fragmented.

Reduce ambiguity and complexity in existing regulation.

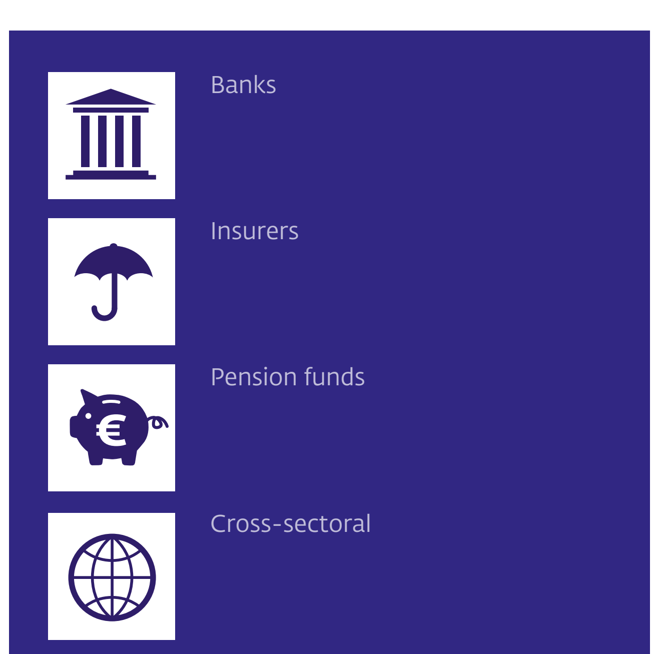
Existing regulatory frameworks are in some cases perceived by the financial sector as unclear, complex and at times incoherent. A prime example is the capital requirement for banks. The European Capital Requirements Regulation currently contains 66 articles that define 'capital', a concept that is further defined by additional regulatory technical standards. Another example is Mifid 2, which was only introduced in 2018 but is already accompanied by 66 separate EBA guidelines. Efforts are needed to reduce the ambiguity and complexity of regulation. Uncertainty about the interpretation of regulations increase the need for additional explanations and interpretations, both by financial institutions and the supervisor. As a result, delegated and secondary regulations, guidelines and technical standards have proliferated.

Devote more attention to promoting heterogeneity in the financial sector in regulation and supervision.

More diversity at a sector level contributes to reducing systemic risk. For example, heterogeneity will benefit from increased variation in diversification strategies which financial institutions pursue. More generally, identification of anticipated and unanticipated responses to policy proposals should be an integral part of the regulatory design process.

Proposed actions

This report sets out 22 proposed actions that lend more substance to the recommendations described above. Some of the actions DNB can carry out itself, mostly where they relate to our mandate as a prudential supervisor. Other proposals are addressed at regulators and legislators, and the financial sector, and we urge them to take the proposed actions. The proposed actions relate to the following sectors:



Proposed actions for DNB as prudential supervisor

Support a risk-by-risk approach by taking the ICAAP report as the starting point in the current implementation of the SREP procedure for banks.

Allow for the possibility to grant exemptions from quarterly reporting and simplify reporting processes for small, less complex insurers.

Make use of existing possibilities in Solvency II for the proportional application of ORSA reporting, so that certain insurers do not need to submit a completely new ORSA each year.

Develop a tailored approach to key functions under the new European IORP II legislation for pension funds.

Explore possibilities for more reliance on external assurance regarding the adequate functioning of internal governance.

Explore possibilities for direct supervision of pension service providers.

Stagger thematic examinations and on-site inspections more evenly over the year and give institutions more advance notice.

Spend more time on sharing best practices following thematic examinations and providing feedback following on-site inspections.

Rationalise information requests by using information already available and explaining what the new information will be used for.

Reduce the frequency of regulatory reports that are not used very often by the supervisor.

Keep the supervisory focus on the content of an institution's reports and risks, rather than on procedural compliance (risk of 'box-ticking' supervision).

Proposed actions for policy makers

Apply reductions in granularity when requiring institutions to report on risk factors that, given a bank's particular business model, are less important with respect to the risks borne. Proposals to improve proportionality in reporting requirements are part of the European Commission's CRD and CRR review.

Allow for more possibilities to grant exemptions from reporting on risk factors that are of little prudential concern given a bank's particular business model.

Explore the possibilities for creating a separate regulatory framework for small, less complex banks in the EU. Many of the smaller Dutch banks will most likely not be eligible for a European small banking regime, as they are quite sizeable by international comparison. An exploration could include the option of applying multiple categories of banking regimes for smaller and non-complex banks.

Explore the possibilities to apply the principle of "substance over form" in the interpretation of European law concerning financial institutions.

Draft clear guidelines and standards to reduce ambiguity and complexity and revoke redundant guidelines and standards.

Explore the possibilities and limitations of applying more regulatory technologies (RegTech and SupTech) with the aim of reducing complexity and costs on the part of regulators, industry and supervisors.

When drafting reporting requirements accompanying new or amended regulations, make better use of information reported under other regulations, and explain why the required level of detail is needed.

Make the identification of anticipated and unanticipated responses to policy proposals an integral part of the regulatory design process.

Make the assessment of potential interaction effects between different regulatory changes a standard element of the regulatory design process.

Proposed actions for the financial sector

Stimulate, throughout the sector, a compliance culture where responsibility for complying with rules and regulations lies with each individual manager and employee.

Rather than lobby for deregulation altogether, clearly describe where an unnecessary burden is felt, where unrealised benefits are seen and what can be done in these respects.

Introduction

Introduction

Banks, insurers and pension funds experienced important changes in regulation, reporting and supervision in recent years with the introduction of Basel III, Solvency II and the revised Dutch Financial Assessment Framework (FTK II) respectively.

The regulatory reforms have been largely implemented or are gradually being phased in over time.[1] Now, ten years after the crisis, it is therefore opportune to evaluate whether post-crisis regulation has had unintended effects. The added benefits to society of increased regulation and supervision, such as more sound financial institutions and increased financial stability, should outweigh the additional costs for financial institutions, their consumers and ultimately society. In particular, costs might be avoided or reduced without compromising prudential principles and objectives. Regulators and supervisors should therefore critically evaluate the effects of these regulatory changes, with the aim of further improving regulation and supervision.

Any evaluation of post-crisis measures should concern itself with both intended and unintended effects.

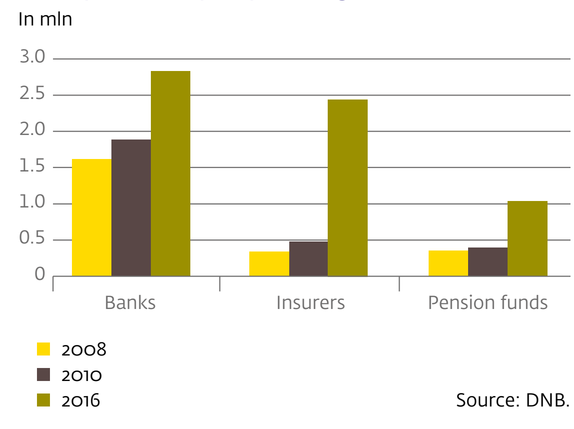
It is not possible to predict exactly how financial institutions respond to changes in regulation and supervision. Their responses can therefore lead to unintended effects. These are effects which were not the purpose of regulation or supervision at the time it was introduced and could even increase prudential risks for institutions, sectors or the financial system.

The aim of this report is to identify unintended effects at an early stage and propose concrete policy actions to mitigate these effects.

Rather than reducing or relaxing regulation and supervision, it aims to suggest improvements to make them more proportional or more effective in the mitigation of risk. The scope of this report is limited to prudential regulation and supervision. It does not include integrity regulation and supervision, which involve tackling financial and economic crime.

Moreover, the scope is primarily focussed on Dutch banks, insurers and pension funds. For regulation the scope is often extended to the European level, since regulations are increasingly agreed upon in a European context. Our analysis does not cover other institutions, such as investment firms, payment institutions or trust offices.

Figure 1 Total number of data points in supervisory reporting to DNB



Source: DNB.

Note: This includes all reports (monthly, quarterly and yearly) due at year-end per sector.

1 Some parts of the reform agenda have not yet been (fully) developed, e.g. MREL (minimum requirement for own funds and eligible liabilities), EDIS (European deposit insurance scheme) and BRRD (Bank Recovery and Resolution Directive).

This report provides facts and figures to confirm or reject assertions made in the current debate on the effects of regulation and supervision.
However, there is little quantitative data available regarding the first and the second research question, which are concerned with proportionality and boardroom impact respectively. In particular, there are very few supervisory data available on compliance costs, boardroom attention, and regulatory burden and benefits. What is clear, however, is that supervision has become more data-intensive over the past decade (see Figure 1). These data, however, do not necessarily indicate regulatory pressure, given that IT capabilities have also increased, thereby lowering the costs of data reporting overall. It is therefore also worthwhile to look at how regulation and supervision are perceived.

Table 1 Survey invitations and responses

Number of institutions that received the survey (first column), the response number (second column) and response rate (third column).

Total	208	105	50%
Banks	**36**	**18**	**50%**
Significant Institutions (SIs)	6	4	67%
Less Significant Institutions (LSIs)	30	14	47%
Insurers	**71**	**42**	**59%**
Large	5	4	80%
Intermediate	9	4	44%
Small	25	16	64%
Smallest (basic regime)	24	13	54%
Health	8	5	63%
Pension funds	**101**	**45**	**45%**
Large	32	20	63%
Intermediate and small	69	25	36%

For this reason this report also presents perceptions about regulatory burden and benefits reported in a voluntary survey.
We constructed a survey that was sent to 208 Dutch financial institutions (banks, insurers and pension funds). We received a total of 105 responses (see Table 1).

The survey contains questions on:

- the estimated compliance costs incurred in regulatory reporting and the costs incurred in ensuring compliance with new regulation;
- the perceived impact of regulation on boardroom attention devoted to the institution's own decision making relating to risk management and strategy; and
- the perceived burden and benefits of regulation, reporting and supervision.

Respondents were asked to reply taking the perspective of the highest management level of their financial institution, typically its board or executive committee.

There are several other evaluations of post-crisis regulation.
The Financial Stability Board (FSB) has published a consultation paper in which it evaluates the effects of regulatory reforms. The Bank for International Settlements (BIS) published a risk monitor including an assessment of post-crisis reforms. At the European Union level, initiatives have been taken to look into these issues as well, such as several consultative papers, the most recent one being the EU (2018) fitness check on supervisory reporting. In the Dutch context, earlier studies include Actal (2015), WRR (2016) and Algemene Rekenkamer (2017).

The recommendations on proportionality and supervision in this report and those of a working group on indirect compliance costs of supervision are mutually supportive.

This working group was set up during the panel meeting DNB biannually organises with sector representatives. It has explored possibilities to reduce indirect compliance costs without compromising prudential principles and objectives.

The three subsequent chapters of this report can be read independently.

The first chapter sets out DNB's views on proportionality. The second chapter largely describes how sector participants perceive regulation and supervision, based on the outcomes of the survey. The third chapter on homogeneity and risk taking is technical in nature, in particular sections 3.4 and 3.5, which are concerned with the potential impact of regulatory valuation rules on the hedging and investment strategies of insurers and pension funds.

Proportionality in regulation and supervision

1.1 Introduction

It is often claimed that regulation and supervision put a relatively heavy burden on small financial institutions, which lack economies of scale.
It is therefore important to evaluate whether regulation and supervision, after their post-crisis expansion, are sufficiently proportional.

Regulation and supervision should be tailored to differences in size and complexity and, particularly, the risks borne by financial institutions.
Prudential concerns are not the same for all financial institutions, as they vary with business models. Consistent regulation and supervision should therefore not take a "one size fits all" approach, but be tailored to the characteristics of institutions.[2]

A proportional approach generally implies simpler rules for small, less complex institutions.
Complex regulations and granular reporting requirements are not always necessary for small institutions that adopt a simple business model. Proportionality can therefore facilitate compliance by smaller, less complex institutions. Also, more specialised institutions such as FinTech companies could benefit from a proportional approach if regulation and supervision are tailored to the specific risks inherent in their business models. A proportional approach can also take the form of additional regulations for large, more complex institutions which pose a higher risk to financial stability.

Proportionality fosters a level playing field and diversity in the financial sector.
A proportional approach stimulates fair competition on a level playing field, which enhances diversity within sectors in terms of the mixture between large players and small or more specialised ones.[3] A lack of proportionality in regulation may act as a barrier to market entry, thereby slowing down innovation in the economy.

More diversity contributes to reducing conce antration in the banking sector and thereby reducing systemic risk.
The stability of the banking system, in particular, is best guaranteed in a sector characterised by less concentration and more diversity.[4] In the insurance sector, diversity of business models contributes to heterogeneity in approaches towards risk selection and mitigation, as small local mutual insurers are closer to customers. In the pension sector, diversity contributes to less homogeneity in investment strategies. Proportionality is also important for the supervisor in the effective use of its scarce supervisory resources which must be allocated across institutions.

2 See also Nouy (2015).
3 See also Dombret (2018).
4 See also DNB (2015) and WRR (2016).

Proportionality does not equal deregulation for small entities.

Proposals aimed at improving proportionality should not compromise prudential objectives and principles. While proportionality can lead to simpler rules for small, less complex institutions, these will not necessarily be less stringent. Small or less complex entities should not be allowed to hold less capital or liquidity, because the safety provided by financial services is of concern to the customers of all institutions.[5]

The remainder of this chapter is structured as follows.

Section 1.2 provides facts and figures on the compliance costs of small institutions in comparison to large institutions, based on data self-reported by institutions in the survey. Section 1.3 discusses existing examples of proportionality in regulation and supervision. Section 1.4 presents an assessment framework to evaluate proposals to further improve proportionality. Section 1.5 puts forward recommendations and proposed actions.

5 See also Lautenschläger (2017).

1.2 Compliance costs at small and large institutions

Small financial institutions in the Netherlands can be found mainly in the insurance and pension sectors.

The Dutch banking sector, by contrast, comprises relatively few small and medium-sized banks; most are quite sizeable, with assets totalling several billions of euros (see Figure 2a). This is large in comparison to small banks in some other EU countries, such as Germany and Austria, where the banking sector comprises a large number of local savings banks.[6] In the Netherlands, the insurance sector in particular comprises dozens of small undertakings (see Figure 2b). These are often local mutual insurers which offer a limited number of non-life insurance products to a small group of customers. Likewise, the pension sector features a large number of relatively small entities (see Figure 2c), and it includes new categories of pension administrators such as General Pension Funds (APFs) and Premium Pension Institutions (PPIs). In all three sectors, small and medium-size entities represent only a small fraction of the total market (see Figure 2, on the right).

Compliance costs are difficult to measure as they partially overlap with costs incurred for internal purposes.

Information requested by the regulator partially overlaps with information that institutions use for their own internal reporting and decision-making on risk management and strategy. This makes it difficult to distinguish costs incurred solely for regulatory purposes from those incurred for internal purposes. For example, investments in IT systems serve to meet both purposes. If supervisors were to request only information that institutions already use for their own risk management, the costs of regulatory reporting could be close to zero. In practice, however, this is unlikely to be the case, if only because supervisors request information in a specific data format for comparability across institutions. In addition, external supervisors are often interested in other sources of risk than those covered by internal reporting. Moreover, on-site inspections, ad-hoc information requests and other interactions with the supervisor require resources from institutions. In spite of imperfections in measurement, data on compliance costs can still provide an overall impression of the magnitude of compliance costs as a function of size.

For smaller entities, compliance costs are high relative to their own size.

Figure 3 shows compliance costs relative to size on the vertical axis, against size on the horizontal axis. All three sectors are characterised by a downward sloping path which reflects scale effects: relative compliance costs are decreasing with size. Hence, it is relatively more costly for small entities to comply with regulatory and supervisory requirements.

6 The German and Austrian banking sector comprise 1,517 and 488 small and medium-sized banks, respectively, due to the many small local savings banks in these countries.

Figure 2 Dutch financial sectors are dominated by few large institutions

Number of institutions in the Dutch financial sector by size

Panel a: Number of banks

€ > 25 bn
€ 5 - 25 bn
€ 1 - 5 bn
€ 500 m - 1 bn
€ 100 m - 500 m
€ 25 m - 100 m
€ 0 - 25 m

0 5 10 15 20 25

Panel b: Number of insurers

€ > 1 bn
€ 250 m - 1 bn
€ 100 m - 250 m
€ 50 m - 100 m
€ 25 m - 50 m
€ 5 m - 25 m
€ 0 - 5 m

0 10 20 30 40 50

Panel c: Number of pension funds

€ > 25 bn
€ 5 - 25 bn
€ 1 - 5 bn
€ 500 m - 1 bn
€ 100 m - 500 m
€ 25 m - 100 m
€ 0 - 25 m

0 15 30 45 60 75

Total assets (in EUR bn)

€ > 25 bn
€ 5 - 25 bn
€ 1 - 5 bn
€ 500 m - 1 bn
€ 100 m - 500 m
€ 25 m - 100 m
€ 0 - 25 m

0 500 1,000 1,500 2,000 2,500

Annual premium income (in EUR bn)

€ > 1 bn
€ 250 m - 1 bn
€ 100 m - 250 m
€ 50 m - 100 m
€ 25 m - 50 m
€ 5 m - 25 m
€ 0 - 5 m

0 5 10 15 20

Total assets (in EUR bn)

€ > 25 bn
€ 5 - 25 bn
€ 1 - 5 bn
€ 500 m - 1 bn
€ 100 m - 500 m
€ 25 m - 100 m
€ 0 - 25 m

0 200 400 600 800 1,000

Note: The bars in the right figures represent the total of all institutions within the respective size-bucket.
For example, the seven largest banks (with assets exceeding EUR 25 bn) together hold EUR 2,240 bln in assets.
The figure is based on data of the third quarter of 2017.

Source: DNB.

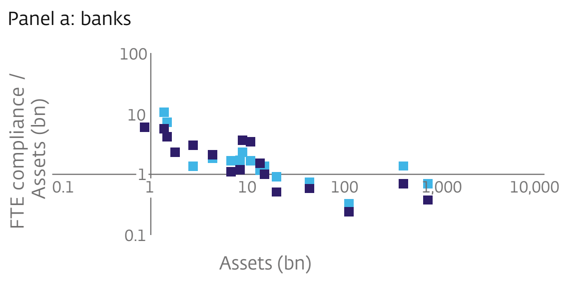
Scale effects are weak for banks, moderate for insurers and strong for pension funds.

Figure 3 shows that an increase in size by a factor 10 is associated with a reduction in relative compliance costs by a factor 2.5 for banks, compared to 3.6 for insurers and 7.2 for pension funds. A possible explanation for weak scale effects in banking is that the scope and complexity of banking activities increase strongly with size. Large internationally operating banks are subject to regulation in multiple jurisdictions, which increases requirements, in particular for activities outside the EU. Also, in the insurance sector the scope and complexity of products often increase with size. Pension funds, by contrast, offer a more uniform and, hence, more easily scalable product, especially in terms of investments. This may explain strong scale effects in the pension sector.[7] Across all sectors, scale effects appear to diminish above a certain size. This may reflect additional complexity costs associated with managing compliance in large and complex institutions.

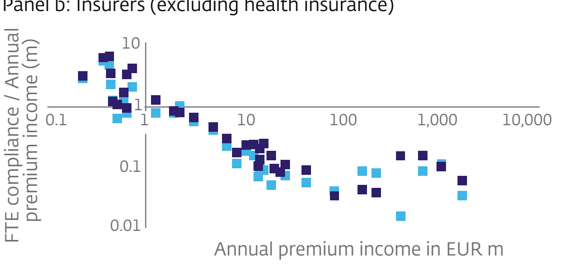
Figure 3 Small institutions have higher compliance costs relative to size

Log scale on horizontal and vertical axis

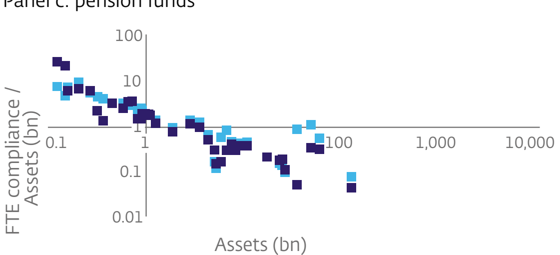
Panel a: banks



Panel b: Insurers (excluding health insurance)



Panel c: pension funds



Implementation   Reporting

Source: DNB.

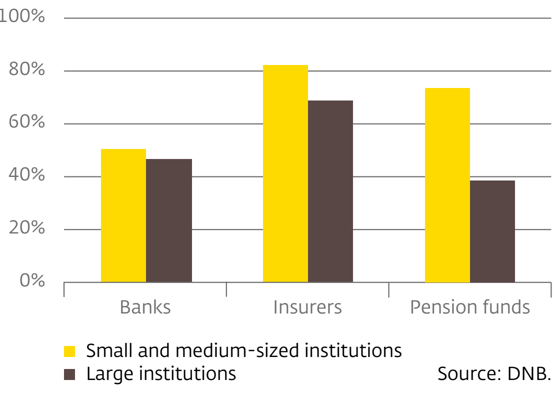
Note: Results are shown for the compliance costs involved in regular reporting and ad-hoc information requests (dark blue dots) as well as the costs associated with the implementation of new regulation (light blue dots). For banks and pension funds, size is expressed in terms of total assets, while for insurers it is expressed in terms of annual premium income. Compliance costs are expressed in terms of in-house full time equivalents (FTEs) dedicated to compliance, and it includes expenses for hiring external consultants (e.g. audit). For aggregation, respondents were asked to use a rule of thumb where 1 FTE dedicated to compliance corresponds to annual outsourcing costs equal to EUR 75,000. To prevent that results can be directly related to a single institution, each observation shown in Figure 3 represents the average reported by two institutions of roughly the same size, to prevent that the information shown can be related to an individual institution.

7 These findings on strong scale effects in compliance costs in the Dutch pension sector are in line with Bikker et al. (2012, p. 506)

For small and medium-sized entities in the insurance and pension sectors, indirect compliance cost are higher than the direct costs charged for supervision.

The compliance costs previously discussed represent indirect costs that institutions incur themselves. In addition, there are direct compliance costs for ongoing prudential supervision, which the supervisor charges to institutions each year. Figure 4 shows the indirect compliance costs on reporting as a percentage of total costs (the sum of direct and indirect costs). For banks, the direct costs includes the costs charged by DNB as well as those charged by the SSM. Figure 3 shows that indirect costs are relatively sizeable for small and medium-sized entities in the insurance and pension sectors, in which they constitute up to about three quarters of total costs. A possible explanation for this finding is that there is always a minimum in terms of indirect compliance costs, irrespective of size, which weighs relatively heavy on small entities, most of which are in the insurance and pension sectors.

Figure 4 Share of indirect compliance costs in total costs of supervision



Source: DNB.

Table 2 Current examples of proportionality in laws and regulations

	Banks	Insurers	Pension funds
Regulation	■ Possibility to choose simpler or standardised approach in calculation of capital requirements ■ Possibility for smaller banks to combine risk and audit committees ■ Simplified approach for remuneration policy for smaller banks ■ Additional requirements for systemically important banks ■ Possibility for credit unions to apply for exemption from prudential supervision	■ Possibility to choose standardised approach in calculation of capital requirements ■ Solvency II Basic regime for small entities ■ Exemption from prudential supervision for a group of small insurers ■ Proportional approach to the system of governance for smaller, less complex insurers ■ Additional requirements for systemically important insurers	■ Less stringent requirements for risk management and expertise of board members for pension funds with a less complex investment policy ■ Proportional approach in European IORP II legislation, in particular for key functions (forthcoming)
Reporting	■ Less stringent requirements for recovery and resolution plans of smaller banks ■ No market valuation of foreign exchange positions if these are below a certain threshold ■ Additional requirements for systemically important banks ■ Reporting exemptions for smaller banks ■ Non-disclosure of immaterial information	■ Reporting is required only if templates are relevant given product lines and activities ■ Exemptions from quarterly reporting for small insurers (forthcoming) ■ Reduced reporting requirements for entities under Solvency II Basic ■ Additional requirements for systemically important insurers	■ Quarterly reporting on FTK Investment Statements are more granular for pension funds with more complex investments ■ Reporting on geography of investments and cash flows of fixed income investment apply only to larger pension funds
Ongoing supervision and ad-hoc information requests	■ Differentiated supervisory approach between Significant Institutions (SIs) and Less Significant Institutions (LSIs) ■ Differentiated approach within SIs based on five levels of engagement ■ Differentiated approach within LSIs based on three priority classes and risk levels (RAS score) ■ Differentiation in frequency and intensity of examinations and on-site inspections ■ Discretion for supervisor to determine engagement level	■ Differentiated approach based on five supervision classes and four supervision regimes ■ Differentiation in frequency and intensity of examinations and on-site inspections ■ Discretion for supervisor to determine engagement level	■ Differentiated approach based on four supervision classes and four supervision regimes ■ Differentiation in assessment of audit committees, which are not required by default for smaller pension funds ■ Differentiation in frequency and intensity of examinations and on-site inspections ■ Discretion for supervisor to determine engagement level

Figure 5 Supervisory engagement is more intense at large and systemically important institutions

Distribution of account supervisors across institutions

Panel a: Number of banks (by total assets)

€ > 25 bn
€ 5 - 25 bn
€ 1 - 5 bn
€ 500 m - 1 bn
€ 100 m
€ 25 m - 100 m
€ 0 - 25 m

0 5 10 15 20 25

Number of account supervisors

€ > 25 bn
€ 5 - 25 bn
€ 1 - 5 bn
€ 500 m - 1 bn
€ 100 m
€ 25 m - 100 m
€ 0 - 25 m

0 30 60 90 120 150

Panel b: number of insurers (by annual premium income)

€ > 1 bn
€ 250 m - 1 bn
€ 100 m - 250 m
€ 50 m - 100 m
€ 25 m - 50 m
€ 5 m - 25 m
€ 0 - 5 m

0 10 20 30 40 50

Number of account supervisors

€ > 1 bn
€ 250 m - 1 bn
€ 100 m - 250 m
€ 50 m - 100 m
€ 25 m - 50 m
€ 5 m - 25 m
€ 0 - 5 m

0 10 20 30 40 50

Panel c: Number of pension funds (by total assets)

€ > 25 bn
€ 5 - 25 bn
€ 1 - 5 bn
€ 500 m - 1 bn
€ 100 m - 500 m
€ 25 m - 100 m
€ 0 - 25 m

0 15 30 45 60 75

Number of account supervisors

€ > 25 bn
€ 5 - 25 bn
€ 1 - 5 bn
€ 500 m - 1 bn
€ 100 m - 500 m
€ 25 m - 100 m
€ 0 - 25 m

0 10 20 30 40 50

Note: the bars in the right figures represent the total of account supervisors within the respective size-bucket.
For example, for the seven largest banks (with assets exceeding EUR 25 bn) there are 128 account supervisors in total.
Panel b on insurers excludes health insurance.

Source: DNB.

1.3 Current examples of proportionality

Current regulation already contains various examples of proportionality.
Table 2 provides an overview of the most important examples for banks, insurers and pension funds.[8]

The EU applies the Basel framework to all its banks - large and small – while applying various forms of proportionality.
An example is the use of a simpler approach for the calculation of regulatory capital by small banks. Another example is in the area of recovery and resolution plans, where requirements are less stringent for smaller banks. Also, regulatory reporting requirements are differentiated across banks. [9] [10]

DNB has devoted a great deal of attention to taking a proportional approach to regulation and supervision of insurers for some time.
This has led to the development of the Solvency II Basic regime for small insurers in the Netherlands.[11] It was announced in early 2018 that a select group of small, less complex insurance undertakings was eligible to request a waiver from quarterly reporting.[12] Small insurers may be exempted from prudential supervision altogether if they meet certain requirements. Such exemptions apply only to small funeral expenses insurers, benefits in kind insurers, and small non-life insurers.[12]

For pension funds, proportionality is largely related to the complexity of their investment portfolio.
Requirements with respect to risk management and board expertise are less stringent if investments are less complex. Investments in complex asset classes, by contrast, such as hedge funds and private equity, require more advanced risk management and more specific board expertise.

In all sectors supervisory engagement is determined at the level of an individual institution on the basis of its size, complexity and, most of all, the risks it bears.
Supervisory engagement is much more intense for large and systemically important institutions, who are subject to more frequent and more intense examinations and inspections for example. The intensity of supervision is to a large extent determined

8 DNB (2018) provides a more comprehensive overview of current examples of proportionality for the Dutch insurance sector.
9 Less Significant Institutions (LSIs) are exempted from supervision reporting on funding plans, Short Term Exercise and GSIB reporting. A subset of LSIs is exempted from reporting on the Liability Data Template and Resolution plans. Also, monetary reporting is differentiated across banks.
10 Nouy (2015) provides a comprehensive overview of how proportionality is applied in EU banking supervision.
11 See Open Book on Supervision (2017a).
12 See Open Book on Supervision (2017b).
13 See Open Book on Supervision (2017c).

by the risks borne by institutions, for example due to the riskiness of investments. One way of measuring proportionality in supervision is by looking at the distribution of supervisors across institutions, as shown in Figure 5. The figure includes 'account supervisors', who are allocated to one or more specific institutions, as well as 'supervisor specialists', who possess expertise in a particular area and operate across institutions.[14] For large banks, the figures include the supervisors participating in the Joint Supervisory Teams (JSTs) both at DNB as well as at the ECB. Figure 5 shows that a total of 128 supervisors are allocated to the seven largest banks in the Netherlands with assets exceeding EUR 25 bn, compared to 54 supervisors allocated to the remaining 38 mediumsized and small banks. Supervisory engagement is also differentiated in the insurance and pension sectors. In the insurance sector, a total of 47 supervisors are allocated to the 6 largest insurers while only 14 supervisors are allocated to the 42 smallest insurance undertakings. In the pension sector, a total of 25 supervisors are allocated to the 10 largest pension funds, while 2 supervisors are allocated to the 32 smallest pension funds.

Proportionality is also enhanced by the current initiatives aimed at creating more room for innovation in the financial sector.

Supervisors are encouraged to focus more on the real purpose of policies, rules and regulations when assessing innovative products, services and business models. If these are met, they may use the scope offered by the law to provide a bespoke solution.[15]

14 These figures include supervisor specialists working in the financial risk, resolution and integrity risk departments, but exclude staff in the market entrance, financial stability and policy departments for example. The number of supervisor reported in Figure 5 is consistent with those reported in DNB's public body accountability reports. The distribution of 'supervisor specialists' across institutions is calculated on the basis of the distribution function that DNB applies in its calculation of direct supervision costs."

15 See DNB (2016).

1.4 Framework for assessing proportionality proposals

DNB welcomes proposals aimed at improving proportionality. They must satisfy a number of conditions, which together make up an assessment framework.

The conditions are:

1. Prudential objectives and principles must not be compromised.
2. Eligibility criteria must effectively identify the target group of institutions.
3. Cost and benefits of regulation and supervision for society must remain balanced.
4. The regulatory framework must remain sufficiently risk-sensitive.
5. The regulatory framework as a whole must not become substantially more complex or fragmented.
6. Fair competition on a level playing field must not be disrupted.

The first condition states that prudential objectives and principles must not be compromised.

From a consumer protection perspective, the safety level provided to customers must be irrespective of the size of the financial institution. The safety provided by financial services is of concern to the customers of all institutions, large and small. This holds in particular for the customers of banks, life insurers and pension funds, as they typically rely on financial products offered by these institutions for maintaining a standard of living. The providers of such financial services are therefore never exempted from prudential supervision, not even if they are very small. A high safety level is also crucial for liability insurance, which provides customers with protection against the risk of major legal proceedings or other large losses which customers may not be able to bear.

From a financial stability perspective, however, it can make sense to differentiate safety levels in terms of the size of institutions.

The failure of a small, non-complex institution poses a smaller risk to the financial system than the failure of a large, systemically important institution. Therefore, regulatory requirements that follow from macro-prudential concerns mostly apply only to systemically important institutions. However, the differentiation between systemically important and less systemically important institutions requires careful calibration, because failures of small institutions can have important consequences as well. Recent experience has taught that problems may also stem from small entities. Although problems at small institutions may not always compromise financial stability, they could still disrupt markets and harm the trust of consumers in the financial sector as a whole. And although small entities are not of systemic importance, they can be heavily concentrated in a particular region or market segment.

The second condition states that eligibility criteria for the proposed policy must effectively identify the target group of institutions.

In particular, size should never be the only eligibility criterion for simplified or reduced requirements. The business models of small institutions are not necessarily low-risk and can be of high prudential concern.[15] And the reverse also applies: there can be relatively large institutions that adopt rather simple low-risk business models and may therefore be of low prudential concern. Not only size, but also complexity and, most of all, the risks borne by an institution should therefore dominate the calibration of proportionality.

The third condition states cost and benefits of regulation and supervision for society should remain balanced.

The design of regulation and supervision is the outcome of a trade-off between costs and benefits to society. The primary benefits are reduced risks for customers and the financial system as a whole. They also include a smaller need for consumers and firms to screen and monitor the riskiness of the activities of financial institutions. The costs of regulation and supervision are the expenses incurred by the supervisor as well as compliance costs incurred by the institutions.[17] These costs are generally passed on to customers, and they can therefore be considered costs for society as a whole. Prudential concerns are less pressing if the costs of defaults are smaller. For this reason supervisory engagement is lower at smaller institutions that are not of systemic importance, as illustrated in Figure 5. Prudential concerns are also smaller if customers' losses in a case of default are limited, for example in the case of insurance products with limited insured amounts. Small insurers offering such products may be exempted from prudential supervision altogether if they meet certain requirements.[18]

The fourth condition states that the regulatory framework must remain sufficiently risk-sensitive.

In particular, there can be no concessions in terms of the use of risk-based capital ratios. A substantial less risk-sensitive regulatory framework could introduce new incentives to stepping up higher-risk activities. If capital requirements are imposed with reduced risk-sensitivity, all else being equal the rules must be at least as conservative for prudential objectives and principles to be uncompromised. For this reason, capital requirements obtained from standardised approaches are typically equal or higher than those obtained from more complex internal models. This may, however, not discourage small or less complex institutions from using simpler rules if they believe the benefits from a reduced regulatory burden are decisive.

17 Proposals regarding proportionality that aim to reduce the burden on institutions must carefully differentiate between initial implementation costs and marginal costs of subsequent ongoing compliance. The former may be high while the latter can be limited, for example if quantitative data reporting is largely automated.
18 See Open Book on Supervision (2017c).

The fifth condition states that the regulatory framework as a whole must not become substantially more complex or fragmented.
Proportionality can be a trade-off if it makes it easier for institutions to comply while increasing fragmentation and complexity for regulators and supervisors. In particular, differentiation into multiple categories or carve-outs must not result in excessive fragmentation of the supervision framework and thereby reduce comparability across institutions.

The final condition states that there must be no disruption of fair competition on a level playing field.
A level playing field is disrupted if similar institutions are subject to different regulatory requirements. This could be due, for example, to cliff-effects if regulation is fragmented into multiple categories while institutions are not effectively isolated. This condition is therefore closely linked to the third and fifth conditions.

1.5 Recommendation and proposed actions

Our recommendation is that proportionality should receive more attention in regulation and supervision.
We therefore welcome any proposals aimed at improving proportionality in supervision. We will always assess them on the basis of the assessment framework discussed in the previous section.
The following proposed actions lend more substance to this recommendation.

Proposed actions for DNB as prudential supervisor

Support a risk-by-risk approach by taking ICAAP report as the starting point in the current implementation of the SREP procedure for banks.
In a risk-by risk approach, risk-sensitive capital requirements are tailored to the particular risks inherent in a bank's business model. The ongoing work on the risk-by-risk approach as described in the EBA guidelines should therefore be fully supported, and should not be replaced by more top-down rule-based approaches. DNB will continue the use of the ICAAP report as the starting point, as it contains a full risk assessment of all the risks a bank is or could be exposed to.[19]

Allow for the possibility to grant exemptions from quarterly reporting and simplify reporting processes for small, less complex insurers.
This was in fact recently achieved.[20] A limited group of smaller and less complex insurers can apply to DNB for an exemption from quarterly reporting. Smaller insurers for which submitting the quarterly report is too much of a burden in relation to the nature, size and complexity of the risks of their business activities and that meet the relevant conditions are eligible for exemption.[21]

Make use of existing possibilities in Solvency II for a proportional application to ORSA reporting, so that certain insurers do not need to submit a completely new ORSA each year.
Insurers have each year drafted an Own Risk and Solvency Assessment (ORSA) report for submission to DNB for several years now. We are of the opinion that certain insurers do not need to submit a completely new ORSA each year, provided they meet specific conditions.[22] In that case, an insurer may choose to submit a fully updated ORSA less than once a year, but at least once every three years.

Develop a tailored approach to key functions under the new European IORP II legislation for pension funds.
Proportionality is cited as an important issue in the new IORP II Directive due for implementation in 2019, for example its application to key functions. A concern for small, less complex pension funds is to be able to continue to outsource some key functions,

19 See paragraph 325 of the EBA Guidelines on SREP.
20 This recommendation was announced in the DNB insurance supervision newsletter (available in Dutch only), January 2018.
21 EIOPA (2017a) provides an overview of reporting exemptions for small insurers in Europe.
22 These conditions are provided in a separate factsheet on DNB's proportionality policy for insurers, see DNB (2018a).

such as actuarial services, for reasons of economy. The European regulator (EIOPA) has emphasised the importance of a proportional approach. It is important that pension funds evaluate their own organisation and establish an appropriate design of key functions. We provide guidance for the implementation of a proportional approach to key functions, to help small and medium-sized pension funds establish an appropriate design of key functions. This will facilitate the efficient implementation of legislation, as the Dutch pension sector had dozens of small and medium-size pension funds. They can propose their own solution and explain how it complies with legislation and the guidance provided. We are open to dialogue.

Explore possibilities for more reliance on external assurance regarding the adequate functioning of internal governance.

Traditionally, institution-specific supervisory activities combine on-site and off-site supervision. We will explore an alternative mechanism for pension funds that combine a low-risk profile with excellent internal governance arrangements. In such cases a supervisory approach could be envisaged whereby the main focus would be on off-site supervisory information, combined with external assurance about the adequate functioning of internal governance. In as far the external assurance provided remains positive, we could substantially scale back our on-site supervisory activities.

Explore possibilities for direct supervision of pension service providers.

In contrast to banks and insurers, pension funds typically rely heavily on pension service providers to perform administrative and asset management tasks. Under a more proportional approach to supervision, supervisory engagement could be shifted in part from pension funds to pension service providers with the aim of reducing the supervisory burden on pension funds. This policy could apply to pension funds of all sizes. The eventual implementation of such a shift in the supervisory practice will require a change in Dutch pension legislation.

Proposed actions for policy makers

Apply reductions in granularity when requiring institutions to report on risk factors that are less important given a bank's particular business model.

The European Commission's CRD and CRR reviews contain proposals to improve proportionality in reporting requirements. For example, the granularity of reporting on market risk can be reduced for a bank that has a small trading book relative to its size with no complex instruments. However, there is little scope for reductions in reporting requirements that are essential in enabling the supervisor to adequately perform its supervisory tasks. For example, frequent and detailed reporting on liquidity risks is essential for supervision of all banks.

Allow for more possibilities to grant exemptions from reporting on risk factors that are of little prudential concern given a bank's particular business model.

Current legislation often demands reporting on a

wide range of risks, also if the risk is greater than zero but economically negligible. For example, a number of traditional risks, such as interest rate risk, are not necessarily a prudential concern for a FinTech bank with a business model focused on payment services. The decision to grant an exemption for reporting on a specific risk factor should preferably be determined mechanically on the basis of a quantitative threshold for the risk. Such a rule should also ensure adequate information provision to the supervisor when a bank's business model or risks gradually change over time. An example of a mechanical threshold currently used is the de minimis threshold for foreign exchange positions in the trading book – banks do not need to calculate own funds requirements for foreign exchange risk if these positions are below 2% of own funds.[23]

Explore the possibilities for creating a separate framework for small, less complex banks in the EU.

Proportionality is emerging as an important discussion topic for banking supervision in the EU. The Basel framework applies to internationally operating banks,[24] so not necessarily to all banks.[25] Most jurisdictions including the United States, Switzerland and Japan, apply a local framework for smaller domestic banks.[26] The EU applies the Basel framework to all of its banks – large and small – while applying various forms of proportionality in terms of regulation, reporting and supervision (see Table 2). However, increased proportionality for small, less complex banks is desirable. The EU should explore the possibilities for creating a simplified regime for small, non-complex banks. This should offer banks the option to substitute regulatory burden with restrictions such as: limits on the size and complexity of the trading book and on proprietary trading, not using of internal models or complex capital structure instruments, and no cross-border lending outside the EU. Many of the smaller Dutch banks will most likely not be eligible for a European small banking regime, as they are quite sizeable by international comparison. Exploring a small banking regime could include the option of applying multiple categories of banking regimes for smaller and non-complex banks and assessing the pros and cons of such a tiered system.

Explore the possibilities to apply the principle of "substance over form" in the interpretation of European law concerning financial institutions.

The current literal interpretation of European laws concerning financial institutions does not provide much room for manoeuvre in situations where these laws lag behind new developments in the financial sector, such as technological innovation.[27] Also, there can be national practices which are consistent with the spirit of European laws, but not with their literal interpretation. In such cases, applying the principle of "substance over form" will enable supervisors to better address this type of issues. It is therefore desirable that the EBA explores the possibilities to highlight this principle in European legislation. Likewise, the SSM could contribute to this discussion topic by providing examples of relevant issues in the current supervisory practice.

23 See CRR, Article 351.
24 See BCBS (2016), paragraph 20.
25 See BCBS (2012), paragraph 4 and Box 3.
26 See BCBS (2017).
27 See also DNB (2016).

Perceptions of the impact of regulation and supervision

2.1 Introduction

The current regulatory and supervisory climate warrants much attention, both in the boardroom and in the rest of the organisation.
A concern that was aired by sector representatives in interviews and a roundtable is that the need for regulatory compliance could lead to a reduced focus on other important parts of running a financial institution. In particular, the possibility of a reduced focus on risk management, and strategy and the business model was mentioned. Underlying this concern was the belief that the burden of regulation and supervision had increased over the past years.

From a prudential perspective, a reduced focus on risk management, strategy and the business model could be an important unintended effect.
If these functions of running a financial institution do not receive the attention they deserve, this could ultimately lead to failing institutions. The amount of new rules and regulations, the time it takes to implement them and the increasing burden of regulatory reporting is therefore worth investigating.

The remainder of this chapter is structured as follows.
Section 2.2 explains how the regulatory burden and benefits from regulation can be measured. Section 2.3 presents DNB's survey findings on the impact of regulation on boardroom attention devoted to risk management and strategy. Section 2.4 presents survey results on the broader impact of regulation and supervision in terms of burden and benefits as perceived by the sector. Section 2.5 sets out recommendations and proposed actions.

2.2 Measuring regulatory burden and benefits

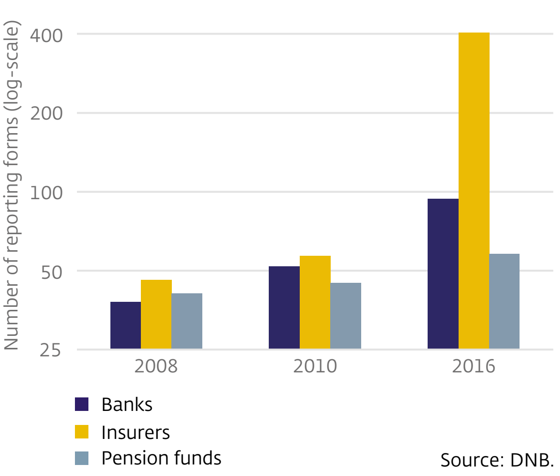
Regulatory pressure was also highlighted by financial institution as a risk in the run-up to the financial crisis, while in hindsight regulation and supervision had been too weak.

This is illustrated by an annual survey among financial professionals by the Centre for the Study of Financial Innovation (CSFI), which were asked to rate a list of potential risks facing their sector. Regulatory pressure has been flagged as one of the main risks for the financial industry since 2005.[28] It is easy to complain about regulatory pressure without being specific and by overlooking the benefits of regulation, as perceived by financial institutions. It is therefore important to study both burden and benefits of regulation and supervision. Moreover, the benefits regulation and supervision bring by averting or reducing the impact of financial crisis are easily ignored.

Measuring the burden and benefits of regulation is difficult.

An initial approach would be to simply count the number of regulations or their increase. An example of this approach is to count the number of standards and guidelines which the Basel Committee on Banking Supervision publishes. Likewise, one could look at the number of reporting forms that DNB imposes on financial institutions. Figure 6 summarises this by looking at the total number of forms that are reported under supervisory reporting requirements. For all three sectors, the number of reporting forms increased from 2008 to 2016, but in different intensities. For banks, the number of different forms increased in line with the increasing number of regulations governing banks. For insurers, the introduction of Solvency II in 2016, in particular, led to a significant increase in the number of reporting forms collected by DNB. Pension funds saw only a small increase in reporting requirements, as they were affected less by the post-crisis international regulatory wave.

Figure 6 Growth in regulatory reporting to DNB



Source: DNB.

Note: the number of forms reported is the maximum number of forms from all supervisory reporting requirements, most institutions don't have to report all forms. For insurers, the 2016 figure reflects Solvency II. Insurers reporting under Solvency Basic (Dutch national regulatory framework for small insurers) report significantly less.

28 It was in fact in the top three of banking risks in 2005, 2006, 2010, 2014 and 2015 (CSFI, 2015). For insurers, regulation has been among the top risks throughout the past decade, although it dropped to 6th place in 2017, following the implementation of Solvency II (CSFI, 2017).

Interpretation of these quantitative reporting trends is difficult, however.

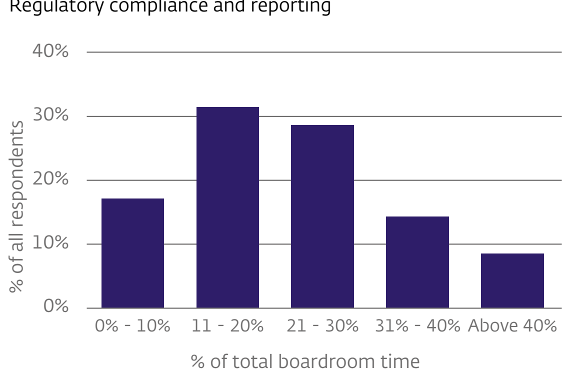
Although Figure 6 is illustrative for the growth in reporting requirements, increasing automation in recent years has also made it easier for financial institutions to report. In other words, though this provides a picture of the regulatory activity, it does not necessarily indicate regulatory pressure. It is therefore important to focus on the regulatory burden and benefits perceived by financial institutions. A second, more subjective approach, is surveying how regulation is experienced by measuring perceptions of the burden and benefits of regulation. The next two sections therefore present survey results on how the sector perceives regulation and supervision.

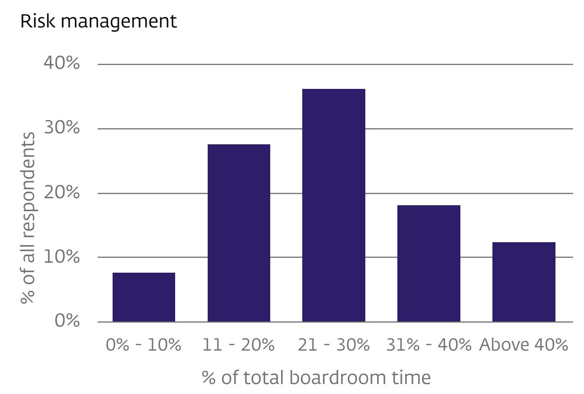
2.3 Impact of regulation on boardroom attention

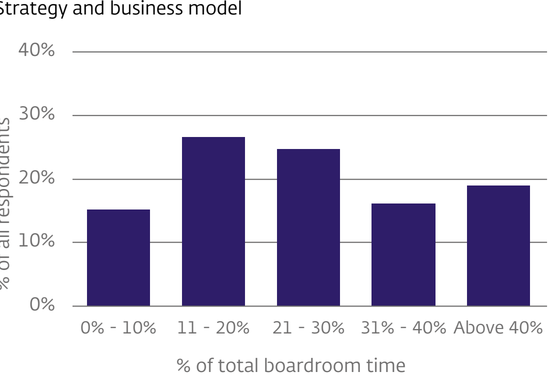
A concern that was aired by sector representatives is that boardroom attention needed for regulatory compliance and reporting could lead to a reduced focus on other important tasks of running a financial institution.

This is also cause for concern for supervisors, especially if important areas, such as risk management or strategy and business model suffer from reduced attention. To get an idea of how much attention each of these areas currently receives, we ask in the survey what amount of boardroom time is spent on implementing regulations and regulatory reporting to DNB. We complement this by asking what time is spent on risk management and strategy. The results for all institutions are shown in Figure 7. One out of two boards spend less than 20% of their total boardroom time on regulatory compliance and reporting, which looks reasonable. One out of ten boards, however, report that they spend more than 40% of their boardroom time. This is an indication that this minority struggles with the increased requirements. Risk management and strategy and business model receive a fair amount of attention as well. The results are broadly the same across banks, insurers and pension funds. This figure should be interpreted with some caution, however, as in some cases the reported time spent on all subjects exceeds 100%. This may be caused in part by some respondents overestimating the time commitment. However, some also comment that regulatory compliance and reporting often have implications for risk management and strategy and this time could therefore be attributed to multiple subjects.

Figure 7 Boardroom time spent on areas of attention







Source: DNB.

Regulatory compliance and reporting generally increases rather than decreases attention devoted to risk management, strategy and the business model.

The results from the survey indicate that this potential unintended effect of regulatory pressure is currently not visible. The main conclusion from the responses is that across all sectors, by and large, attention devoted to both risk management and strategy and the business model increases in conjunction with the time devoted to the implementation of regulations and regulatory reporting (see Figure 8) or remains unchanged. A minority of institutions, however, struggles to spend a proportionate amount of time on all areas. Although this conclusion applies across all sectors, there are a few noteworthy observations for each sector.

One in six banks indicate they devote slightly less attention to strategy and the business model, and some say the same with respect to risk management (see Figure 8a).

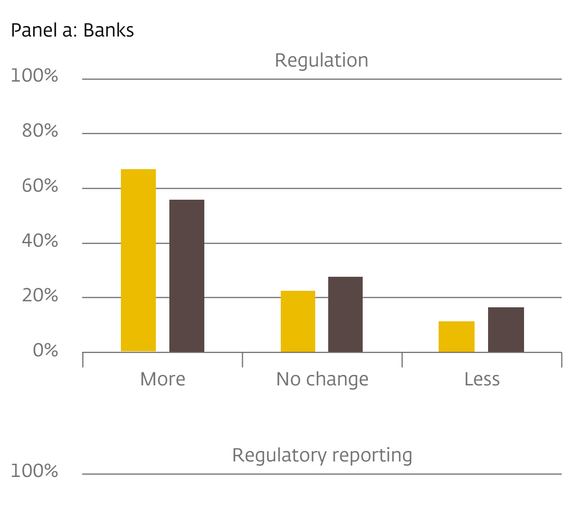
These banks cite difficulty in managing the increasing complexity and demands from regulations and reporting. As a consequence, a few banks also indicate their boards spend less time on commercial and operational activities. Some banks commented that this risks focussing much time and effort on the current challenges from the regulatory agenda, which are considered more urgent than potential challenges to the strategy and business model further in the future. The ongoing cost-cutting in banking also reduces the scope for such activities, as investments in IT and staff to comply with regulations and reporting are necessary to remain in operation. Some note that this can put pressure on the budget for other important areas, such as product development and IT. This in turn risks undermining the long-term viability of an institution's business model.

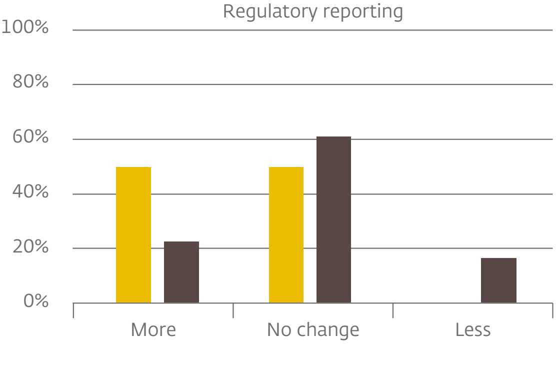
Many insurers report that implementation of new regulations go at the expense of commercial activities.

Four out of ten insurers report less boardroom attention devoted to commercial activities as a result of the attention devoted to implementation of regulations. By contrast, this is hardly an issue for banks. A possible explanation is that there are many small insures, but not many small banks (see Figure 2 in Chapter 1). Insurers report that implementing Solvency II is the single most important factor in explaining this change. Regulatory reporting seems to have an effect similar to regulatory compliance, as one-third report at least a slight decrease in attention devoted to commercial activities.

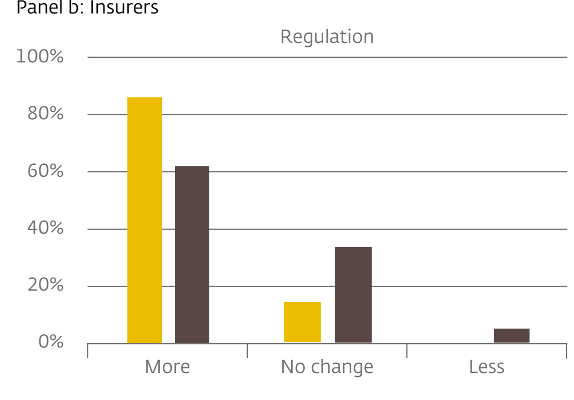
Figure 8 Change in board room attention due to regulation and reporting

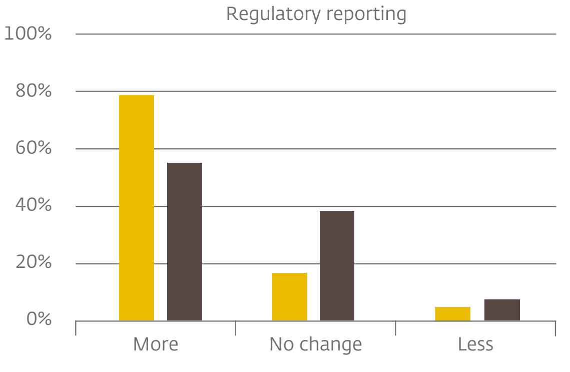
Panel a: Banks



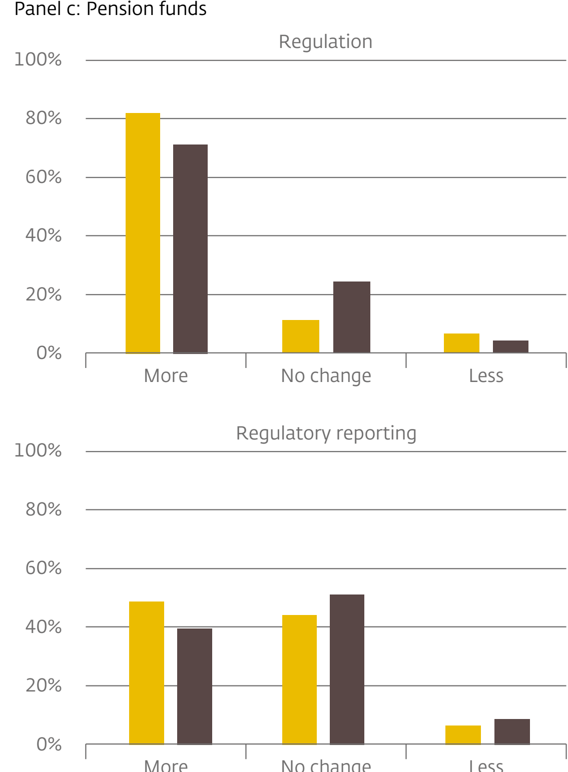


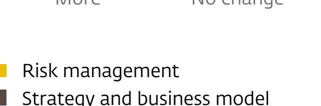
Panel b: Insurers





Panel c: Pension funds





Source: DNB.

For pension funds, implementation of regulations has a notable effect – especially on risk management.

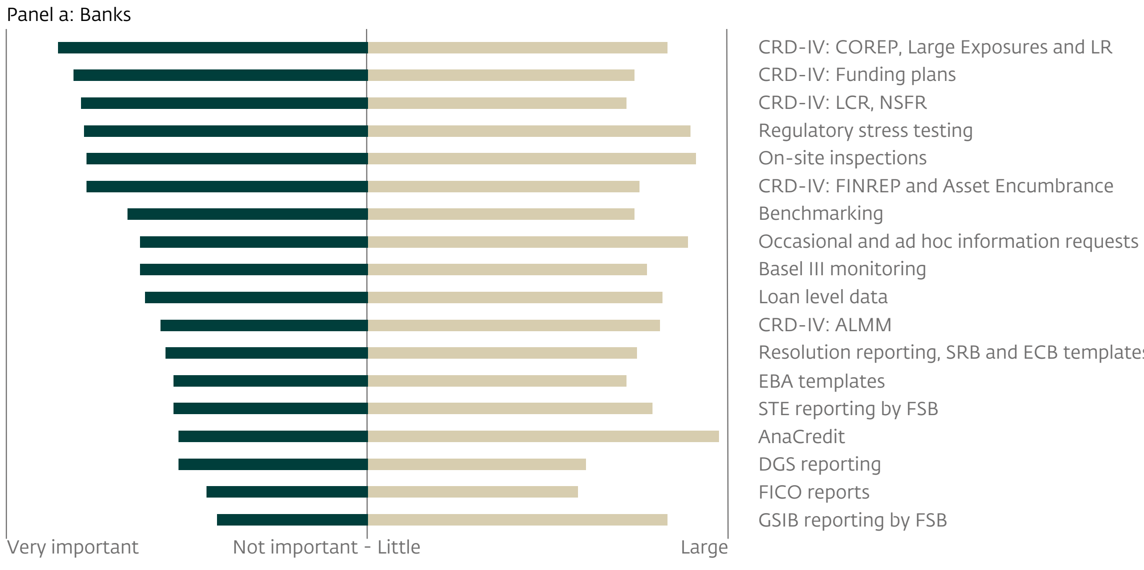
This is in line with the average responses of banks and insurers. The change in boardroom attention due to regulatory reporting is not large, unlike for insurers. In addition, around half of respondents in each area report no change. The main changes for pension funds are related to the introduction of the Pensions Act and the FTK in 2007, rather than to post-crisis reforms.

Most banks, almost three-quarters, report that the time spent on both risk management, and strategy and business model is proportionate to their relevance.

Moreover, many regulatory reports are also considered important for use in internal risk management and strategy (see Figure 9a). Some smaller banks have different experiences. Most small banks manage the implementation of new regulations and reporting quite well. There are, however, also several smaller banks that state that they devote more than a quarter of their boardroom time on regulation and reporting, noting that this affects the time devoted to other subjects (the minority shown in Figure 8a). In general, respondents were also asked to estimate the extent to which information requested in regulatory reporting is identical to information they use in internal decision-making. Most banks use the same information and reporting templates both for regulatory reporting and for internal use, mainly for efficiency reasons. The degree to which they manage to do so correlates with overall boardroom attention devoted to regulatory compliance. The banks that report little boardroom

Figure 9 Importance of regulatory reporting for risk management and strategy

Panel a: Banks



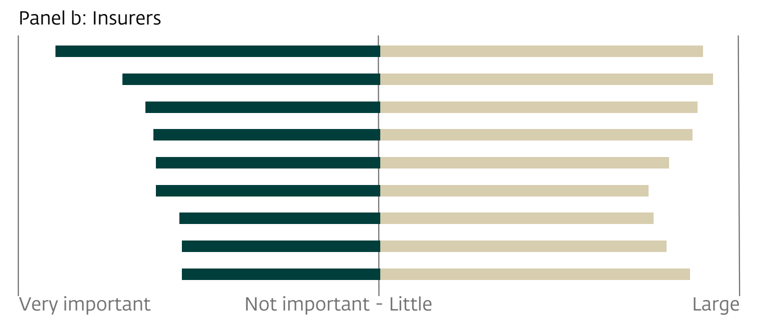
attention devoted to implementation and reporting on average estimate a 75% information overlap between regulatory reports and internal reports. Aligning internal information requirements with reporting requirements could help keep boardroom attention devoted to regulatory compliance and reporting proportionate.

Small insurers that operate under Solvency II spend a lot of boardroom time on implementation of new regulations.

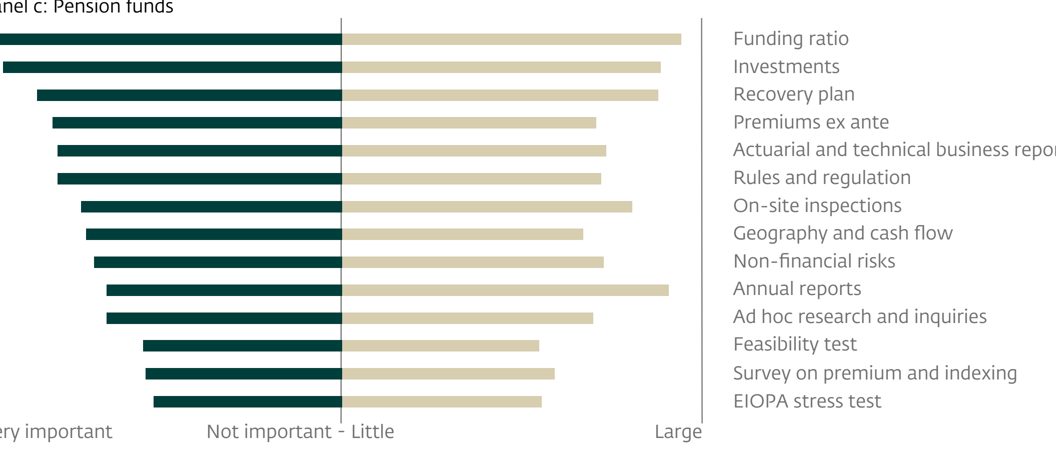
This is the case especially when compared to those small insurers that operate under Solvency Basic. Regulatory reporting demands more attention as insurers are larger. Naturally, the Own Risk and Solvency Assessment is considered very important for risk management and strategy, whereas other regulatory reports are not seen as very important for internal use (see Figure 9b). Boardroom attention devoted to risk management, and strategy and the business model is substantial, with the median response being 25% for both subjects. Insurers report that the time they spend on both risk management

Figure 9 Importance of regulatory reporting for risk management and strategy

Panel b: Insurers



Panel c: Pension funds



and strategy and the business model is proportionate to their relevance (88% and 74% of respondents, respectively).

Pension funds have diverging experiences, which may be explained by the wide variety in this sector.

In the Netherlands, the size of a pension fund ranges from small corporate pension funds to some of the world's largest industry-wide pension funds. This is reflected in the outcome with respect to boardroom attention devoted to implementation of new regulations and reporting. Whereas this takes most boards between 15% and 30% percent of their time, almost a third of the pension fund boards indicate this occupies them more. They are predominantly boards of small pension funds. Overall, the pension fund boards that spend up to 20% of their time find the time they spend proportionate. With regard to the boards that spend more time a different picture emerges, as regulatory reporting requirements in particular become an issue. There seems to be a balance, however, between the effort required to compile a report and its internal use for risk management and strategy purposes (see Figure 9c). In the aggregate, eight out of ten pension funds indicate that the time they allocate to risk management and strategy is in proportion to its relevance. There seems to be no evidence, therefore, suggesting that pension funds experience regulatory pressure in the performance of these critical tasks.

2.4 Perceived burden and benefits of regulation and supervision

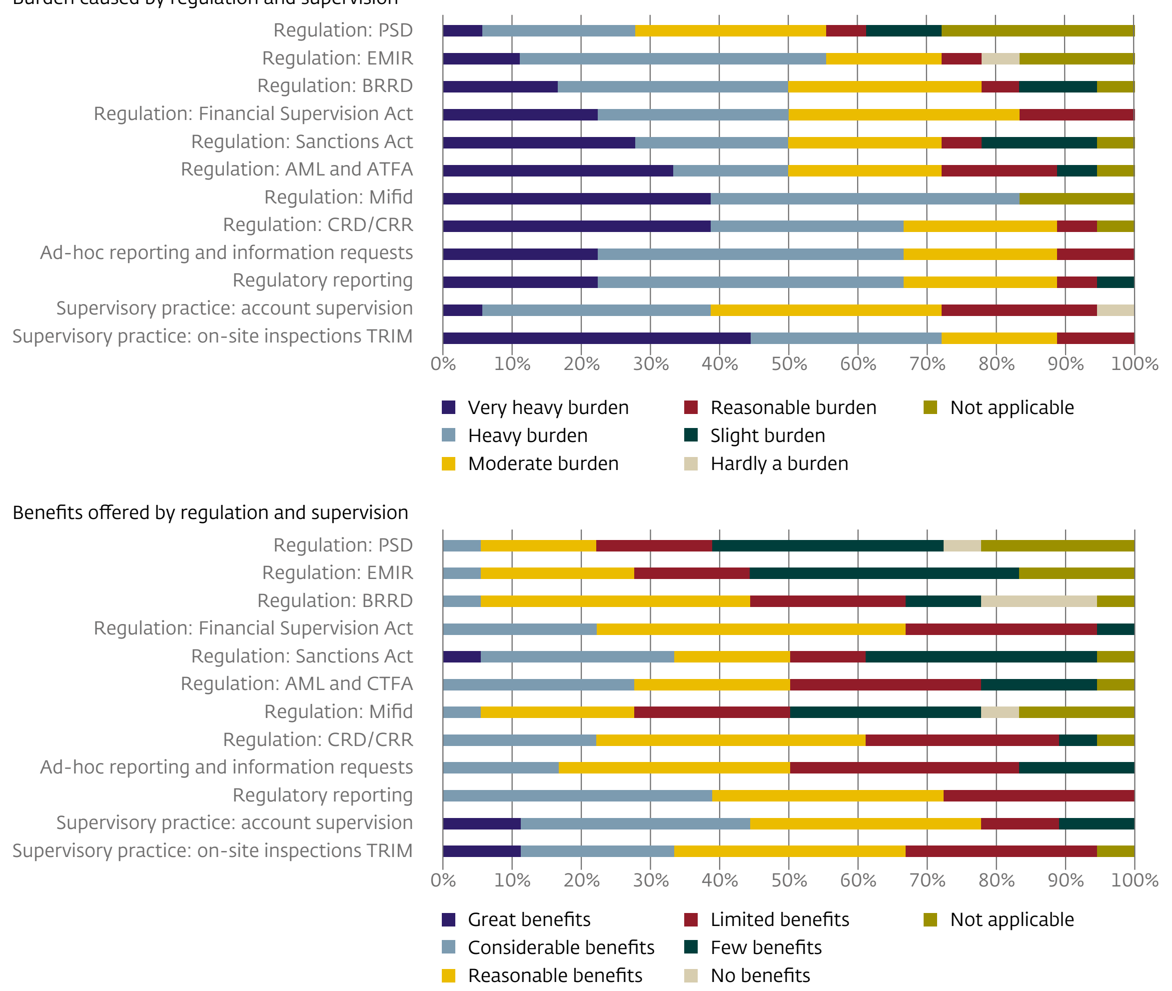
This section explores broader views of the impact of regulation and supervision.

Figure 10 provides the survey results of the perceived burden and benefits by sector.

Banks feel that the entire regulatory framework for prudential banking supervision has become complex and detailed.

CRD/CRR, MiFid 2 and the Sanctions Act and the Anti-Money Laundering and Anti-Terrorist Financing Act are perceived as a heavy burden for banks (see Figure 10a). The regulatory framework is not believed to be proportionate, while short deadlines take up a great deal of resources within the organisations, especially in the risk and finance domains. Reporting requirements, however, that can be automated and are predictable are perceived as day-to-day activities, and these are not very much of an issue. All data requests that are out of the ordinary create pressure. This is most prominent in the supervisory domain. Whereas account supervision is not perceived as a heavy burden, on-site inspections and the Targeted Review of Internal Models (TRIM) are seen as taking up much time and many resources. Moreover, they are difficult to anticipate.

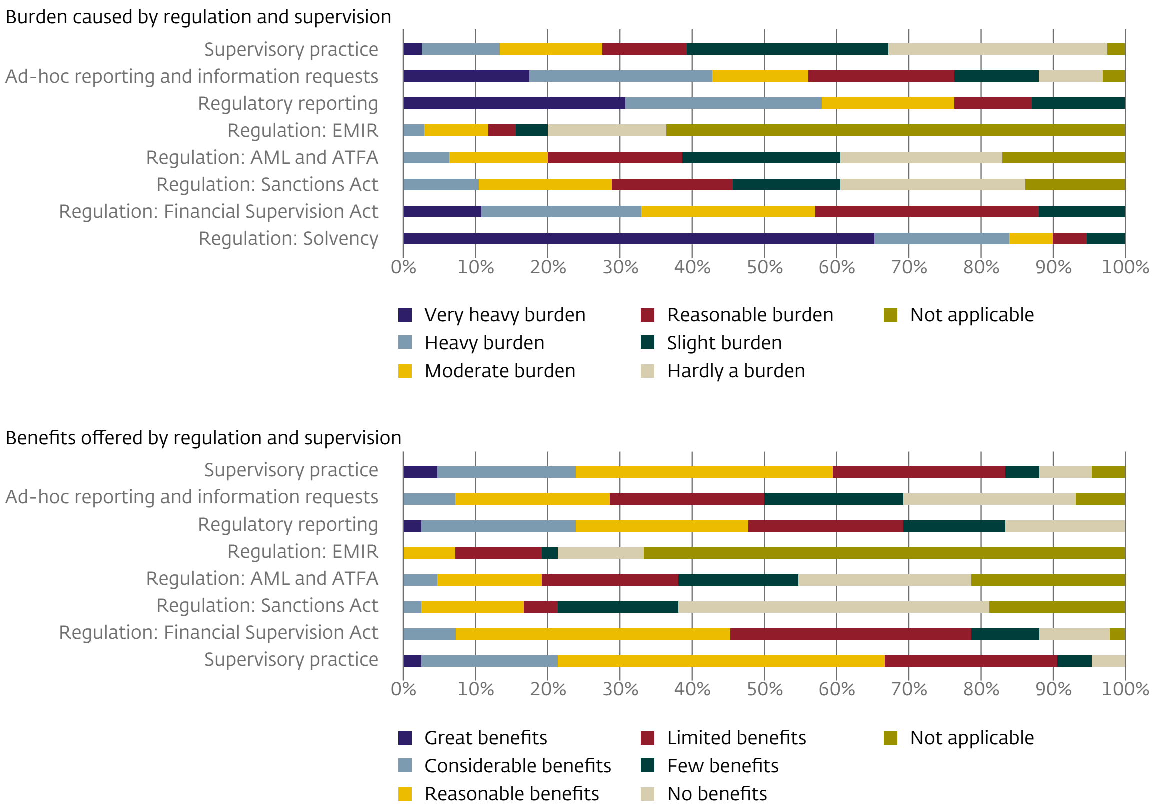
Figure 10a Burdens and benefits of regulation and supervision: banks



Banks also cite clear benefits from regulation and supervision, in particular regarding the supervisory practice, which is considered to benefit risk management.

The benefits from supervision could be improved further if best practices, for example from on-site inspections, are shared sooner and in more detail. Also, more opportunities for feedback would be welcomed. The same applies to regulatory reporting. This is viewed as having benefits as well, but could be used more to improve the dialogue between supervisors and banks. Banks are under the impression that supervisors tend to focus too much on procedures of regulatory reporting, while taking too little time to give feedback on the reports submitted. A majority of banks also perceive benefits from various pieces of regulation, notable exceptions being EMIR, PSD2 and MiFid. PSD2 is considered a burden that brings few benefits for traditional banks, which consider it supportive to FinTech companies seeking entry to the payments market, while burdening banks with additional costs.

Figure 10b Burdens and benefits of regulation and supervision: insurers



In the insurance sector, smaller undertakings regulated under Solvency II feel their business model is under threat from regulatory compliance.

They often resort to merging to create the scale they need. More generally, insurers of all sizes feel that both Solvency Basic and Solvency II place a heavy burden on the organisation (see Figure 10b). The regulatory burden felt by insurers is heaviest with regard to Solvency II and regulatory reporting, followed by ad-hoc reporting and information requests. The overall heavy burden reflects the recent implementation in 2016 of Solvency II and may ease as time passes. A frequent comment is that regulations can be unclear or ambiguous. Clearer guidelines from regulators would help, both in the implementation of regulations and in daily compliance. Regulatory reporting has further increased the burden. In particular, the administrative functions of smaller insurers feel the strain of increased requirements. Added to this is increased scrutiny from external auditors, which takes up extra time and resources before regulatory reports can be submitted. The level of detail requested and overlap between different regulatory reports are further causes for concern of insurance undertakings. Some respondents note that reports to DNB require more detail than the granularity they use internally. Insurers comment that, in principle, they do not expect supervisors to go into such detail. In practice, they note it is not always needed in their interaction with supervisors.

The two areas that form the greatest burden, Solvency (Basic and II) and regulatory reporting, at the same time rate highly in terms of perceived benefits.

Respondents in the insurance sector indicate that both areas clearly help improve risk management. Some comment that the templates for regulatory reporting help them perform their own risk management. They try to use them as much as possible for internal reporting for reasons of usefulness, clarity and efficiency. The supervisory practice is also looked upon favourably. In particular, the possibilities for and guidance provided by supervisors are viewed as beneficial.

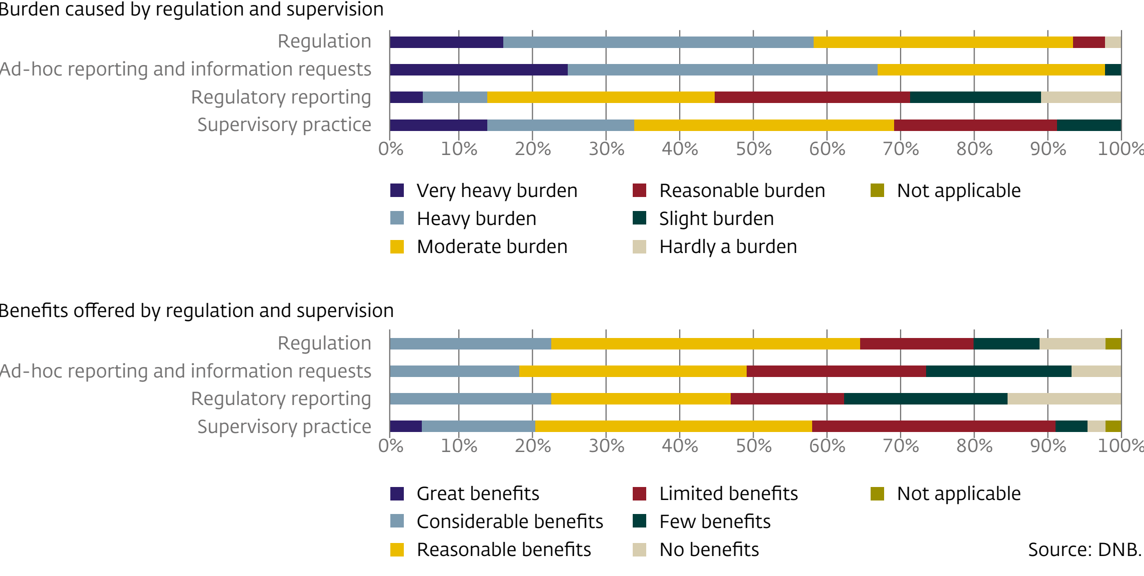
Pension funds say the biggest burden is in complying with ad-hoc regulatory requests, such as thematic examinations, surveys and on-site inspections.

In contrast, the day-to-day supervisory practice and regulatory reporting are, generally not perceived as a heavy burden (see Figure 10c). An important reason for the perceived burden of ad hoc reporting, surveys and on-site inspections are that response deadlines are viewed as short. In addition, requests are difficult to anticipate or unclear. This makes it difficult for the administrative function of a pension fund to reply completely and quickly. Typically, the pension fund's board wishes or must review a response before it is sent to DNB, while it meets only every six weeks, for example. Also, requests can be overly detailed. The second biggest burden is in implementing and complying with regulations. Implementing major regulatory reforms, such as the FTK II, requires a great deal of extra effort from the board and other pension fund staff. Moreover, regulation is often considered ambiguous, hastily implemented and sometimes overly complex and detailed.

Pension funds also see clear benefits in supervision and regulation.

Clear guidance from the supervisor or regulator and sharing best practices are highly appreciated. In addition, feedback from thematic examinations often provides pension funds with new insights. The recurring reporting requirements are viewed by many as having only limited benefits. Weighing up the burden and benefits reveals that in the aggregate, viewed from the pension funds' perspective, the supervisory practice and regulatory reporting strike the right balance. Regulation and, most notably, ad-hoc reporting and requests are considered more burdensome than beneficial. A closer look at how each respondent has individually weighed up the burden and benefits reveals that around three-quarters of the respondents take a balanced view regarding the trade-off between burden and benefits. A quarter of the respondents consistently perceive much higher burden than benefits. This minority of respondents should be taken into account when interpreting the aggregate numbers reported in Figure 10.

Figure 10c Burdens and benefits of regulation and supervision: pension funds



Source: DNB.

2.5 Recommendations and proposed actions

Our recommendation is that ambiguity and complexity in existing regulation should be reduced.

Some legislative packages implemented in the last decade contain inconsistencies, or are unclear and very complex and detailed. This is a side effect of regulations becoming more rule-based. In some areas, this has resulted in a wave of regulations, guidelines and standards that is hard to oversee. What is worse, their combined effect is even harder to predict. A prime example is the capital requirement for banks. The European Capital Requirements Regulation currently contains 66 articles that define 'capital', a concept that is further defined by additional regulatory technical standards. Another example is Mifid 2, which was only introduced in 2018 but is already accompanied by 66 separate EBA guidelines. Interestingly, these additional guidelines and standards are often requested by the sector itself. The idea behind them is that they reduce uncertainty on interpretation of regulations and helps deal with inconsistencies between regulatory frameworks. In the long run, gradual steps can be made to dramatically simplify definitions in particular areas. This might result in simpler but more stringent rules and definitions.

The following proposed actions lend more substance to this recommendation.

Also, they incorporate comments and suggestions we received from survey respondents to the survey as cited throughout this chapter.

Proposed actions for DNB as prudential supervisor

Stagger thematic examinations and on-site inspections more evenly over the year and, where possible, give institutions more advance notice.

This will help relieve the perceived burden and make it easier to plan resource allocation to meet the deadlines of a review or on-site inspection. DNB's introduction of annual calendars for each sector is a good example of an initiative that helps the sector improve timing and anticipation. For on-sites however, earlier advance notice is not always allowed or conducive to the goal an inspection seeks to achieve.

Spend more time on sharing best practices following thematic examinations and providing feedback following on-site inspections.

This equally applies to providing feedback on periodic reports during the regular meetings between supervisors and institutions, as these are hardly ever discussed. Institutions are not always aware of what is done with the reports they submit, and they feel that sometimes the reports are not used at all. Clear communication is key, as was also mentioned by DNB stakeholders in a different survey[29]. Users of regulatory reports should therefore explain why they request specific information and what they use it for. Also, the level of detail of the feedback provided should, where possible, be commensurate with the level of detail of the information reported.

29 See DNB (2018b) Main findings from 2017 stakeholder survey, published on 5 April 2018

Rationalise information requests by using information already available and be transparent in explaining what the new information will be used for.
Information requests from supervisors sometimes contain requests for information that is already available to supervisors from other regulatory reports. Mostly, this is the case with ad-hoc and one-off requests. Where possible, available supervisory data should be reused and shared between different supervisors (most urgently for banks). Also, when new information or reports are requested, DNB must explain why it is requested and what it is used for. This need for increased transparency was also identified by DNB stakeholders as an important issue.

Reduce the frequency of regulatory reports that are not used very often by the supervisor. Regulatory reports that are not or not often used should be either requested less often or discarded. This is also linked to the issue of proportionality. Some regulations grant DNB the discretion to decide on the number or frequency of reporting. However, such room for supervisory discretion has increasingly been reduced in European legislation and in the SSM supervisory practice. Nevertheless, where such room is still available, a case can be made that reporting frequency must be reduced for less high-risk entities. A concrete example is the previously introduced exemption from quarterly reporting for small, less complex insurers discussed in Chapter 1. An example for banks is that Less Significant Institutions (LSIs) are exempted from supervision reporting on funding plans, Short Term Exercise and GSIB reporting.

Keep the supervisory focus on the content of an institution's reports and risks, rather than on procedural compliance (risk of 'box-ticking' supervision).
DNB is valued as a supervisor, and institutions indicate they mainly reap benefits from the current dialogue with DNB. Many remark that DNB spend more time in its contacts with institutions discussing actual risks rather than on matters of procedural compliance.

Proposed actions for the regulator

Draft clear guidelines and standards to reduce ambiguity and complexity and revoke redundant guidelines and standards.
The next step will then be for regulators to reduce the number of guidelines and standards, while not reducing the substance. In the longer term, this might result in simpler but more stringent rules and definitions. As regards international and European regulation, making changes will obviously be more difficult and require the consent of other stakeholders.

Explore the possibilities and limitations of applying more regulatory technologies (RegTech and SupTech).
Lessons can be learned from the experiences of foreign regulators and supervisors. An example is the cooperation between regulators, supervisors and the sector in Singapore and Austria. Here common software platforms were developed to support data collection and regulatory reporting. Also, possibilities could be explored to make regulations better machine-readable. A machine-readable overview of applicable

rules and regulations will facilitate automation of parts of regulatory compliance. This could help small firms achieve their compliance and make market entry easier for FinTech.

When drafting reporting requirements accompanying new or amended regulations, make better use of information reported under other regulations, and explain why the required level of detail is needed.

Regulatory reporting requirements are increasingly detailed, and sometimes information is requested that is already available in other reports, leading to duplicate reporting. It is not always sufficiently clear to an institution what the requested information will be used for, and the supervisor's feedback on the submitted reports is perceived as too high-level or sometimes even non-existent. Lastly, with regard to regulatory reporting requirements, the format in which reports must be submitted and the definitions used vary frequently, both in time and for each different regulator. Harmonising reporting formats and definitions would greatly help reduce this regulatory burden.

Proposed actions for the financial sector

Stimulate, throughout the sector, a compliance culture where responsibility for complying with rules and regulations lies with each individual manager and employee.

Management and staff must consider compliance with regulations as indispensable as other business requirements to ensure the continuous functioning of their institution. Regulations and control mechanisms, such as reporting requirements, serve as a counterweight to the pressure to make quick profits inherent in large parts of the financial sector. Many respondents mention the risk of a 'box-ticking' attitude emerging if regulations and supervision are predominantly viewed as obstacles to business, rather than as necessary elements of running a financial institution. Stimulating responsibility for compliance within the sector will serve to lower the perceived regulatory pressure and enable a more open dialogue about effective and efficient regulation and supervision. Such an open dialogue between the supervisor and the sector can function very well. Our stakeholder interviews resulted in a number of common characteristics. First of all, they expressed a positive view of the objectives that regulation and supervision seek to achieve. Further, they value internal and external countervailing powers. They do not regard the dialogue with supervisors as intrusive, but as helpful in working towards the objectives of the financial sector.

Rather than lobby for deregulation altogether, clearly describe where an unnecessary burden is felt, where unrealised benefits are seen and what can be done in these respects.

It is easy to complain about regulatory pressure without being specific, explaining where the burden is felt and what specifically could be done about it. The aim must be to make regulation work better. The

comments which respondents made in the survey and the suggestions which interviewees put forward demonstrate that there are many concrete and specific ideas about how regulation and supervision can be improved. This report has opened up one avenue of dialogue on this subject, and some ideas have already been put into practice. Another avenue of dialogue that helps generate such specific ideas is a working group on indirect compliance costs of supervision. The panel meeting that DNB holds with representatives of the sector twice a year has set up this working group. The working group has explored possibilities to reduce indirect compliance costs without compromising prudential principles and objectives. These proposals correspond well with some of the recommendations put forward in this report.

Homogeneity and risk taking: the role of regulation

3.1 Introduction

Prompted by the global financial crisis, regulatory authorities significantly increased the intensity and scope of regulatory requirements for financial institutions.

Banks, insurers and pension funds face significant regulatory changes such as Basel III, Solvency II and FTK II. These measures have improved the risk-absorbing capacity of financial institutions and enhanced their risk awareness and transparency. Next to these intended effects, institutions may also adapt to the new regulation in other ways that are not always easy to predict.

Financial institutions may adjust their product portfolio, activities and balance sheet components in terms of risk, maturity and liquidity transformation in response to regulatory changes.

For example, there may be pressure to increase risk taking if institutions want to achieve a certain return target that was determined before a regulatory change that requires institutions to be better capitalised took effect. Hedging and pricing policies may also be altered in response to changing regulations, in particular the rules for the valuation of asset and liabilities. These reactions can give rise to new vulnerabilities for individual institutions, the sector or the financial system as a whole.

Homogeneity among financial institutions may increase as regulatory metrics become more detailed and binding.

Similarities in responses to regulation can lead to increased homogeneity within sectors. If, for example, many banks diversify their risks in a similar way, the probability of multiple failures increases. A less diverse financial sector may increase systemic risks, even if individual financial institutions are better capitalised. This would be an unintended effect of regulation.

Financial institutions may respond similarly to regulations.

Responses can be similar across institutions, both in terms of how they anticipate new regulations and how they act during stress periods when they start feeling the pressure of regulation. Similar responses can increase homogeneity among financial institutions, thereby giving rise to new prudential risks.

Homogeneity among institutions is a concern from the perspective of financial stability, especially for the banking sector.

The Dutch banking sector is relatively large in size, highly concentrated and dominated by a small number of large banks undertaking a wide range of activities. To a large extent, this structure results from the mergers that occurred at the end of the 1980s and early 1990s and a number of market distortions and unintended consequences of past policy initiatives.[30]

The remainder of this chapter is structured as follows.

Section 3.2 shows market-based indications of increased homogeneity in the banking sector and discusses the role of regulation as an explanatory factor in this respect. Section 3.3 explores signals in market information on the capitalisation of banks. Section 3.4 and 3.5 provide indications of the impact of regulation on the hedging and investment policies of insurers and pension funds. Section 3.6 puts forward recommendations and proposed actions.

30 Examples include tax incentives contributing to a large sector size, such as the deductibility of interest payments on mortgages and business loans, as well as competitive advantages and implicit state guarantees for banks already enjoying dominant market positions. See DNB (2015).

3.2 Indications of increasing homogeneity in the banking sector

One way of assessing homogeneity in the banking sector is looking at parallel movement of stock prices.

This concerns the correlated movement of two or more bank shares. Figure 11 shows the distribution of correlations between returns on each set of two bank stocks over three consecutive periods. Stock returns have become substantially more correlated over time. In contrast, the mean correlation between the 50 largest European corporations remained roughly similar across these three periods.

Regulation can be an explanation for the observed greater parallels in movements between bank stocks.

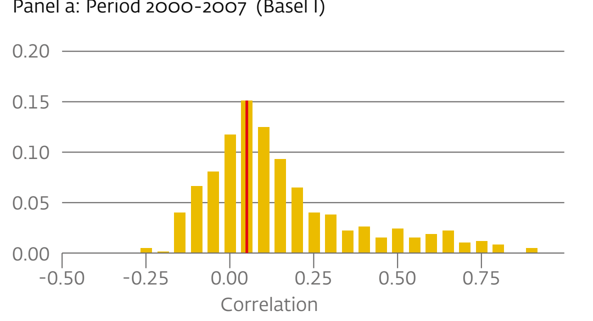
Regulation for banks has become more detailed, complex and binding over time, and may have contributed to increased homogeneity in the banking sector. The first period shown in Figure 10 corresponds to the Basel I regime, during which the average correlation between the stock returns of the banks was 6%. The Basel I framework was fairly risk insensitive and requirements were lower compared to later standards. Under Basel II, the average correlation increased to 26%, and under Basel III it increased even further to 48%.

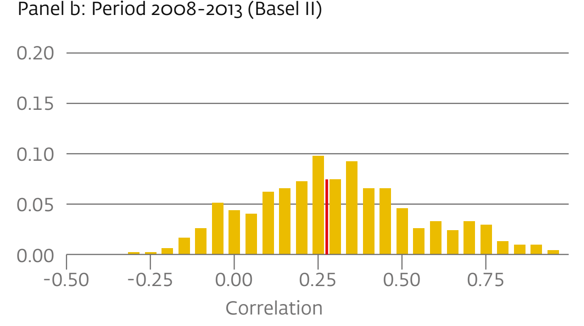
Regulation is a plausible explanation for greater parallels in movements between bank stocks.

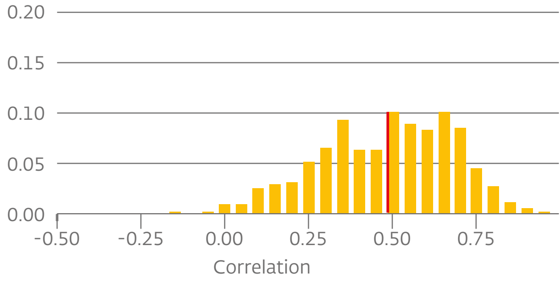
First, the more banks are exposed to similar regulatory constraints, and the more those constraints are binding, the more banks may be unintentionally pushed in a similar direction. Banks, for example, may be tempted to collectively choose to market products

Figure 11 Increasing correlations amongst European bank stocks

Distribution of the correlation between returns on stocks of European banks.







Source: Bloomberg, DNB calculations.

Note: Based on a balanced sample of 33 large European banks. The red bars represent the mean of the probability distribution.

that offer a high return on equity (RoE) for a given regulatory capital charge. Also, banks may choose to discontinue those products and activities that are subject to an unfavourable capital charge. As banks are highly leveraged institutions, even a small response to new regulations may have an amplified effect on stock returns. Moreover, the Single Supervisory Mechanism has reduced national differences in regulation and supervision of large banks.

At the same time, it should be acknowledged that there are also factors unrelated to regulation that are plausible explanations.

Banks and the financial system as a whole have become much more integrated over time. This could lead to spill-over effects between banks irrespective of regulation. In addition, a lack of transparency before the financial crisis may have led the market to believe that banks were less correlated in the past. Having gone through the experience of the financial crisis and given current enhanced transparency requirements, the market has now "discovered" the correlation. The market can therefore be a useful additional source of information about the stability of the banking sector. Finally, banks have been subject to different types of economic shocks during the three consecutive periods shown in Figure 11, which are a period of robust growth in 2000-2007, a crisis period in 2008-2013 and a period of slow growth and low interest rates in 2014-2017. These changes in economic conditions may have contributed to increasingly parallel movements: correlations typically increase during a crisis period, and the low interest rates affect the business models of banks in a similar way.

The observed greater parallels in movement between bank stocks may point to an increase in systemic risk.

If returns on a single bank stock are good or bad, it is more likely that returns on other bank stocks are also good or bad. Also, if banks diversify risks in similar ways, the joint default probability increases. Homogeneity among financial institutions is a key concern for financial stability.[31] Interconnectedness of banks also is a factor impacting systemic risk.

Hence, safer individual institutions do not automatically imply that the sector as a whole is also less prone to risk.

Tighter regulatory requirements are aimed at making individual banks safer. One might therefore deduce that the banking sector as a whole automatically becomes more resilient too. However this could be a 'fallacy of composition' or the erroneous belief that what is true of the parts must be true of the whole.

More attention should be given to promoting heterogeneity in the financial sector.

The indications of increased homogeneity in the banking sector require the attention of regulators and supervisors. Irrespective of whether regulation is the main driving factor, more attention should be devoted to stimulating heterogeneity in the sector. One way of achieving this so is to incentivise more diverse diversification strategies across banks.

31 See e.g. Haldane and May (2011), DNB (2015) and WRR (2016).

3.3 Regulatory versus market based capitalisation of banks

The previous section has shown that market information can provide indications of new risks in an early stage.

In particular, markets may provide signals about new risks in the financial system which are not fully captured by regulatory measures. Such new risks may be the result of unintended consequences of new regulation, or may be caused by other factors unrelated to regulation.

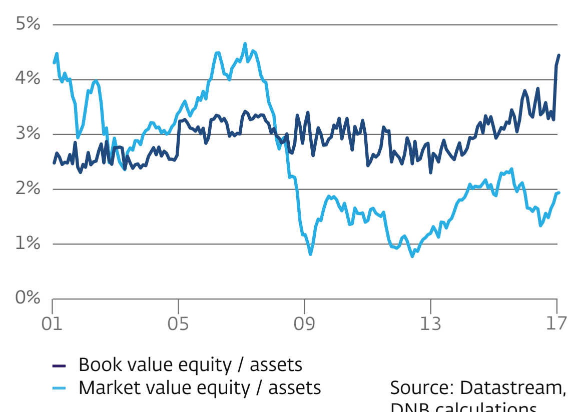
An area in which the market can provide additional information is capital ratios.

The amount of capital held by a bank is crucial. It determines the risk the bank can take, it loss absorption capacity and its profitability level, and it influences investors' confidence.

There are remarkable differences between regulators and market participants in terms of how they assess the capitalisation of the banking sector.

Figure 12 plots the regulatory versus the market based leverage ratio of the banking sector in twelve European countries. The capitalisation of the euro area banking sector based on the regulatory measure of bank equity has considerably improved since the financial crisis. Banks have increased their regulatory capital. In comparison, the leverage ratio based on the market value of bank equity is significantly lower than their pre-crisis level, and did not improve much since 2009.[32] Hence, market participants value future bank profits lower or are of the view that banks are more prone to risk compared to the pre-crisis period, despite their higher loss absorbing capacity. Market participants may also react to economic uncertainty without banking fundamentals being changed.

Figure 12 Regulatory versus market based leverage ratios



Source: Datastream, DNB calculations.

Note: leverage ratio is defined here as the value of equity over the book value of assets. The value of equity is either determined by the market (light blue line) or by the regulatory definition of equity (dark blue line). The figure is based on a set of 79 listed European banks.

32 These findings are in line with those in the recent study of Basten and Sanchez Serrano (2018).

There are plausible reasons for the different assessments by regulators and market participants of the capitalisation of the banking sector.

Firstly, regulatory capital ratios based on the book value of equity reflect historical developments. By contrast, capital ratios based on the market value of equity reflect uncertain future profit opportunities. This includes the uncertainty of future changes in regulation. Secondly, future profit prospects may have been reduced by "bail in" measures if these have diminished expectations that states will bail out banks in the future. Thirdly, the differences may reflect the uncertain impact of FinTech and other business model challenges on future profitability.

Both approaches have advantages and drawbacks.

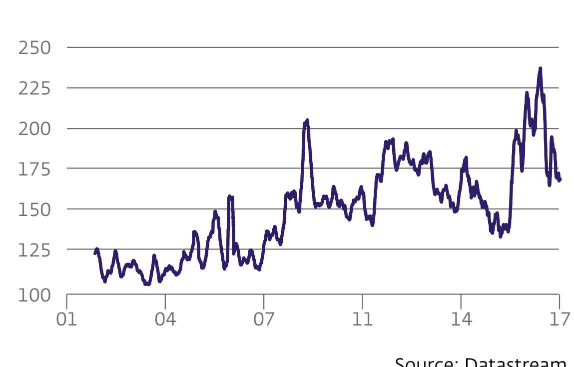
Using book values of equity has the advantage that regulatory capital ratios are less likely to be inflated by noisy expectations of profit opportunities. This measure reflects the amount of losses that a bank can absorb from an accounting perspective. However, an unintended effect of using book values is that regulatory ratios may be less informative about the actual stability of the banking sector. During times of crisis, this may impair the confidence of market participants in regulatory capital ratios, which may increase the vulnerability of banks to herding and contagion effects. At the same time, the intervention of bank supervisors to stabilise the banking sector may be delayed, as banks continue to meet their regulatory capital requirements.

Next to capital ratios the market also provides information on risk.

This can be assessed by analysing option prices. Figure 13 shows a time series of the implied volatility of a basket of options on European bank stocks. For ease of reference, this implied volatility is divided by the implied volatility of the market. The trend is sloping upward over time. Judging from the risk implied by option prices, market participants consider banks, as compared to the market, to be considerably riskier than they were at the start of the financial crisis. The regulatory changes following the crisis have not improved this overall picture.

Figure 13 Market implied risk of banking stocks relative to the market

In %



Source: Datastream.

Note: the figure shows the three-month moving average of the implied volatility of a basket of options on European bank stocks, divided by the implied volatility of the market.

The conclusion is that regulators and supervisors, as well as bank risk management functions, can benefit from taking market values into account when assessing bank capitalisation.

The information needed to do so is readily available for bank stocks that are traded on a regulated market. Stock markets can provide measures of value, while option markets provide additional measures of risk.

3.4 Impact of liability valuation on insurers' behaviour

A key principle in the regulation of insurers is the market-consistent valuation of assets and liabilities.

The value of the assets of insurers is often directly observed in financial markets. The valuation of insurance liabilities, however, is not directly possible as no liquid market for these liabilities exists. However, a market-consistent value of liabilities can still be determined using the market observed discount rates. For life insurers with guaranteed obligations the appropriate discount rate should be close to the risk-free rate as determined by supply and demand in a liquid market. In the Solvency II framework for insurers, discount rates are derived from actively traded euro interest rate swaps.

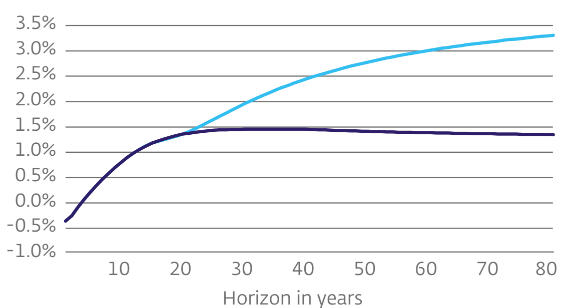
Deviations from market valuation can have unintended effects.

Firstly, inadequate regulatory valuations of liabilities can result in too optimistic regulatory solvency ratios. This is the case if regulatory adjustments lead to deviations between book and market valuation. This can also be an issue if an arm's length transfer of liabilities takes place. Secondly, relatively high discount rates are an incentive to invest in high-risk assets. The higher returns are required to match the higher discount rates. Riskier investment strategies however raise the probability of a decrease in capital. Lastly, deviations between regulatory valuation and market valuation can distort hedging strategies, because a hedging strategy that matches assets to the regulatory value of liabilities differs from the strategy that matches the economic value of liabilities.

It is therefore important to assess whether there are indications of an impact of the valuation rules of insurers on investment and hedging strategies.

This section assesses the impact of two regulatory adjustments to market valuation that were introduced when the Solvency II framework for insurers took effect: the ultimate forward rate (UFR) and the volatility adjustment (VA). Both adjustments relate to the calculation of liabilities.

Figure 14 Effect of UFR on discount rates for insurers



Source: DNB.

Note: based on interest rates at year-end 2017

The purpose of the ultimate forward rate (UFR) is to determine the discount rates for liabilities with long-term maturities at which market data are less reliable due to limited liquidity.

The ultimate forward rate represents the assumed long-run equilibrium one-year forward interest rate and is set at 4.2%.[33] This causes forward interest rates at long horizons to converge towards 4.2%. This artificial rate, which is applied at horizons beyond 20 years, deviates from market rates. Indeed, today's market swap rates beyond the 20 year horizon are considerably below the UFR derived discount rate (see Figure 14). The more the UFR overestimates the discount, rate the more it artificially lowers the value of long-term insurance liabilities.

An unintended effect of the UFR is that it leads to regulatory solvency ratios that are too optimistic.

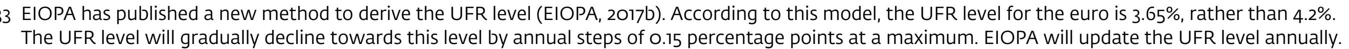
The extent to which the UFR currently deviates from market rates, over an extended period of time, was not foreseen by regulators. As a consequence, the UFR has a substantial upward impact on the regulatory own funds of Dutch life insurers. The use of the UFR is a concern for the development of the solvency position of insurers in a future scenario where they fail to compensate the UFR effect with solid returns on future investments (above the risk free rate) or with profits on new business.

Another unintended effect of the UFR is that insurers may be tempted to reduce interest rate risk hedging.

Insurers may be tempted to opt for a 'regulatory hedge' which matches the short-term interest rate sensitivity of assets and the regulatory value of liabilities, and hence reduces the volatility of regulatory capital. In economic terms, however, a regulatory hedge is imperfect. In the long run, the regulatory hedge will therefore provide less protection against interest rate risk than an economic hedge. Currently a regulatory hedge is equal to 60-70% of an economic hedge for Dutch life insurers. Insurers may therefore be tempted to reduce their interest rate risk hedging by as much as 30 to 40 percentage points. A related drawback of the UFR method is that hedging leads to a concentration of bonds and interest rate swaps around the 20-year maturity. After this point the insurers' cash flows are insensitive to changes in interest rates. This concentrated hedging demand potentially influences prices for the 20-year maturity.

The purpose of the volatility adjustment (VA) is to dampen the impact of high volatility in the market value of fixed income assets caused by overshooting and undershooting in credit spreads fluctuations.

The VA reflects the average risk-adjusted credit spread of the fixed income investments of European insurers. It is based on a reference portfolio and is added to the discount rates for liabilities. In case financial markets deteriorate, credit spreads will increase and therefore the VA will also go up. All other things being equal, this lowers the value of insurance liabilities in



33 EIOPA has published a new method to derive the UFR level (EIOPA, 2017b). According to this model, the UFR level for the euro is 3.65%, rather than 4.2%. The UFR level will gradually decline towards this level by annual steps of 0.15 percentage points at a maximum. EIOPA will update the UFR level annually.

times when the fixed income investments of insurers suffer from credit spread increase. Figure 15 shows an approximation of the historical evolution of the VA. The VA shows a spike after the financial crisis in 2008 and 2009 and the sovereign debt crisis in 2011 and 2012. Application of the VA at those times would have considerably reduced the value of insurance liabilities. Insurers with long duration liabilities and relatively less risky investments than the reference portfolio would have benefited from this in particular. They would actually have experienced an increase of regulatory capital during these crises.

An unintended effect of the VA is that it incentivises insurers to invest in the reference portfolio.

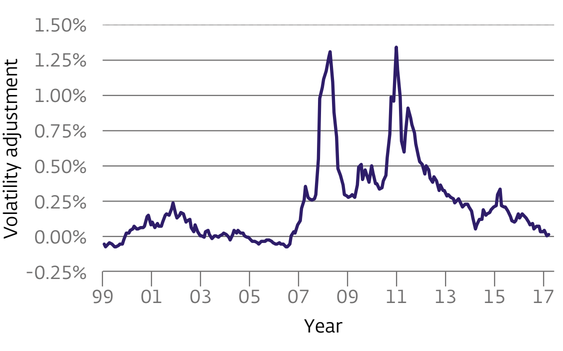
Given that insurers dislike volatility of regulatory capital, the VA incentivises insurers to invest in the reference portfolio. The more in line the investments are with the reference portfolio, the more the changes in values of the assets are accompanied by changes in the value of the liabilities. Box 1 provides examples of how the VA impacts regulatory equity for two life insurers with different asset allocations and different liability structures.

The UFR and the VA may provide incentives to invest in riskier assets and may increase homogeneity.

The UFR and the VA typically have a positive effect on discount rates. This implies that insurance liabilities have a lower regulatory value compared to market values. The relatively high discount rates might provide insurers with an incentive to invest in high-risk assets, if higher returns are required to match the higher discount rates. Riskier investment strategies, however, heighten the probability of a decrease in capital. In addition, both the UFR and the VA may lead to more homogeneity in the insurance sector if insurers are induced to adjust their investment and hedging strategies in similar ways in response to these measures.[34]

Figure 15 Time series of the volatility adjustment

Volatility adjustment (daily)



Source: DNB.

34 See also Broeders, de Jong and Schotman (2016).

Box 1: The impact of a volatility adjustment on equity

The example in this box shows the impact of a volatility adjustment (VA) on the regulatory equity of insurers with different asset allocations. Insurer 'Corp' invests EUR 100 in a portfolio of corporate bonds with a duration of 5 years and an average credit spread of 125 basis points. Insurer 'Govies' invests EUR 100 in government bonds with a duration of 7.5 years and an average credit spread of 50 basis points. This credit spread indicates that the government bonds are high-risk. Both insurers have EUR 10 in other investments. The liability duration of Corp is 7.5 years and for Govies it is 15 years. The value of the liabilities without a VA is EUR 100 for both and equity stands at EUR 10. We analyse the following two scenarios: (1) the introduction of a 30 basis points VA followed by (2) an economic downturn.

Firstly, we assume a 30 basis points VA is added to the discount rates. The value of the liabilities of Corp will decrease to EUR 97.75 (=100-7.5x0.30). The value of the assets is not affected. This implies an increase in equity of EUR 2.25 for Corp to EUR 12.25. For Govies the value of liabilities will drop to EUR 95.50 and equity will increase to EUR 14.50. After the introduction of the 30 basis points VA, regulatory equity of both insurers is higher. The impact is largest for the safe investor with the long liability duration. The balance sheets look like this:

Introduction of 30 basis points VA	Corp	Govies
Government bonds (Dur=7.5, Credit spread = 50bp)		100.00
Corporate bonds (Dur=5, Credit spread = 125bp)	100.00	
Other investments	10.00	10.00
Liabilities (VA=30 bp)	97.75	95.50
Equity (total assets-liabilities)	12.25	14.50

Secondly, we assume an economic downturn with increasing credit spreads. These are now 225 basis points for corporate bonds and 100 basis points for government bonds. The VA increases to 74 basis points. As a consequence, the value of the bonds and liabilities decreases. The table below shows the impact of the worsening economic conditions on the insurers' equity.

Economic downturn	Corp	Govies
Government bonds (Dur=7.5, Credit spread = 100bp)		96.25
Corporate bonds (Dur=5, Credit spread = 225bp)	95.00	
Other investments	10.00	10.00
Liabilities (VA=74bp)	94.45	88.90
Equity (total assets-liabilities)	10.55	17.35
Delta equity	-1.70	+2.85

The liability value of Corp will decrease to EUR 94.45. Furthermore, Corp sees the value of its corporate bonds decrease to EUR 95.00. The combined effect implies that the equity of Corp will decrease by -1.70 from EUR 12.25 to EUR 10.55. Let us compare this to Govies. This insurer sees the value of its liabilities drop to EUR 88.90, and the government bonds decrease to EUR 96.25. The combined effect of the liability and bond value decreases implies that the equity of Govies will increase to EUR 17.35. Govies invests in safer assets and has a higher liability duration. Counter-intuitively, this combination leads to higher regulatory equity in an economic downturn.

3.5 Indications of increased risk taking by pension funds

Dutch pension funds have also gone through important regulatory changes.

The revised Dutch Financial Assessment Framework (FTK II) was introduced in 2015. The new framework was not introduced in response to the financial crisis, but it intends to enhance the resilience of pension funds while at the same time promoting their long term investment orientation. Pension funds responded to these regulatory changes. Below, we discuss two responses that can be qualified as unintended effects.

One of FTK II's aims was to allow pension funds more flexibility in pursuing sufficient real returns over the long term.

The ambition of pension funds is di inflation protected pension benefits. For this, risk taking is necessary, as there are insufficient investment opportunities that deliver a guaranteed real return. Obviously more risk taking not only increases expected return but also the probability of not realising the pension benefits aimed for. According to the pension fund sector, FTK I pushed pension funds towards conservative investment policies. The fixed periods of recovery plans implied the possibility of sudden large pension benefit curtailments if a pension fund failed to recover before the end of the recovery period. Under the FTK II, recovery periods are flexible, allowing pension funds to better smooth the impact of negative shocks over time.[35] Thereby, the introduction of FTK II offered more room for dovetailing the investment policy to the real ambition by taking more risks, such as by investing in real assets such as equities and commodities.

An unintended effect is that, rather than increasing allocation to real assets, pension funds increased their exposure to interest rate risk.

Before FTK II, pension funds hedged 48% of their interest rate risk (DNB, 2013). After the introduction of FTK II, this number fell to around 35%. Hence, interest rate risk hedging was reduced by a roughly a third. Remarkably, pension funds which faced a reserve deficit[36] increased their interest rate risk exposure, and only marginally their exposure to high-risk assets, such as equity. Clearly, this contrasts with the purpose of FTK II to allow for an increased exposure to real assets.

A further aim of FTK II was to introduce more binding rules on minimum contribution rates for pension funds by imposing more stringent rules on smoothing based on expected returns.

Adequate contributions are of paramount importance for any pension fund's financial plan. The minimum contribution rate is the present value of newly accrued nominal pension benefits.[37] This makes contributions sensitive to changes in interest rates. At the same time, strong fluctuations in annual contributions are undesirable from a macroeconomic stability

35 The initial period of a recovery plan under previous regulations was 15 years for a reserve deficit and 3 years for a funding deficit. The remaining period of the recovery plan decreased by 1 each year. Under FTK II, the period of recovery plan is a 10 year rolling window.

36 A reserve deficit is a situation in which the funding ratio is below the pension fund-specific, risk-adjusted required funding ratio. The average required funding ratio for Dutch pension funds is 125%. Pension funds are in a funding deficit when their funding ratio is below the minimum required funding ratio of around 104.2%.

37 The exact rules are more complex, as the minimum contribution rate also includes costs and a solvency add-on.

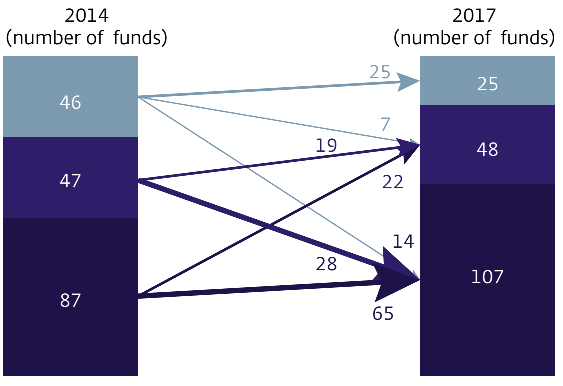
perspective. Previous regulations therefore allowed pension funds to apply smoothing techniques in setting the discount rate for contributions: either a moving average of market interest rates or the expected return on assets. Figure 16 (left side) shows that before the introduction of the FTK II, 47 pension funds applied smoothing using an average of market interest rates, while 87 pension funds applied smoothing based on expected returns. The remaining 46 pension funds did not apply smoothing of interest rates so that contribution rates cover the costs of newly accrued pension rights at all times. FTK II made smoothing based on expected returns more stringent, by allowing the use of expected return on assets only if these are applied to indexed pension benefits. This adjustment substantially raised the minimum contribution rate for funds using smoothing based on expected returns.

In the years after the introduction of FTK II many pension funds switched towards smoothing based on expected returns to set contribution rates.

Discounting new accrual at market interest rates led to contribution rates that could no longer be afforded by some sponsors and were economically seen as very distortive. This was a reason for pension funds to switch from discounting with market interest rates to discounting with expected returns. Figure 16 shows that between 2014 and 2017, 42 pension funds switched to smoothing based on expected returns. Of those pension funds, 14 previously did not use smoothing at all, and 28 pension funds previously used smoothing based on a moving average of market interest rates.

Figure 16 Migration table methods for smoothing pension contributions

Method of calculating contributions



Note: The migration table is based on subsample of pension funds in existence both in 2014 and 2017.

Source: DNB.

Not only falling interest rates but also a change in regulation played a crucial role in the increased attractiveness of using expected returns to set contributions.

Legislation prescribes how pension funds must calculate their maximum expected return on assets. Until 2015, both the maximum return on bonds and on equities were fixed. This also implied a fixed risk premium on equities. As of 2015, the return on bonds is determined by market interest rates, while the maximum return on equities is fixed at 7%. As a result, the risk premium on equities assumed in regulation has substantially increased in recent years as market interest rate have decreased. This has reduced the costs of newly accrued pension rights for pension funds using expected returns to set contributions.

An unintended effect of the rules on contribution rates is that it that contribution rates have fallen substantially below the economic fair value of newly accrued pension rights.

This applies to a large part of the pension sector. In 2017, 107 pension funds smoothed the contribution rate using expected returns, accounting for 85% of aggregate contributions in the Netherlands.

3.6 Recommendations and proposed actions

Our recommendation is that increased attention should be devoted to promoting heterogeneity in the financial sector in regulation and supervision. The indications of increased homogeneity presented in this chapter may be a sign of an increase in systemic risk. Homogeneity among financial institutions is a key concern when it comes to financial stability.[38] More attention should be therefore be devoted to promoting heterogeneity in the financial sector. The following proposed actions lend more substance to this recommendation.

Proposed actions for policy makers

Make the identification of anticipated and unanticipated responses to policy proposals an integral part of the regulatory design process.
Tools for understanding the regulatory response function are policy impact studies and expert opinions.

Make the assessment of potential interaction effects between different regulatory changes a standard element of the regulatory design process.
The analysis in this chapter provides indications that different regulatory changes, homogeneity and risk taking in financial sectors interact.

38 See Beale et al. (2011).

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