Staff Memo

Competitiveness and regulation of Norwegian banks

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1. Introduction

The main purpose of this report is to look at the competitiveness of the Norwegian banking sector, in particular with respect to banking regulation and taxation. How do Norwegian banks perform relative to other European banks and relative to other firms in Norway? Do Norwegian banks have a competitive handicap compared with banks from neighbouring European countries, due to stricter regulation in Norway? And if so, what is the cost of this to the Norwegian economy?

The analysis sets out to examine the performance of the Norwegian banking sector in a national and international perspective. We examine the size, growth, compensation and profitability of banks operating in Norway relative to those operating in other European countries and the US. Moreover, we look at performance and compensation in the banking sector in Norway compared with the rest of the private sector. In particular, we look at the market structure of the banking sector in Norway and how this has developed over the past decade. We are interested in the degree of market concentration in the sector, but equally in highlighting the degree and type of international competition faced by Norwegian banks and how this has evolved over time.

Our review shows that Norwegian banks have performed well. They have grown significantly, been cost-efficient and profitable, and they survived the financial crisis better than banks in most other European countries. They also compensate their employees far better than other Norwegian firms. Despite increased international competition and competition from an expanding bond market, their market share has remained stable and high.

We also analyse external factors affecting Norwegian banks' competitiveness. We have not conducted an exhaustive review of all the factors influencing banks' competitiveness in product and factor markets. However, we note that because of the prosperous Norwegian economy, banks, like more or less all other firms serving Norwegian consumers, enjoy a significant advantage over banks serving consumers in more or less all other European countries. In view of this, we limit the analysis to two key determinants of Norwegian banks' competitiveness, i.e. regulation and taxation of the banking sector in Norway.

In light of the analysis of performance, regulation and taxation of the banking sector in Norway, we discuss the costs and benefits of policy regimes that lead to a deviation from the notion of a level playing field. In doing so, we review what guidance the theoretical as well as empirical literature provides in this context. Moreover, we point to the differential impact of regulation and taxation on the levelness of the playing field, considering the fact that the EEA agreement does not include rules on taxation.

We conclude that Norwegian banks are, if anything, undertaxed as compared to non-financial firms in Norway and banks in other European countries. On the other hand, Norwegian banks are subject to somewhat stricter regulations than other Nordic banks. However, due to differing macroeconomic conditions and forbearance regimes, as well as barriers to free competition, in the short run the benefits of stricter regulations probably outweigh the costs.

2. The Norwegian banking sector in an international perspective

We start by looking at the Norwegian banking sector's performance in an international perspective. We review and discuss a set of characteristics of the banking sector related to size, growth, profitability, compensation, balance sheet features and market structure. In the following, we present a comparison based on these characteristics of the banking sector in a set of European countries and the US.

The collection of data for such a comparative analysis has proved challenging. First, disaggregated data allowing for the separate analysis of the banking sector have been hard to obtain for all the variables we aim to examine. Hence, we have in several cases had to rely on more aggregated data comprising the entire financial sector. The latter sector comprises a wider range of financial institutions and intermediaries in addition to banks.

2.1. Activity level and growth in the banking sector

The size of the banking sector

We start by examining the size and growth of the banking sector across a set of European countries and the US.[1] As a measure of size, we use the total assets of the country's banking sector relative to gross domestic product (GDP).

However, the definition of what comprises a country's banking sector is not straightforward. The scope of this report is to investigate the role of differences in the business environment and regulatory conditions facing the banking sector. In view of this, we have chosen to base our analysis primarily on a definition of the banking sector as those institutions that are subject to the respective countries' regulatory authority. These are the domestically controlled banking groups and stand-alone banks, the domestic subsidiaries of foreign-controlled banks and the foreign branches of domestic banks. Foreign subsidiaries of domestic banks do not generally fall under the regulatory authority of the country of origin, and have therefore been excluded. Domestic branches of foreign-controlled banks are also generally excluded as they fall under the regulatory authority of the country of origin rather than that of the host country.

There are also some cross-country differences in the collection of data. For example, countries vary with respect to the extent to which branches of banks are included in the data for the host country or for the country of origin. We have sought to solve such problems of comparability by combining different data sources. Further details are provided in the notes to the relevant charts and in the appendix.

Chart 2.1 presents developments over time in total banking sector assets relative to the respective country's GDP.[2] We focus on the past decade and present data for the period 1999-2011. As is evident, there are vast differences across countries – both with regard to the relative size of the banking sector at each point in time and to growth in banking activity.

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[1] Due to data limitations, the sample of countries in our analysis varies slightly depending on the choice of indicator.

[2] Total banking assets are the sum of the claims the bank has on other individuals and institutions, including the issued loans to customers and other financial institutions, financial instruments including bonds, stocks and securities, in addition to the bank's reserves and physical assets (including operating equipment).

Some countries, such as Ireland, the Netherlands and the UK, experienced dramatic changes in total banking sector assets up until the time where the financial crisis hit.

Chart 2.1: Total banking sector assets relative to the country's GDP

Sources: OECD, Bank of England (BoE), Deutsche Bundesbank (DBB), Banque National de Belgique (NBB), Statistics Sweden (SCB), Statistics Finland (SF), Danish Financial Authority (DFA), Norges Bank (NB), Federal Deposit Insurance Corporation (FDIC), De Nederlandsche Bank (DNB).
Note: The banking sector of a country refers to domestic banking groups and stand-alone banks in addition to domestic subsidiaries of foreign controlled banks. In addition, foreign branches of domestic banks are included, whereas foreign subsidiaries of domestic banks and domestic branches of foreign banks are excluded. However, there are a few exceptions to this general rule: In the case of the Netherlands, the UK and Ireland, domestic branches of foreign banks are included. Ireland further distinguishes itself from the other countries in the sample, as foreign subsidiaries of domestic banks are included as well. Starting from 2007, data on Norwegian covered bond mortgage companies (OMF-foretak) are included. Also, Fokus Bank (Danske Bank) was a subsidiary until mid-2007 and was hence included in the data on Norway up until 2006. In the case of Ireland, the source of the data for 2010 and 2011 is the European Central Bank (ECB), while data for Finland were obtained from Statistics Finland. These series do not match/overlap perfectly with the data from the OECD, but present some minor deviations. See the appendix for further information and discussion.

The United States and the Nordic countries have the lowest total assets to GDP ratio in our sample. The US not only had the smallest banking sector throughout the period, but also showed a very stable total assets to GDP ratio, which actually never exceeded 100 percent. The Nordic countries, on the other hand, experienced a significant increase in the relative size of the banking sector, illustrated by the distinct increase in total assets to GDP ratios from 2005 onwards. In the case of Finland, total assets doubled between 2005 and 2011.

As for Norway, Chart 2.1 illustrates that the banking sector has increased substantially over the past decade. Total assets amounted to 93 percent of GDP in 1999, rising to around 160 percent of GDP in 2009. After the financial crisis, the relative size of the Norwegian banking sector remained stable, in contrast to the decline we observe in other countries.

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Throughout the period, the Norwegian banking sector was smaller than the banking sector in Finland and Sweden. However, if the size of the Norwegian banking sector is measured in terms of total banking sector assets relative to mainland GDP rather than relative to total GDP, the relative size of the sector increases considerably. If we then compare the Norwegian banking sector to that of Sweden and Finland, we find that in some years the Norwegian banking sector actually exceeds that of the other two Nordic countries.[3]

However, as pointed out above, the definition of a country's banking sector is not straightforward. We have based our analysis on a definition which comprises the institutions that are subject to the regulatory authority of the respective countries. In times of crisis, the set of institutions a government feels obliged to rescue may nevertheless differ from those falling under its regulatory authority. We therefore include Charts 2.2 and 2.3, which present figures for the respective countries' banking sectors based on alternative definitions of the banking sector.

Chart 2.2: Total assets relative to GDP: Domestic banking groups and stand-alone banks, including their foreign subsidiaries and branches, and foreign-controlled subsidiaries and branches
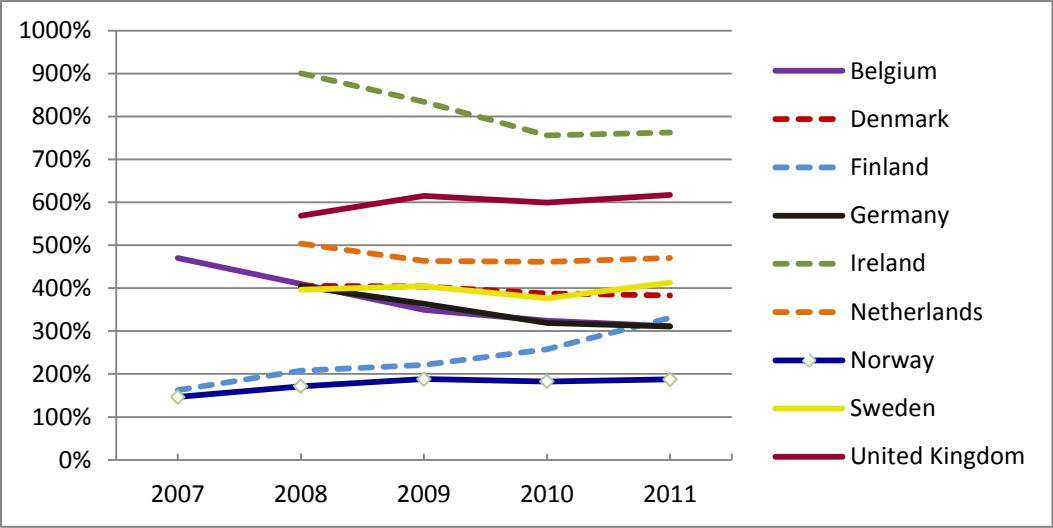
Sources: ECB, Norges Bank, DNB.
Note: In this chart, total assets refers to domestically controlled banks, including their foreign subsidiaries and branches, in addition to domestically located but foreign-controlled subsidiaries and branches. In the case of Norway, aggregate data on domestically controlled foreign subsidiaries were not available. However, data on the subsidiary DNB Nord were obtained from the annual reports from DNB and included in the Norwegian data. Other foreign subsidiaries of Norwegian banks are of such minor importance that they would not have a significant impact on the aggregate data for the Norwegian banking sector. See the appendix for further discussion and details.

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[3] Mainland Norway includes all domestic activities except those involved in the extraction or transport of oil and natural gas as well as shipping activities directed abroad.

Chart 2.3: Total assets relative to GDP: Domestic banking groups and stand-alone banks, including their foreign subsidiaries and branches

Chart 2.2 is based on a wider definition than Chart 2.1and also includes data on the foreign subsidiaries and branches of domestically controlled banks, as well as domestically located but foreign-controlled subsidiaries and branches. Chart 2.3 illustrates developments in domestically controlled banking assets. Hence, total assets comprises data on domestically controlled banks, including their foreign subsidiaries and branches, while domestically located but foreign-controlled subsidiaries and branches are not included.

Comparing across Charts 2.1 – 2.3, we observe that depending on the structure of the banking sector controlled from and/or located in a country, the notion of size of a country's banking sector can be sensitive to the choice of definition. We see that the Swedish banking sector doubles in 2011 if we include foreign subsidiaries of domestically controlled banks. Moreover, we see that increased activity by foreign-controlled subsidiaries has contributed significantly to the growth of the Finnish banking sector.

As for Norway, the relative size of the banking sector is also affected by the choice of definition, albeit not substantially.. This tells us that the Norwegian banking sector primarily comprises domestically controlled banks engaged in local activity. This stands in contrast to, for example, Sweden, whose domestically controlled banks have extensive operations abroad.

Charts 2.1 – 2.3 present the evolution in the magnitude of banking sector assets over time relative to GDP. Such a relative measure is useful as it allows us to adjust for differences in country size when we make cross-country comparisons. However, in terms of growth in the sector over time, a relative measure may be distorted by underlying trends in the economy as a whole, thus masking growth in the absolute value of the banking assets. This seems especially relevant for Norway, which we know has experienced a substantial increase in GDP since the beginning of 2000.

Hence, let Figure 2.4 presents the total assets of the banking sector indexed to the stock in year 2000, an arbitrarily chosen base year. We see that Ireland, but also the UK and the Nordic countries experienced a dramatic increase in banking sector assets up until the financial crisis hit in 2007-2008. Moreover, the growth in banking assets in Norway actually exceeded that of the other three Nordic countries as well as that of the UK.

From 2000 to 2011 the banking sector in Norway and Finland increased between three and four times. The two countries have experienced a banking sector growth that is not by any other northern European country. They also distinguished themselves from the rest of the countries in our sample, as their growth continued also after the financial crisis hit in 2008.

Chart 2.4: Growth in total banking sector assets (index 100=2000)
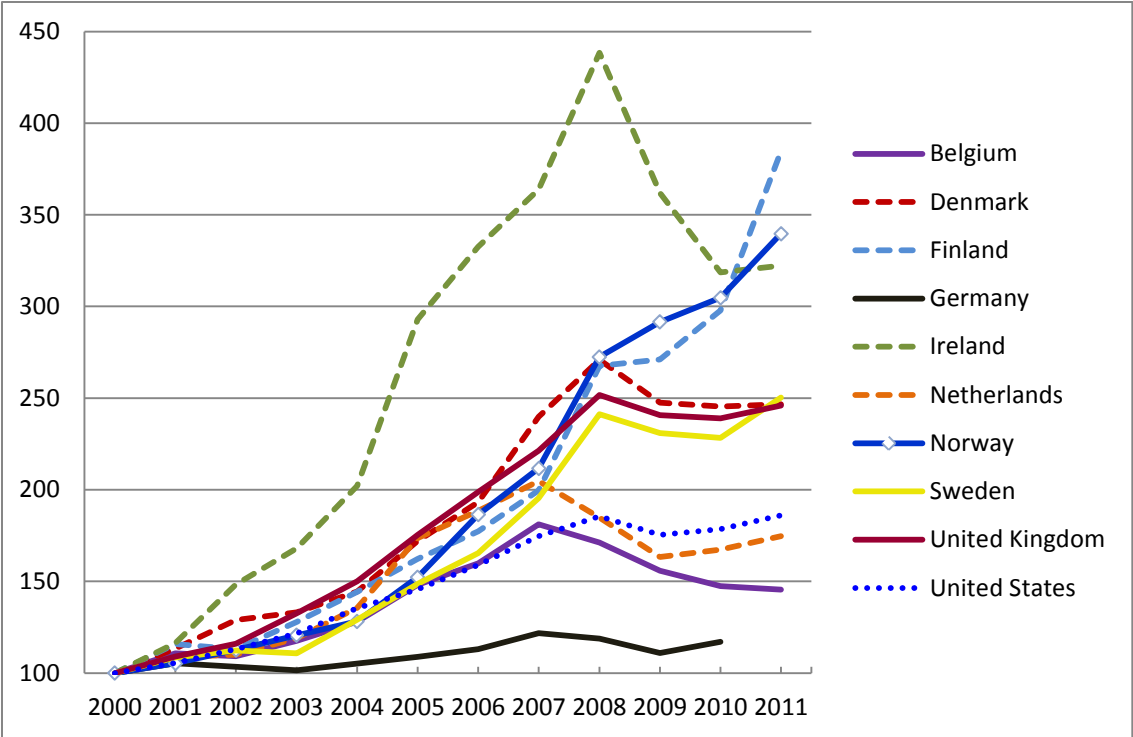
Sources: OECD, Bank of England (BoE), Deutsche Bundesbank (DBB), Banque national de Belgique (NBB), Statistics Sweden (SCB), Statistics Finland (SF), Danish Financial Authority (DFA), Norges Bank (NB), Federal Deposit Insurance Corporation (FDIC), De Nederlandsche Bank (DNB).
Note: As a general rule, Tte banking sector of a country refers to domestic banking groups and stand-alone banks in addition to domestic subsidiaries of foreign-controlled banks. In addition, foreign branches of domestic banks are included, whereas foreign subsidiaries of domestic banks and domestic branches of foreign banks are excluded. However, there are a few exceptions to this general rule: in the case of the Netherlands, the UK and Ireland, domestic branches of foreign banks are included. Ireland further distinguishes itself from the other countries in the sample, as foreign subsidiaries of domestic banks are also included. Starting from 2007, data on Norwegian covered bond mortgage companies (OMF-foretak) are included. Also, Fokus Bank (Danske Bank) was a subsidiary until mid-2007, and was therefore included in the data on Norway up until 2006. In the case of Ireland, the source of the data for 2010 and 2011 is the European Central Bank (ECB), while the corresponding data for Finland are taken from Statistics Finland. These series do not match/overlap perfectly with the data from the OECD, but present some minor deviations. See the appendix for further information and discussion.

The contribution of the financial sector to value added

As a second indicator of the relative size of the banking sector, we ook at the banking sector's share of gross value added (GVA).[4] Unfortunately, internationally comparable data are only available for the aggregated financial sector, which includes not only banking but also other types of financial activities.[5] However, note that our data exclude insurance and pension funding activities. While being a less precise measure than what we ideally would have wanted, we still believe that due to the dominant position of banks within the financial sector, we are still able to convey a satisfactory picture of the magnitude and increase in the banking sector's role in the economy using these data.

Chart 2.5 illustrates the contribution of the financial sector to national gross value added over the period 1999-2010 for a set of European countries. As in Chart 2.1, we observe that there are significant differences between the countries in the sample: In Norway, Sweden and Finland the financial sector contributes less than 3 percent of GDP for most of the period, whereas for the UK -- known for its dominant financial sector -- the corresponding figure is, for most of the period, in the interval 5-6 percent.

Chart 2.5: Gross value added from financial service activities except insurance and pension funding, as a share of national gross value added (GVA)
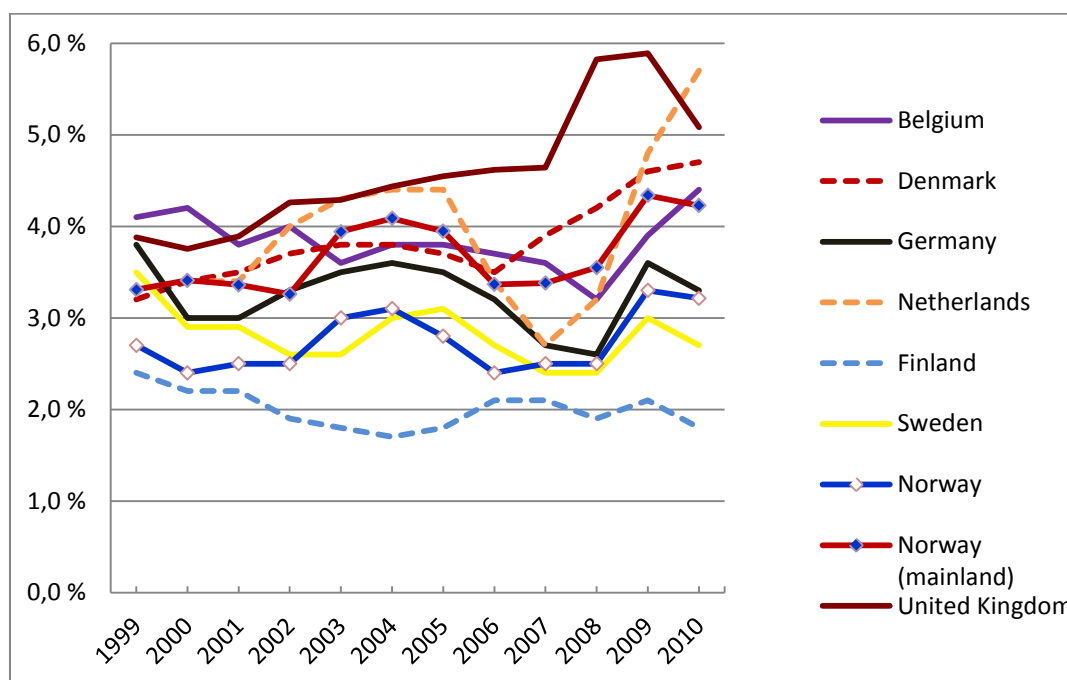
Sources: EUROSTAT, Office of National Statistics (ONS, UK data).
Note: Gross value added is defined as GDP minus taxes less subsidies.

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[4] GVA is defined as GDP minus taxes less subsidies.

[5] The data presented are based on the NACE Rev. 2 sector "Financial service activities, except insurance and pension funding". The institutional coverage of this sector includes central banking, banks, savings banks and credit unions, postal giro and postal savings bank activities, money order activities in addition to credit granting for house purchase by specialised deposit-taking institutions, activities of holding companies, trusts, funds and similar financial entities as well as financial leasing. The category excludes all forms of insurance and pension funding.

If we look at the contribution of the financial sector in Norway to mainland GVA – thereby excluding oil and gas activities – not surprisingly, the contribution of the sector becomes more significant, and in fact turns out to be above that of many other European countries.

Moreover, we see that in a majority of the countries, the contribution of the financial sector to the economy, as measured by value added, fluctuated to a fairly wide extent over the period, and was somewhat higher in 2010 than in 1999. [6] This applies to the UK, the Netherlands, Denmark, Belgium and Norway. However, in Germany, Sweden and Finland, the contribution has shrunk over the last decade.

Employment in the financial sector

A third indicator of the size of the financial sector is the level of employment in the sector. The first message to take away from Chart 2.6 is that the sector's employment share is in general lower than its share of national value added. This holds both over time and across countries. In other words, labour productivity in the financial sector is above average in the economies of all the countries in our sample. Charts 2.5 and 2.6 also show that the relative labour productivity premium of the financial sector rose in all countries in the sample apart from Sweden and Finland. In terms of cross-country comparison, the employment data communicate a similar picture to that of the gross value added data.[7] However, the differences across the European countries are more compressed when we switch to employment rather than gross value added.

Turning to developments over time, we observe that while the sector's contribution to value added increased in most countries over the decade, its employment share fell or remained stable. The financial crisis does not seem to have affected this trend significantly –positively or negatively.

While Chart 2.6 allows for cross-country comparisons of the size of the financial sector, we are also interested in absolute employment growth in the sector. Hence, Chart 2.7 maps employment levels in the financial sector over the preceding decade relative to the base year of 1999. The chart shows that many of the continental European countries, in particular Belgium, the Netherlands, Germany and the UK, experienced a steady decline in employment levels in the financial sector over most of the period.

The Nordic countries do not seem to follow the same pattern. From 1999 until around 2004-2007, these countries experienced a decline in employment like the rest of the European countries in our sample. But thereafter, Norway, Denmark, Finland and Sweden experienced a substantial increase in financial sector employment in the years just before the onset of the financial crisis. After the crisis, employment fell sharply in Denmark, but not in the other

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[6] Unfortunately, data on the Irish economy were not available. Using a broader definition of the financial sector, which includes both insurance and pension funding activities, data for 2011 and data on Ireland are also available, see Chart A.2.2 in the Appendix. These data show the dominating role played by the financial sector in Ireland both before and after the onset of the financial crisis. Its share of GDP increased from around 7 to almost 12 percent at its peak 2009, and was in 2011 still above 10 percent. The more aggregated data also indicate that the relative contribution of the financial sector remained virtually the same in 2011 as in 2010.

[7] Chart A.2 in the appendix includes corresponding data for employment in the banking sector alone, but only up to 2009. However, data for Ireland are also available here.

Nordic countries. Financial sector employment in Norway was in 2010 still higher than in 2007.

Chart 2.6: Employment in financial service activities, excluding insurance and pension funding, as a percentage of total employment in the economy
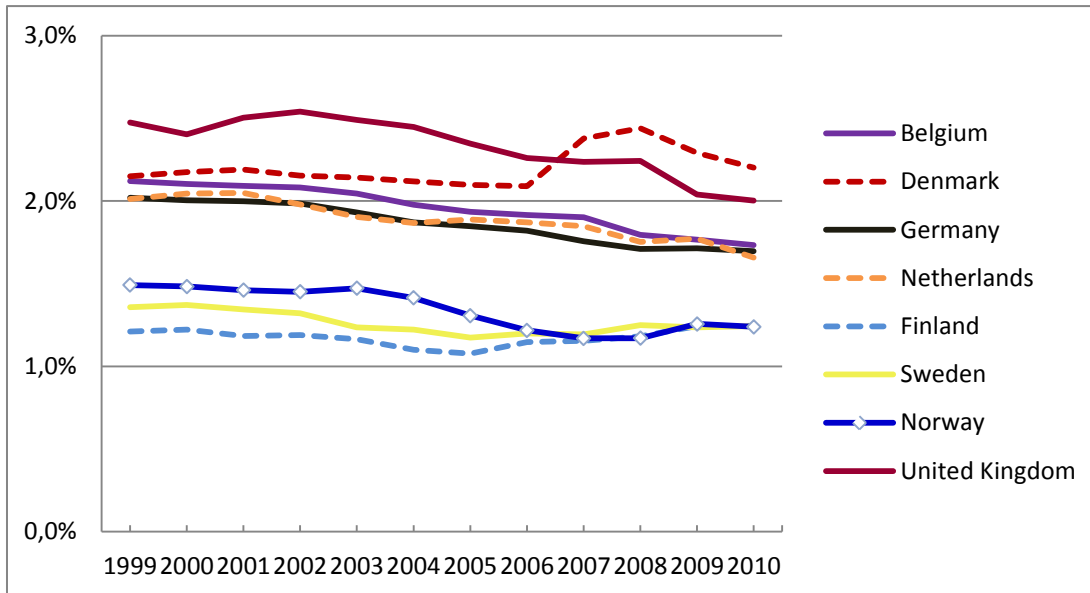
Sources: EUROSTAT and Office of National Statistics (ONS, UK data).

Chart 2.7: Employment levels in the financial sector, excluding insurance and pension funding activities, relative to the year 1999
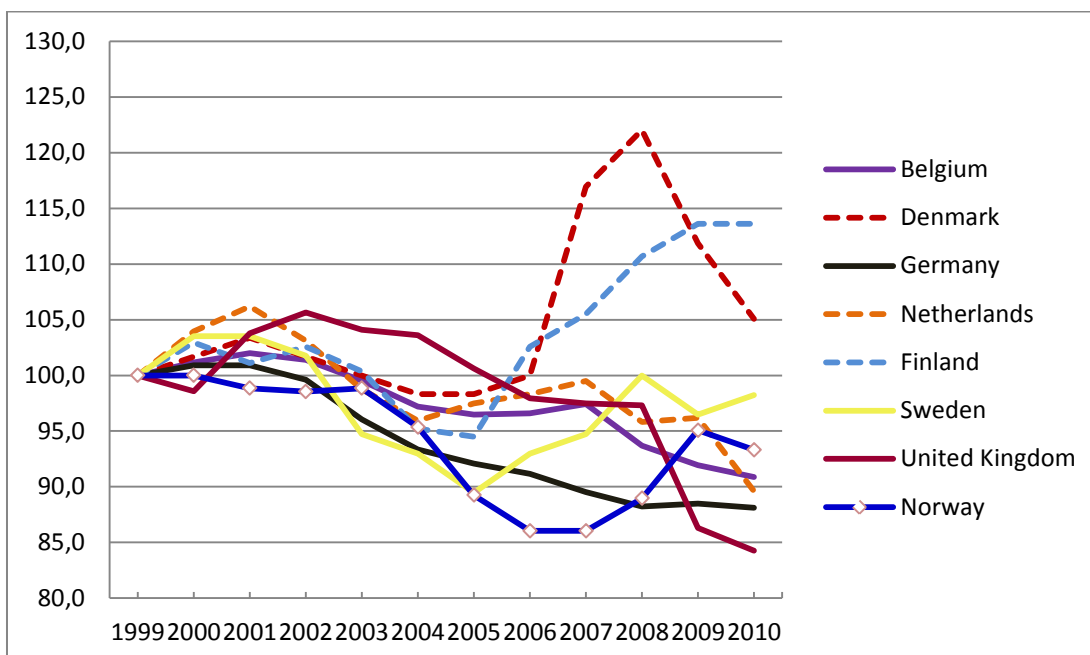
Sources: EUROSTAT, Office of National Statistics (ONS, UK data), Statistics Norway

The evidence presented in Charts 2.1 and 2.5-2.6 consistently indicates that the activity level of the banking and financial sectors in the Nordic countries of Norway, Sweden and Finland is considerably lower than in the other European countries in our sample, relative to the size of the national economy. In the case of Norway and Finland, this conclusion does not seem to be sensitive to the definition of the banking sector. Indeed, the evidence presented in Charts 2.2 and 2.3 still suggests that their respective banking sector is smaller than in the other European countries. For Sweden, however, we find that the results are much less robust and very sensitive to the definition used in the analysis. In particular, we find that when the activities of foreign subsidiaries of domestically controlled banks are included, Sweden has the third highest ratio of total assets in the banking sector relative to GDP among the countries in our sample. However, our review of total assets, value added and employment in the financial sector underscores the importance of not only focusing on relative figures, but also looking at absolute growth. Perhaps especially for Norway – which has experienced substantial economic growth over the last decade – the absolute growth numbers tell a set of stories that are masked by the relative figures. To summarise, while we do not see a significant change in the relative role of the financial – and in particular the banking – sector in Norway over time, total assets in this sector have risen significantly over the past decade while employment in the sector has declined.

2.2 Profitability in the financial sector

Having analysed the size and growth of the financial sector, and in particular the banking industry, we now turn to the profitability of financial institutions. We consider two measures of profitability: returns on total assets (ROTA), defined as pre-tax income to total assets, and return to equity (ROE), defined as after-tax income to total shareholder equity.

Chart 2.8 shows ROTA measured by pre-tax earnings in the banking sector divided by the sector's total assets. We observe that prior to the financial crisis, the banking sector generated positive pre-tax income in all countries in the sample from 1999 to 2007. We note that both prior to 2008 and 2009, as well as during the crisis years, the banking sector in all of the Nordic countries appeared to be in the high end of the spectrum with regard to ROTA. Of the ten countries in our sample, only the banking sectors in the Nordic countries of Norway, Sweden and Finland generated strictly positive pre-tax income in the two crisis years of 2008 and 2009.[8] Both before and after the crisis, the US banking sector stands out as the one with the highest – or among the highest – ROTA. While suffering a substantial decline in 2008, by 2011 the US had regained its top position, just above Sweden and Norway.

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[8] In the US, the pre-tax income of the banking sector relative to total assets reached -0.02 percent in 2009.

Chart 2.8: Return on total assets (ROTA) for the banking sector

Sources: OECD, Bank of England (BoE), Deutsche Bundesbank (DBB), Banque national de Belgique (NBB), Statistics Sweden (SCB), Statistics Finland (SF), Danish Financial Authority (DFA), Norges Bank (NB), Federal Deposit Insurance Corporation (FDIC), De Nederlandsche Bank (DNB).
Note: The return on total assets is defined as the pre-tax income to total assets ratio.
The banking sector of a country, as a general rule, refers to domestic banking groups and stand-alone banks in addition to domestic subsidiaries of foreign-controlled banks. In addition, foreign branches of domestic banks are included, whereas foreign subsidiaries of domestic banks and domestic branches of foreign banks are excluded. However, there are a few exceptions to this general rule: In the case of the Netherlands, the UK and Ireland, domestic branches of foreign banks have been included. Ireland further distinguishes itself from the other countries in the sample, as foreign subsidiaries of domestic banks are included as well. Starting from 2007, data on Norwegian covered bond mortgage companies (OMF-foretak) are included. Also, Fokus Bank (Danske Bank) was a subsidiary until mid-2007, and was hence included in the data on Norway up until 2006. In the case of Ireland the source of the data for 2010 and 2011 is the European Central Bank (ECB), while the corresponding data for Finland are taken from Statistics Finland. These series do not match/overlap perfectly with the data from the OECD, but present some minor deviations. See the appendix for further information and discussion.

We also investigate the return on shareholder equity in the banking sector of the countries in our sample, see Chart 2.9. The picture that emerges resembles that of pre-tax income to total assets as depicted in Chart 2.8. Return on equity has, however, fluctuated more over the years than ROTA. Across the countries in our sample, the banking sector has typically delivered ROE of between 5 and 25 percent until the crisis hit.

Consistent with evidence on ROTA, strictly positive ROE is only reported by the banking sectors in Norway, Sweden and Finland during the crisis years of 2008-2009. Moreover, the Norwegian banking sector is in the upper half of the countries in our sample during the latter

half of previous decade, with average ROE up to around 13 percent, and delivers the highest ROE in the sample from 2008 onwards.

Chart 2.9: Return on shareholder equity (RoE) in the banking sector

Sources: OECD, Bank of England (BoE), Deutsche Bundesbank (DBB), Banque national de Belgique (NBB), Statistics Sweden (SCB), Statistics Finland (SF), Danish Financial Authority (DFA), Norges Bank (NB), Federal Deposit Insurance Corporation (FDIC), De Nederlandsche Bank (DNB).
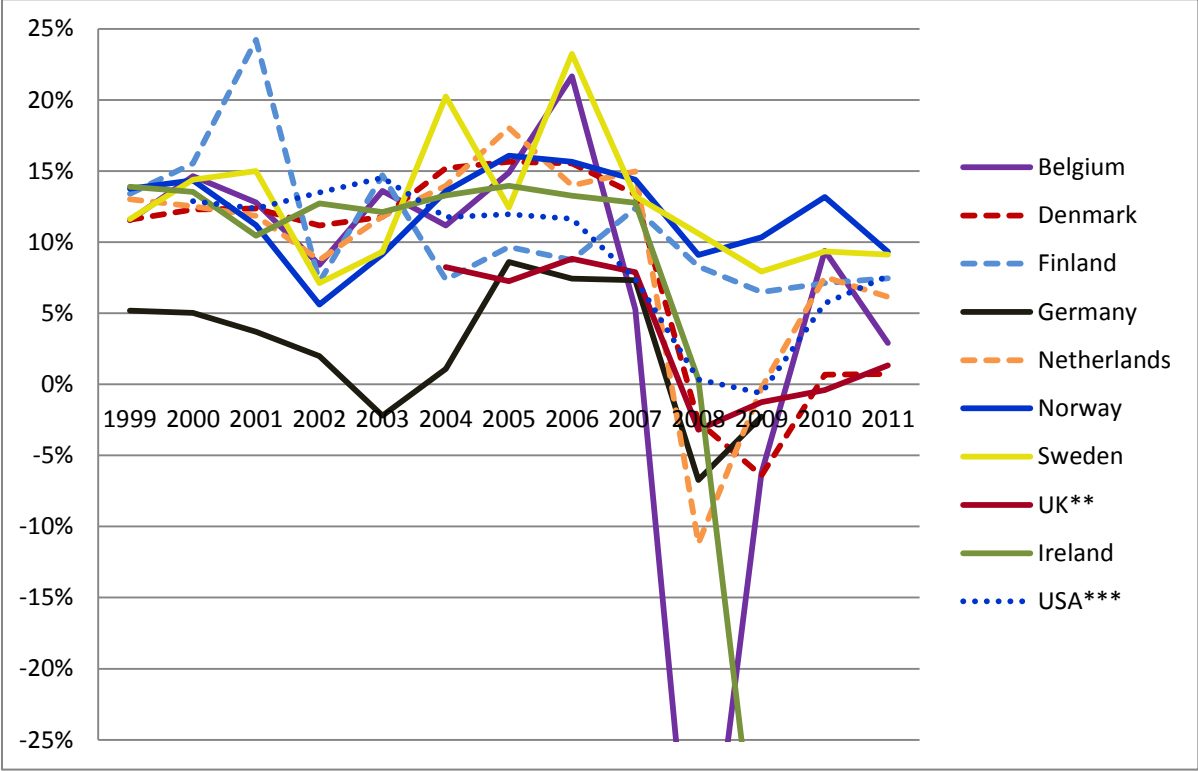**Note: The return on shareholder equity is defined as after-tax income relative to shareholder equity. The banking sector of a country, as a general rule, refers to domestic banking groups and stand-alone banks in addition to domestic subsidiaries of foreign-controlled banks. In addition, foreign branches of domestic banks are included, whereas foreign subsidiaries of domestic banks and domestic branches of foreign banks are excluded. However, there are a few exceptions to this general rule: In the case of the Netherlands, the UK and Ireland, domestic branches of foreign banks have been included. Ireland further distinguishes itself from the other countries in the sample, as foreign subsidiaries of domestic banks are included as well. Starting from 2007, data on Norwegian covered bond mortgage companies (OMF-foretak) are included. Also, Fokus Bank (Danske Bank) was a subsidiary until mid-2007, and was hence included in the data on Norway up until 2006. In the case of Ireland, the source of the data for 2010 and 2011 is the European Central Bank (ECB), while the corresponding data for Finland are taken from Statistics Finland. These series do not match/overlap perfectly with the data from the OECD, but present some minor deviations. See the appendix for further information and discussion.**
In the case of Belgium, the return on equity in the banking sector reached -41.7 percent in 2008. In Ireland the return on equity was -36.7 percent in 2008 and -65.2 percent in 2009. In order not to blur the picture for the years prior to 2008, these latter three values were not included in the chart.

Finally, we combine the yearly data on total assets to GDP presented in Chart 2.1 with the return on total assets presented in Chart 2.8, and present the relationship between size and returns in the banking sector in Chart 2.10. We are not able to comment on the causality

between size and returns, but we observe that there is a weak negative correlation between total assets to GDP in banking sector and ROTA. Moreover, we note that only the countries in which the total assets to GDP ratio of the banking sector at any point in time exceeds two hundred percent, [9] experienced a strictly negative ROTA over the period 1999-2011.

Chart 2.10: The relationship between the total assets to GDP ratio and return on total assets (1999-2011)

Note: The return on total assets is defined as the pre-tax income to total assets ratio.
The banking sector of a country, as a general rule, refers to domestic banking groups and stand-alone banks in addition to domestic subsidiaries of foreign-controlled banks. In addition, foreign branches of domestic banks are included, whereas foreign subsidiaries of domestic banks and domestic branches of foreign banks are excluded. However, there are a few exceptions to this general rule: In the case of the Netherlands, the UK and Ireland, domestic branches of foreign banks have been included. Ireland further distinguishes itself from the other countries in the sample, as foreign subsidiaries of domestic banks are included as well. Starting from 2007, data on Norwegian covered bond mortgage companies (OMF-foretak) are included. Also, Fokus Bank (Danske Bank) was a subsidiary until mid-2007, and was hence included in the data on Norway up until 2006. In the case of Ireland, the source of the data for 2010 and 2011 is the European Central Bank (ECB), while the corresponding figures for Finland are taken from Statistics Finland. These series do not match/overlap perfectly with the data from the OECD, but present some minor deviations. See the appendix for further information and discussion.

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[9] Based on the general definition of a country's banking sector, which, as a general rule, refers to domestic banking groups and stand-alone banks in addition to domestic subsidiaries of foreign-controlled banks.

2.3 Compensation in the financial sector

Having addressed size and profitability, we now turn to compensation levels in the banking sector. Chart 2.11 presents the compensation per employee in the financial sector compared to the national average of the respective country. The first thing to note is that the compensation level in the financial sector in Europe is consistently well above the national average in the respective countries. The compensation level in the financial sector is 40-130 percent higher than in the rest of the economy. The difference in compensation between the banking sector and the rest of the economy is relatively moderate in Norway, Denmark and Finland, while substantially greater in continental Europe and the UK.

Chart 2.11: Compensation per employee, financial service activities, excluding insurance and pension funding, relative to the national average
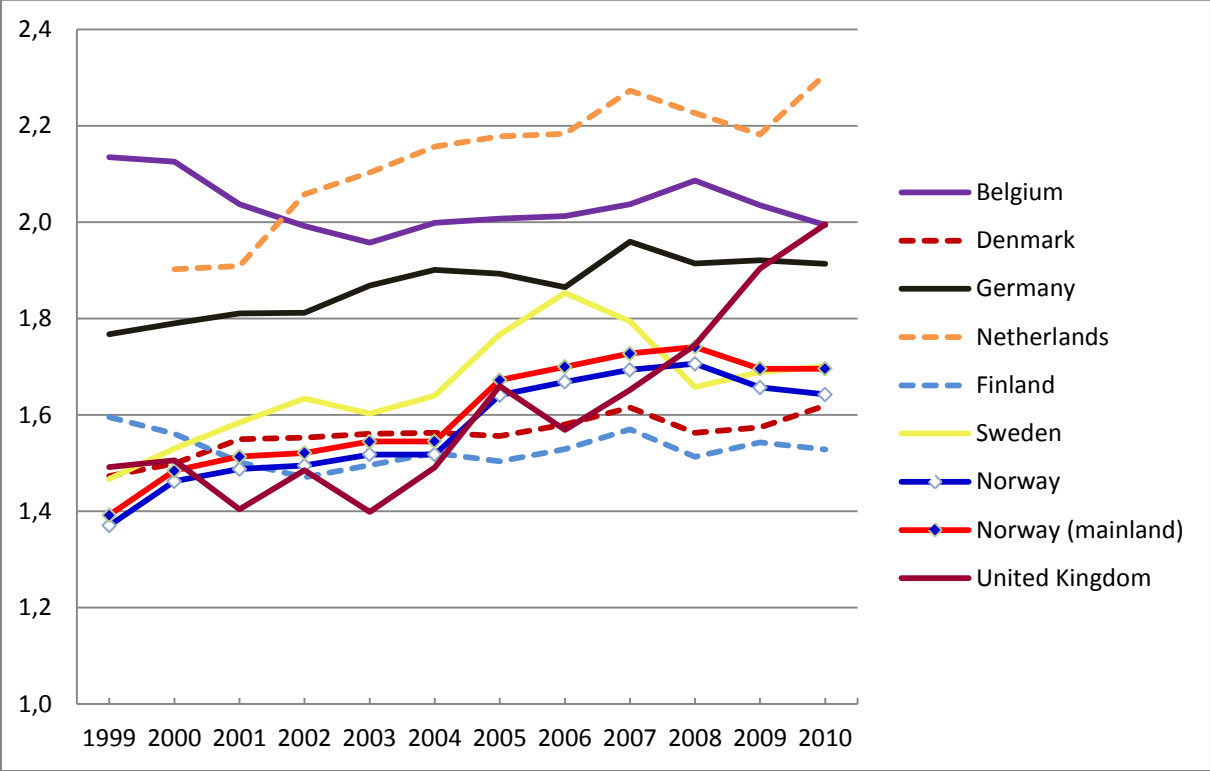
Sources: EUROSTAT and Office of National Statistics (ONS, UK data).

Moreover, in most countries we observe that the gap in compensation level between the financial sector and the rest of the economy has widened considerably over time, although to a somewhat lesser extent for Denmark and Finland. The considerable increase in compensation in the financial sector can also be observed in Norway – irrespective of whether we use the entire economy or mainland Norway as a benchmark. Interestingly enough, the dramatic fall in the rate of returns in the banking sector in many countries throughout the financial crisis in 2008 and 2009 does not seem to have had much, if any, effect on the relative compensation level in the financial sector.

Focusing on the banking sector only, a subsector of the financial sector, we find that relative compensation levels are in general even higher in most countries, with Finland being a notable exception. In Norway, compensation in the banking sectors was around 90 percent higher than in the rest of the economy in 1999, while ten years later it had risen to around 110 percent higher. Due to the unavailability of recently updated data on compensation in the banking sector, we chose not to include a graph for these figures.

An important shortcoming of the data presented is that compensation of employees only includes wages and salaries in addition to employers' social contributions. This means that bonuses and benefits such as options are not included in the figures we present. Especially since these forms of compensation are more prevalent in the financial sector than in other sectors, this means that the present data may provide an inaccurate picture of the earnings in this sector relative to the national average – with a downward-biased compensation gap. We will return to this issue in Section 3, where we analyse the Norwegian financial industry as compared to other Norwegian industries, and where more information on compensation is available.

2.4 Cross-country differences in cost efficiency – the case of electronic payment transactions

When comparing banks, cost efficiency in terms of operating costs is also of interest. In Section 2.3, we examined banks' labour costs. In this section, we focus on operating costs, examining to what extent banks in different countries have succeeded in getting their customers to use more efficient methods of payment. We investigate whether there are any systematic differences between Norway and the other countries in our sample regarding the relative importance of the use of electronic payment systems offered by banks. Does the Norwegian banking sector have a comparative advantage in the coordination of implementing cost-efficient systems that is reflected in customer demand for their products?

To ensure comparability across countries, "electronic transactions" are defined as all transactions using credit cards issued in the host country (including cards with an e-money function where applicable), non-paper based credit transfers and direct debits, excluding cash withdrawals at automated teller machines (ATMs). Data for the European countries (which are all members of the European Union) were collected from the ECB, while Norwegian data are from Norges Bank, and collected with the intention of using the same definitions as those of the ECB.

Ideally we would want to compare data on electronic transactions with data on the use of all alternative methods of payment. But neither Norges Bank nor the ECB has precise information on cash transactions, as such transactions would be almost impossible to record. The remaining transactions on which we have data are paper-based credit transactions, transactions using cheques and "other cashless payment instruments", of which none are counted as electronic transactions.[10] Thus, Chart 2.12 presents the ratio of the number of electronic transactions to the total number of cashless transactions in each of the countries in our sample. As in Chart 2.12, there are significant differences across the countries, but the share of electronic transactions rises steadily through the period. Norway ranks in the top

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[10] The "other" category is of such minor importance that it would hardly affect any of our results if it were counted as an electronic transaction instead.

group in terms of the share of electronic transactions. In Belgium, Finland, Netherlands, Norway and Sweden, electronic transactions represent more than 97.5 percent of all cashless transactions by 2011.

Chart 2.12: Share of electronic transactions to all cashless transactions
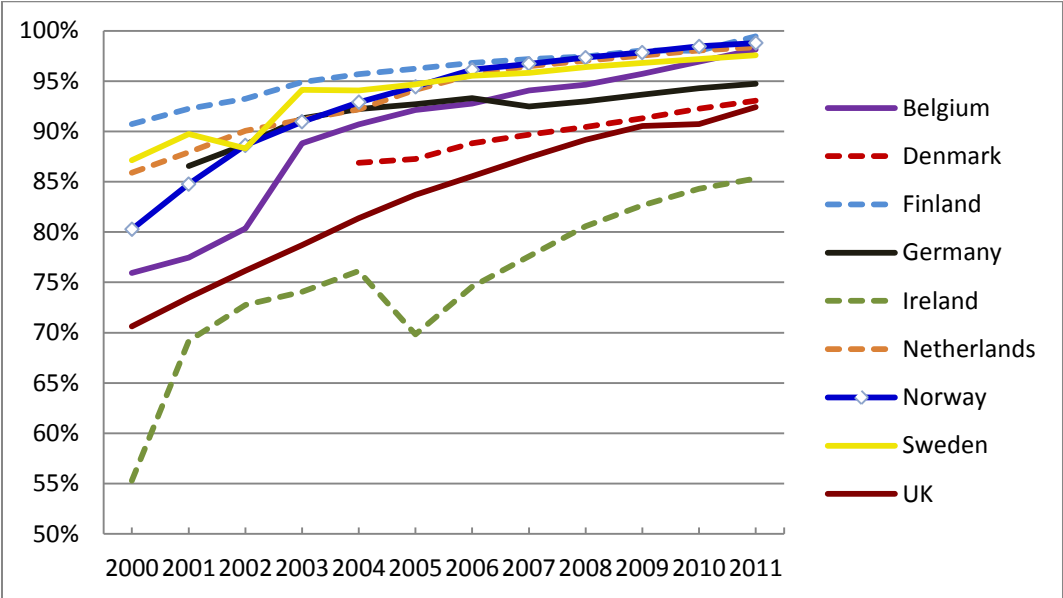
Sources: ECB and Norges Bank
Electronic transactions are defined as all use of credit cards issued in the host country (including cards with an e-money function where applicable) plus non-paper based credit transfers and direct debits, excluding cash withdrawals at automated teller machines (ATMs), while cashless transactions are defined as electronic transactions plus paper-based credit transactions and transactions by cheque.

Chart 2.12: ATMs per million capita

Sources: ECB, Norges Bank

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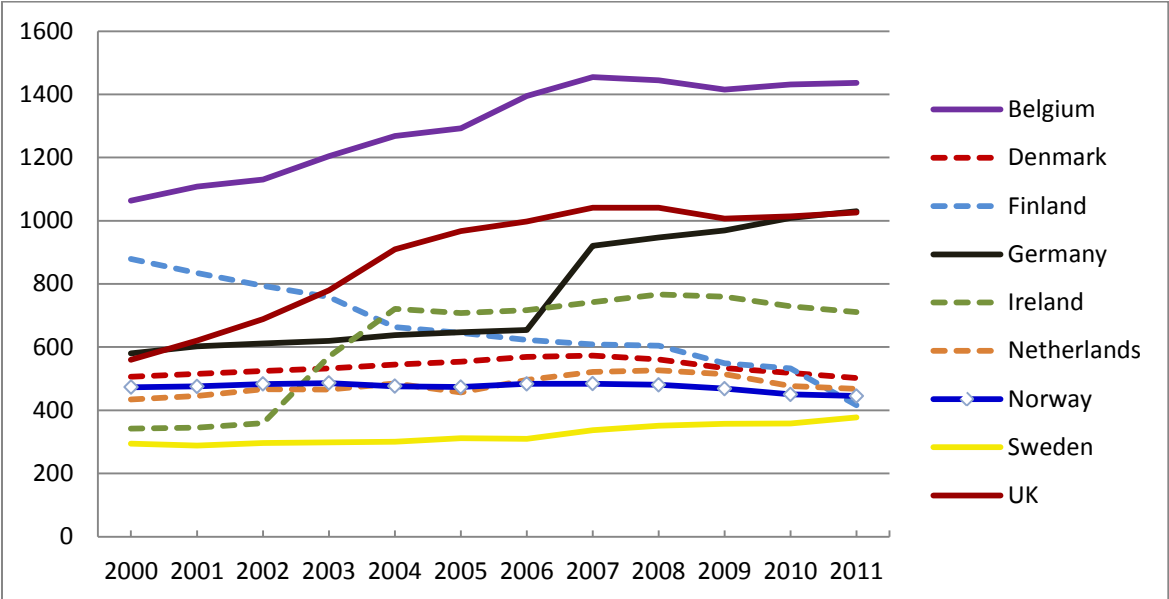
Finally, as the purpose of this section is to investigate potential differences in the implementation of cost efficient payment systems, we find it useful to report the number of ATMs per million capita in the different countries in our sample, as presented in Chart 2.13. The reason is that the maintenance of ATMs represents a considerable cost to banks. We find that the Nordic countries of Sweden, Norway and Denmark, together with the Netherlands, have the lowest number of ATMs per million capita. In several of the remaining countries, including Ireland, Germany, Great Britain and Belgium there has in fact been a considerable increase in the number of ATMs per million capita over the course of the decade. To the extent that paper-based payment systems including the operation of ATMs presents high unit costs to banks, the information presented in Chart 2.13 indicates that the Norwegian banking sector, and other Nordic countries, have been relatively successful in implementing cost efficient electronically based payment systems. For various reasons, Norwegian banks have been able to coordinate the implementation of common systems of card payment as well as internet payment systems. The systems employed in Norway are relatively cost efficient with low marginal costs. As such, the potentially innovative spirit of the Norwegian banking sector may turn out to be an important advantage to the sector as a whole.

2.5 Funding structure in the banking sector

Profitability, compensation and size are important performance indicators. Another key characteristic of the banking sector, where we observe significant differences across banks, is banks' funding structure. Banks' funding may be subject to considerable risk, as was revealed during the financial crisis in 2008/2009. Chart 2.14 presents the shareholder equity to total asset ratio of the banking sector of the ten countries in our sample over the period 1999-2011. There are substantial differences across the countries in our sample. The equity ratio of the banking sectors in Belgium, Germany and the Netherlands never exceeded five percent, and is for most of the period close to or less than four percent. By contrast, in the US the average shareholder equity of banks exceeds 8.5 percent for the entire period, increasing through most of the period, with a dip in 2008, but exceeding 11 percent by 2011.

In Norway, Denmark, Sweden and the UK, the average equity ratio in the banking sector varies within the range of 4.6-7.5 percent over the period. In quite a few countries, including Norway, the equity ratio fell steadily until the crisis hit in 2008, after which it has risen somewhat. Ireland started out with a medium-high equity ratio of 6.6 percent in 1999, but experienced a significant drop in this ratio while the sector expanded. As the crisis hit in 2008, the equity ratio was down to3.3 percent. However, the equity ratio has increased since then, reaching 5.6 percent in 2011, which is closer to pre-crisis levels.

The data presented in Chart 2.16 suggests that the average equity ratio of the Norwegian banking sector is quite high in a European context, although significantly lower than the corresponding figures for the US banking sector. They also show that Norwegian banks' equity ratio fell steadily from the end of the 1990s until the financial crisis hit, and has thereafter increased again.

Chart 2.14: Shareholder equity ratio in the banking sector

Sources: OECD, Bank of England (BoE), Deutsche Bundesbank (DBB), Banque national de Belgique (NBB), Statistics Sweden (SCB), Statistics Finland (SF), Danish Financial Authority (DFA), Norges Bank (NB), Federal Deposit Insurance Corporation (FDIC), De Nederlandsche Bank (DNB).
Note: The banking sector of a country, as a general rule, refers to domestic banking groups and stand-alone banks in addition to domestic subsidiaries of foreign-controlled banks. In addition, foreign branches of domestic banks are included, whereas foreign subsidiaries of domestic banks and domestic branches of foreign banks are excluded. However, there are a few exceptions to this general rule: In the case of the Netherlands, the UK and Ireland, domestic branches of foreign banks have been included. Ireland further distinguishes itself from the other countries in the sample, as foreign subsidiaries of domestic banks are included as well. Starting from 2007, data on Norwegian covered bond mortgage companies (OMF-foretak) are included. Also, Fokus Bank (Danske Bank) was a subsidiary until mid-2007, and was hence included in the data on Norway up until 2006. In the case of Ireland, the source of the data for 2010 and 2011 is the European Central Bank (ECB), while the corresponding data for Finland are taken from Statistics Finland. These series do not match/overlap perfectly with the data from the OECD, but present some minor deviations. See the appendix for further information and discussion.

However, the regulatory capital standards that banks have to meet (the so-called Basel capital requirements) are not based on a simple equity ratio as presented in Chart 2.15, but on a ratio of banks' capital to risk-weighted assets. Regulatory capital is divided into Tier 1 capital and Tier 2 capital. The former consists of equity referred to as Common Equity Tier 1 (CET1) and any hybrid capital, i.e. debt that can be converted into equity. Tier 2 consists mainly of subordinated debt, i.e. debt that ranks lower than ordinary debt and deposits. The capital first in line to absorb losses is CET1. In the most recent of the Basel regulatory capital requirements, Basel III, the primary focus is on CET1 rather than on total capital.[11] When

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[11] See Section 5.2.2 for more details about regulatory capital requirements.

calculating risk weighted assets (RWA), various assets are assigned different weights according to their risk. The assignment of risk weights is either based on a standard method or banks' own risk models. Under the standard method, risk weights typically range between 20 per cent for loans to the best rated corporations via 35 per cent for mortgage lending to 100 per cent for loans to corporations without an external credit rating. For banks using their own models, risk weights can vary considerably more. As a consequence, there is no one-to-one relationship between a high equity ratio and a high CET1 ratio.

From a regulatory point of view, it is logical to calculate capital ratios based on capital relative to risk-weighted assets rather than on capital relative to non-risk weighted assets since the latter contains no information about the risk related to a bank's assets. However, banks' own calculation of risk-weighted assets may appear as a "black box" to outside investors. Furthermore, such risk weights may be subject to manipulation. However, in Basel III, an additional requirement that the ratio of Tier 1 capital to total non-risk weighted leverage exposure (supplementary leverage ratio) be 3 percent will apply from 2018. Some regulators, notably US regulators, have gone further and proposed a non-risk weighted Tier 1 ratio of 5 per cent for all larger banks (see e.g. FDIC (2013) and Hoenig (2013)).

Chart 2.15: Equity ratio and common equity tier 1 ratio, not including the transitional floor, for the six largest financial groups in the Nordic region, December 2011[12]
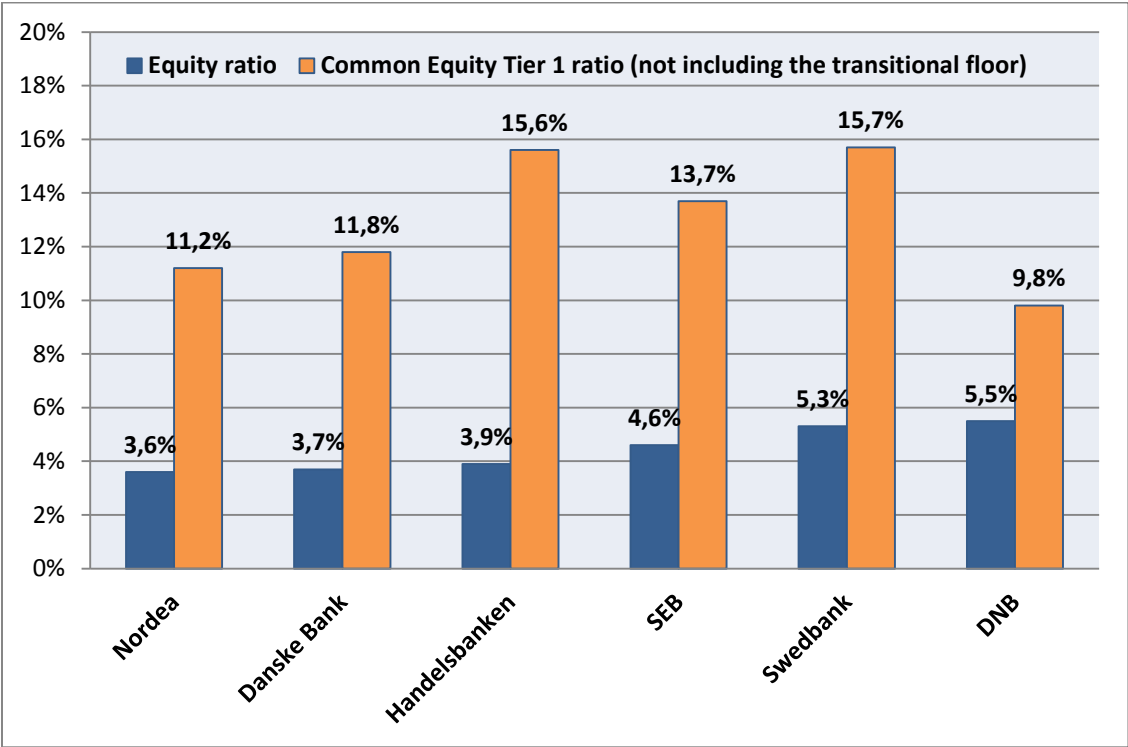
Source: Syversten (2012), Norges Bank

A good illustration of the differences between ordinary equity ratios and CET1 ratios according to current Basel rules can be found in Syversten (2012). He analyses the equity

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[12] For an explanation of the transitional floor, see Section 5.2.2.

ratio and the common equity tier 1 (CET1) capital ratio of the six largest financial groups in the Nordic area as of the fourth quarter of 2011; one banking group in Norway and Denmark respectively and four Sweden-based banking groups. All these banks use their own risk models in order to calculate risk-weighted assets (RWA). The results are presented in Chart 2.15. The figure shows that the Norwegian bank (DNB) has the highest equity ratio at 5.5 percent but the lowest CET1 capital ratio at 9.8 percent in the sample. The Swedish banks (Nordea, Handelsbanken, SEB and Swedbank) generally have a higher capital ratio; three of the major banking groups have a CET1 ratio exceeding 13.7 percent. The Danish bank (Danske Bank) in the sample has a CET1 capital ratio of 11.8 percent. They all have lower equity ratios than DNB, ranging in the interval 3.6-5.3 percent. Updated data for the same selection of banks produce similar results. This is partly due to considerably lower risk weights on mortgages among the Swedish banks than at DNB.

Banks' equity ratios, although a fundamentally important variable in many respects, are nonetheless not of primary importance for banks' financial position, unlike equity ratios for non-financial firms. In Chart 2.16, we move on to look at a more dominant source of funding, and present data on the relative importance of customer deposits in banks' funding across countries and time.

The data suggest that there are large differences across countries in the relative importance of customer deposits as a source of funding for banks on an aggregate level. The US appears to be the country where customer deposits represent the greatest portion of banks' balance sheets, ranging in the interval of 62-71 percent over the entire period, with a rapid increase in recent years after the onset of the financial crisis. This may indicate a reduction in the relative importance of interbank funding in the US banking industry after the crisis.

The UK banking sector also seems to base a considerable portion of its funding on customer deposits, ranging in the interval 52- 62 percent. For more than half of the decade, Norway is the country with the third highest deposit to total assets ratio of the banking sectors in our sample. However, in Norway's case, the ratio has steadily decreased from 54 percent in 1999, reaching its lowest value in 2011 at 36 percent and, unlike other countries, Norway did not experience any increase in this ratio in the aftermath of the financial crisis.

Chart 2.16: Customer deposits to total assets ratio

Sources: OECD, Bank of England (BoE), Deutche Bundesbank (DBB), Banque national de Belgique (NBB), Statistics Sweden (SCB), Statistics Finland (SF), Danish Financial Authority (DFA), Norges Bank (NB), Federal Deposit Insurance Corporation (FDIC), De Nederlansche Bank (DNB).
Note: The banking sector of a country, as a general rule, refers to domestic banking groups and stand-alone banks in addition to domestic subsidiaries of foreign-controlled banks. In addition, foreign branches of domestic banks are included, whereas foreign subsidiaries of domestic banks and domestic branches of foreign banks are excluded. However, there are a few exceptions to this general rule: In the case of the Netherlands, the UK and Ireland, domestic branches of foreign banks have been included. Ireland further distinguishes itself from the other countries in the sample, as foreign subsidiaries of domestic banks are included as well. Starting from 2007, data on Norwegian covered bond mortgage companies (OMF-foretak) are included. Also, Fokus Bank (Danske Bank) was a subsidiary until mid-2007, and was hence included in the data on Norway up until 2006. In the case of Ireland, the source of the data for 2010 and 2011 is the European Central Bank (ECB), while the corresponding data for Finland are taken from Statistics Finland. These series do not match/overlap perfectly with the data from the OECD, but present some minor deviations. See the appendix for further information and discussion.

2.6 Cross-country differences in market structure

We next turn to an examination of the market structure of the Norwegian banking sector compared with that of the other countries in our sample. This section presents a brief cross-country comparison, focusing on differences across European banking sectors. A more thorough discussion of the market structure of the banking sector in Norway is provided in Section 4.

To obtain a comprehensive picture of the differences in competition across banking sectors in Europe, we take a closer look at two different indices of market concentration for a set of northern European countries.

In Chart 2.17 we present the market share of the five largest credit institutions in each country based on their total assets. In Belgium, Finland and the Netherlands, the market share of the five largest credit institutions is well above 70 percent, and for most years actually exceeds 80 percent. The corresponding share in Germany never exceeds 35 percent. In the UK, the market share of the five largest credit institutions barely rises above 40 percent towards the end of the period. The market share of the five largest in Norway is about the same as in Sweden and Denmark. It is around 60 percent, which ECB (2010) reports to be the average for the EU. The degree of concentration in Norway appears to be lower than that in Belgium, the Netherlands and Finland, but higher than in the UK and Germany. Finally, it is interesting to note that in most countries, including Norway, there has been little change in the degree of concentration in banking sectors over the past few years.

Chart 2.17: The five largest credit institutions' share of total assets
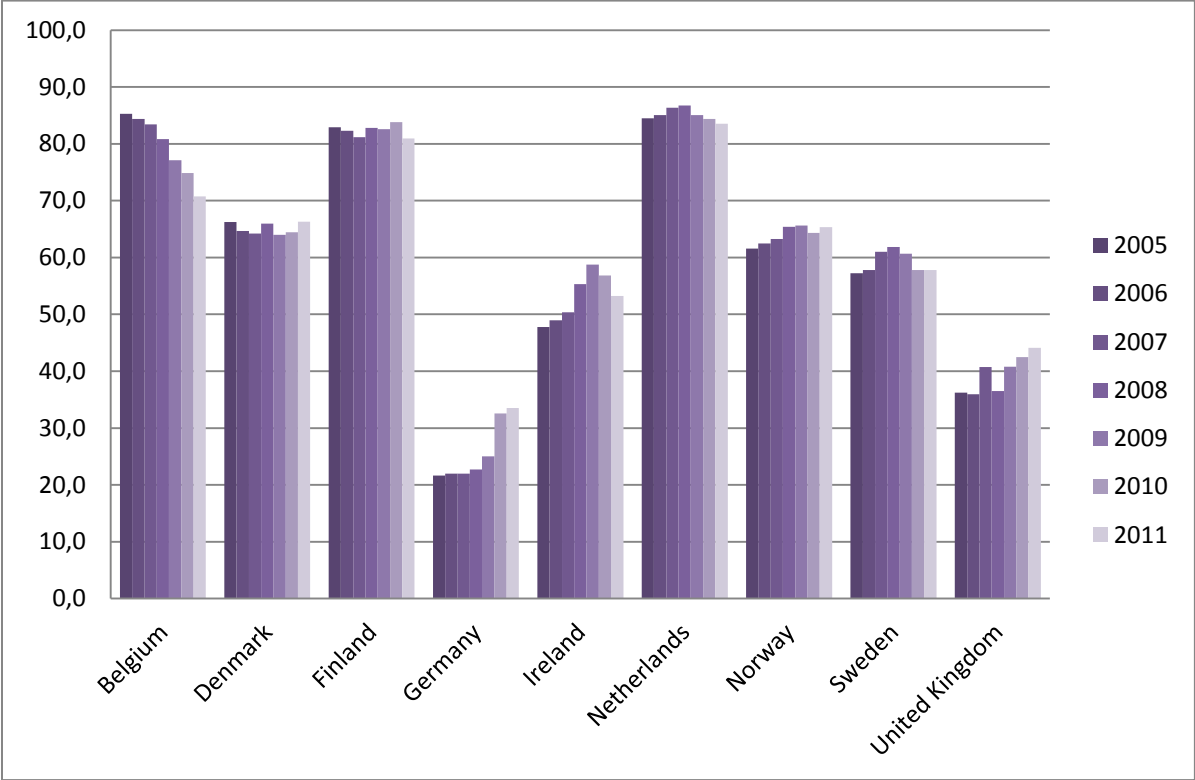
Sources: ECB (2010) and Norges Bank.
Note: ECB provide data for all countries but Norway. The ECB uses the definition of a credit institution as found in European Community Law, namely "an undertaking whose business is to receive deposits or other repayable funds from the public, including the proceeds arising from the sale of bank bonds to the public, and to grant credits for its own account." Resident credit institutions are included in the ECB data. Data for Norway have been provided by Norges Bank. These data include banks only, i.e. any subsidiaries are excluded, as we are unable to attribute individual loans transferred to a loan pool held by mortgage companies to the originating bank.

However, there are limits to the ability of this measure to portray true market concentration. We therefore supplement the pure market share measure with another measure of market

concentration, namely the Herfindahl index. [13] The advantage of the Herfindahl index is that it accounts for the dominant role played by large firms.

Chart 2.18: Herfindahl index for credit institutions

Hence, Chart 2.18 shows the evolution of the Herfindahl index for credit institutions for the same northern European countries as in Chart 2.17. The indices confirm the main results from the analysis of market shares of the five largest institutions: There are substantial differences across countries; Finland is the country with by far the highest market concentration while the UK and Germany have the lowest concentration. However, applying

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[13] The Herfindahl index is a measure of market concentration. It is defined as the sum of squares of the market shares of all the credit institutions in the banking sector of a country. Here the market share refers to the individual institutions' share of total assets in the sector. The market share is defined in percentage terms, which is why the index has a range from 0 to 10,000. For more details on the Herfindahl indices for Europe, see http://sdw.ecb.europa.eu/servlet/desis?node=1000002869 and http://www.ecb.int/ecb/legal/pdf/l_34120071227en00010232.pdf .

the Herfindahl index, Norway appears to have a significantly higher concentration than both Denmark and Sweden. The discrepancy in results obtained when using a simple measure of market concentration based on market shares of the largest institutions versus the Herfindahl index is due to the greater weight given to large firms in the Herfindahl index. Hence, unlike the other measure of concentration, the Herfindahl allows us to take account of the largest bank in the Norwegian banking sector, which has an extraordinarily high market share.

3. Norwegian financial sector and banks in a cross-industry perspective

In Section 2 we looked at the Norwegian financial sector, and in particular at the Norwegian banking sector, in a cross-country perspective. In this section, we switch from examining the performance and characteristics of the financial sector across countries to examining how the Norwegian financial sector compares to other sectors in Norway.

3.1 Activity level and contribution to GDP

In 2011, the financial sector was the sixth largest private business sector in Norway in terms of its share of gross domestic product (GDP). Its contribution to Norwegian GDP is around half that of the manufacturing sector, and it contributes approximately the same value added as the construction industry.[14] As can be seen in Chart 3.1, the Norwegian financial sector's share of GDP reached 4.5 percent in 2011 after a steady increase over the past decade. If we only consider the mainland economy, the financial sector's share of GDP is about one percentage point higher.

Chart 3.1: Financial sector share of GDP
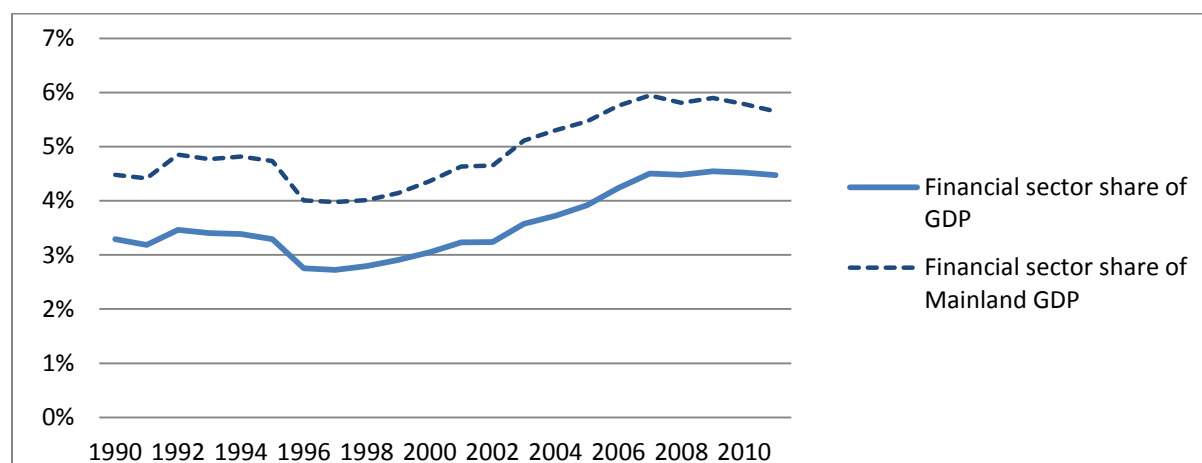
Source: Statistics Norway
Note: The financial sector is defined by Statistics Norway SN2007 code 64-66. This definition includes finance services provided by banks, mortgage companies (kredittforetak), financial companies, insurance companies and state lending institutions.

This increase in the financial sector's relative contribution to value added has occurred despite a drop in the share of workers employed by the financial sector over the past 15 years. From Chart 3.2, we see that less than 3 percent of private sector employees worked in the financial industry in 2011. Yet, this drop in the share of employees in the financial sector is partly driven by the expansion in private sector employment that has taken place over the past decade. Over the past five-six years, the number of employees in the financial sector has actually increased somewhat and the sector currently employs about 50 000 people, which is around the same as in 1996. The sector's contribution to GDP has increased despite the decline in the share of employees, which suggests that profitability in the financial sector is

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[14] The financial sector is defined by Statistics Norway SN2007 code 64-66. This definition includes finance services provided by banks, mortgage companies (kredittforetak), financial companies, insurance companies and state lending institutions. See Statistics Norway, table 09170.

rising compared with other industries. This rise in profitability may be due to productivity growth, but may also reflect changing market conditions such as the degree of competition.

Chart 3.2: Financial sector employment

Source: Statistics Norway

3.2 How does remuneration in the financial sector compare to other sectors?

Chart 3.3 shows total labour compensation paid to financial sector employees relative to the average labour compensation in all other sectors in Norway over the period 1995-2012. In line with the cross-country evidence presented in Section 2, we see that the financial sector has consistently paid their workers higher compensation. Moreover, the gap between wages in the financial sector and the average wage in the other sectors has increased over the past 15 years. In 1995 financial sector employees received on average 45 percent higher compensation than in other sectors, while in 2011 they received 75 percent higher compensation. The relatively higher labour compensation in the financial sector should be seen in light of the sector's higher labour productivity, as documented in Section 2. The relatively favourable development in labour compensation in the financial sector is also confirmed by wage growth in this sector as reported by the Norwegian Technical Calculation Committee for Wage Settlements (TBU) (see Table 3.1). Over the past decade, annual wage growth has been higher in the financial sector than any other sector in the economy. However, after the financial crisis, wage growth in financial services has been more or less the same as in the rest of the economy.

Chart 3.3: Average labour compensation (in constant 2005 NOK)
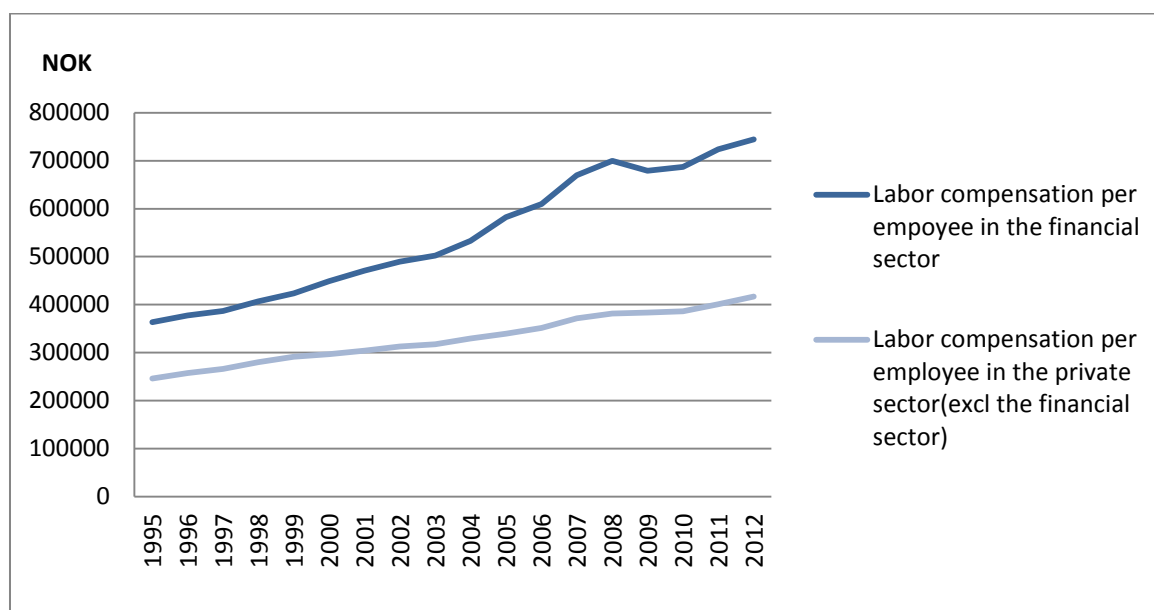
Source: Statistics Norway
Note: Labour compensation is the sum of wages and employers' social security and pension contributions.
Wages include normal wages, bonuses and other benefits to employees.

Table 3.1: Growth in wages from previous year in percent

	Manufacturing	Financial	State	Municipal
2003	4.0	4.5	4.3	4.4
2004	3.8	4.0	3.7	3.8
2005	4.0	7.7	3.4	3.4
2006	4.3	5.6	4.5	3.9
2007	5.3	5.2	5.1	4.8
2008	6.1	9.2	6.7	6.7
2009	4.2	0.4	4.4	4.6
2010	4.1	6.0	4.5	3.7
2011	4.6	4.9	4.2	4.3
2012	4	3	4	4
2002-2007	23.3	30.0	22.8	22.0
Yearly	**4.3**	**5.4**	**4.2**	**4.1**
2007-2012	25.2	25.5	26.1	25.5
Yearly	**4.6**	**4.6**	**4.8**	**4.7**

Source: TBU (2013) preliminary report, Table 1.1.
Note: Financial services include savings banks, commercial banks and insurance companies.

The relatively higher wage growth in the financial sector is partly due to a substantial increase in bonus payments as compared to the rest of the economy. [15] Chart 3.4 reveals not only relatively higher bonuses in the financial sector, but also that the gap to other sectors is growing. At the time of the financial crisis (2009), the gap narrowed, then started to widen again in the years thereafter. [16]

Chart 3.4: Bonuses as percentage of monthly payments
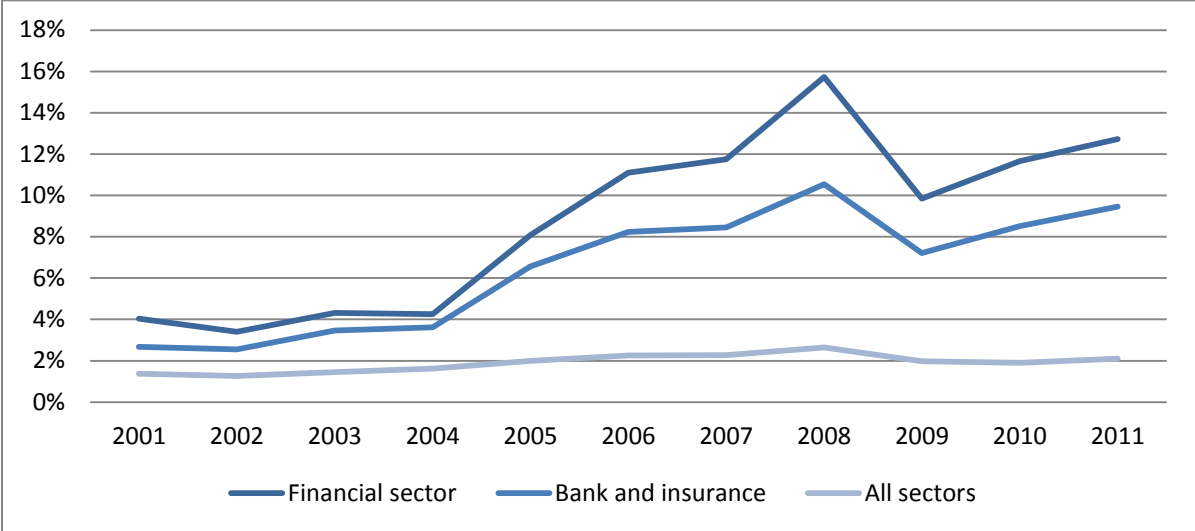
Source: Statistics Norway

3.3 Profitability and equity

To get a comprehensive picture of the performance of the financial sector, and in particular the banking industry, we proceed by looking at return on equity (ROE) and return on total assets (ROTA).

Chart 3.5 illustrates developments in return on shareholder equity (ROE) for commercial banks, saving banks and Mainland Norwegian non-financial private sector firms over the past decade. Hence, it allows us to compare ROE in the banking sector to ROE in the rest of the private sector. ROE has fluctuated considerably over the period of observation for all the three groups of firms. We see that the weighted average ROE for banks have varied between around 5 to 17 percent, while for non-financial firms they have varied from around 3 to 20 percent. Moreover, there is a strong correlation between the level of, and developments in, ROE in the banking sector and non-financial firms.

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[15] Here the term bonus is calculated based on wage statistics and only includes cash payments. Bonuses can be tied to business profitability, productivity or individual performance. Bonuses measured as a percentage of monthly payments are averages for all employees, regardless of whether they have received bonuses or not. Unfortunately, the use of stocks as payments, such as stock options, is not included in this statistic, which means that actual bonus payments are probably higher than indicated by the figures in the chart. See http://www.ssb.no/vis/emner/06/05/rapp_200718/main.html

[16] According to Statistics Norway (see Lunde og Grini, 2007), bonuses tend to be more skewed towards the higher earning groups than other compensation systems. This applies to all sectors. Hence, a relatively small share of the workers typically receives a large portion of the total bonus payments. As an example, Statistics Norway reports that in 2005 the top tenth income decile received half of the total bonus payments that year.

But Chart 3.5 conveys a picture of wide divergence in ROE between the commercial and saving banks. Since year 2004, commercial banks have delivered equally high or considerably higher ROE than savings banks. All three groups of firms were hit by the financial crisis. However, Commercial banks' ROE was much less hit by the financial crisis than the ROE of the saving banks and the non-financial firms. We also note that in the aftermath of the crisis average ROE for commercial banks has been higher than the average for non-financial firms every year.

Chart 3.5: Return on shareholder equity (ROE): Mainland Norway non-financial firms, Commercial and savings banks
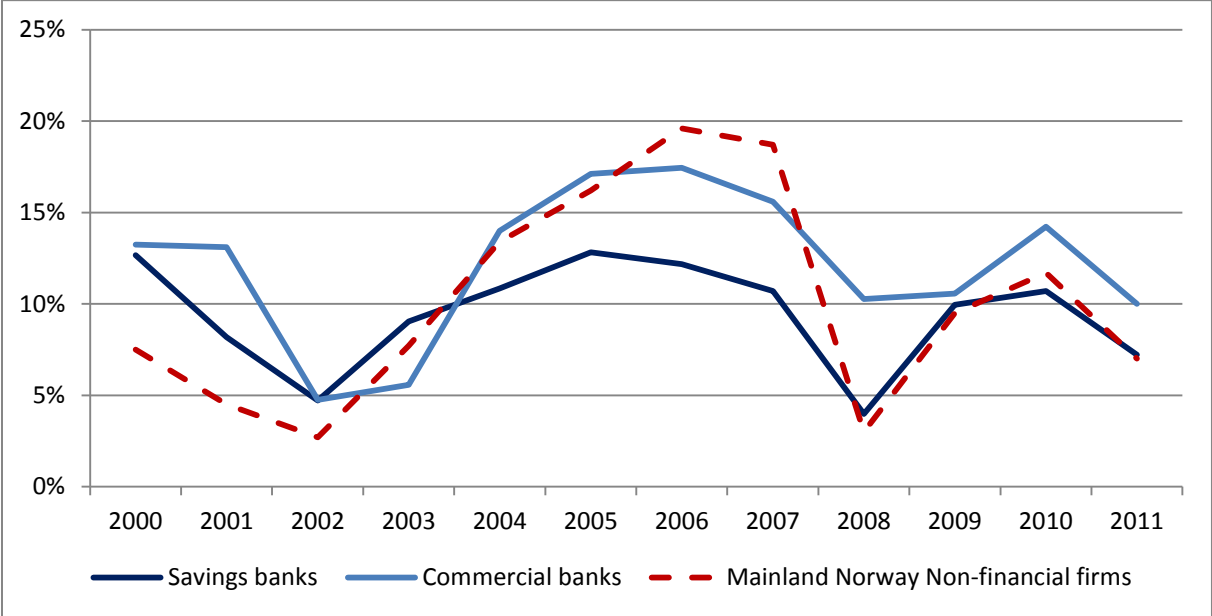
Source: Statistics Norway and Finance Norway (FNO)
Note: Return on Equity (ROE) is defined as after-tax profit divided by equity.[17] The chart presents a weighted average for ROE for Saving banks, Commercial banks and Mainland Norway non-financial firms. Commercial banks comprise domestically controlled banks and their branches abroad, as well as subsidiaries of foreign banks, while they exclude Norwegian branches of foreign banks. In FNO's statistics, DNB is classified both as a savings bank and as a commercial bank. In this chart, we have removed DNB from the sample of savings banks and regard it as a commercial bank.[18]

On the other hand, the results for ROTA reveal a very different picture. Chart 3.6 plots average ROTA for Norwegian banks and non-financial firms over the past decade. Despite the fact that average ROE in the banking sector has developed very much in line with those in other sectors, Chart 3.6 shows that banks have had substantially lower returns on their *total* assets than non-financial firms.[19]

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[17] Equity is defined as the sum of shares and other capital invested in the company by the owners as well as retained earnings from the company.
[18] Gjensidige NOR and DNB merged in 2004.
[19] While commercial banks and saving banks have delivered distinctly different ROE, there are no systematic differences regarding their ROTA (see Chart A3.1 in the appendix for an illustration).

Chart 3.6: Return on total assets (ROTA)

Chart showing Return on total assets (ROTA) from 2000 to 2011 with two series: Mainland Norway Non-financial firms (dashed red line) and Banks (solid blue line). Y-axis ranges from 0% to 12%.

Legend: – · – Mainland Norway Non-financial firms   ——— Banks
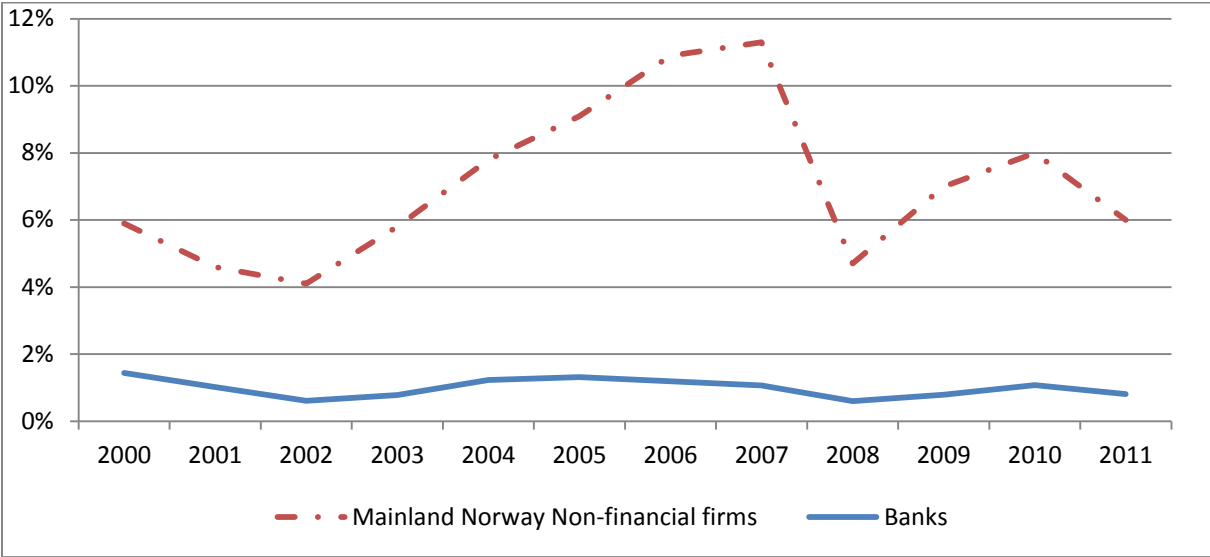
Source: Statistics Norway
Note: Return on total assets (ROTA) is defined as pre-tax profit divided by total assets. Total assets are the total (accounting) value of an institution's assets. The chart presents a weighted average for ROTA for the two groups, banks and Mainland Norway non-financial firms. Banks comprise domestically controlled banks as well as subsidiaries of foreign banks, while branches of foreign banks are excluded.

Returns versus equity ratios

This discrepancy between the banking sector and other sectors of the economy in terms of ROTA does, however, have a straightforward explanation. As Chart 3.7 illustrates, the equity share of total assets in the banking sector is much lower than in the rest of the private sector. Whereas the average equity share in the banking sector has been between 5 and 8 percent throughout the past decade, the equity share in other sectors has varied between 35 and 43 percent. The difference in the share of equity contributes to explaining how banks' relatively low ROTA translates into ROE in line with – or distinctly higher than – that of non-financial firms.

The lower a firm's equity ratio, the higher is the equity return volatility for a given volatility of its total assets. As a result, a lower equity ratio increases the risk borne by shareholders, and this will be reflected in a higher required rate of return on equity.

Several recent empirical studies have found a negative correlation between a bank's equity ratio and shareholders' rate of return. Marcheggiano, Miles and Yang (2011) find that a one unit increase in a bank's leverage (the inverse of the equity ratio) increases the observed rate of return on equity by about 20 basis points. In a similar study in the ECB Financial Stability Review (December 2011), the effect of a one unit increase in a bank's leverage is found to increase the observed rate of return on equity by 40 basis points.

Chart 3.8 plots the return on equity against equity for each of all the commercial and savings banks in Norway for the year 2010. The chart shows that there is a negative correlation between equity and return on equity for the banking sector. We also conduct the same exercise for the years 1995, 2000 and 2005, and again find a negative correlation between equity and return on equity for these years. This is consistent with the findings for other

countries as described above.[20] A higher equity ratio appears to lower the shareholders' required rate of return and hence the banks' equity premium. This effect will dampen the increase in total funding costs stemming from higher equity requirements for banks, see e.g. Admati et al. (2011).

Chart 3.7: Equity ratio for banks and non-financial firms
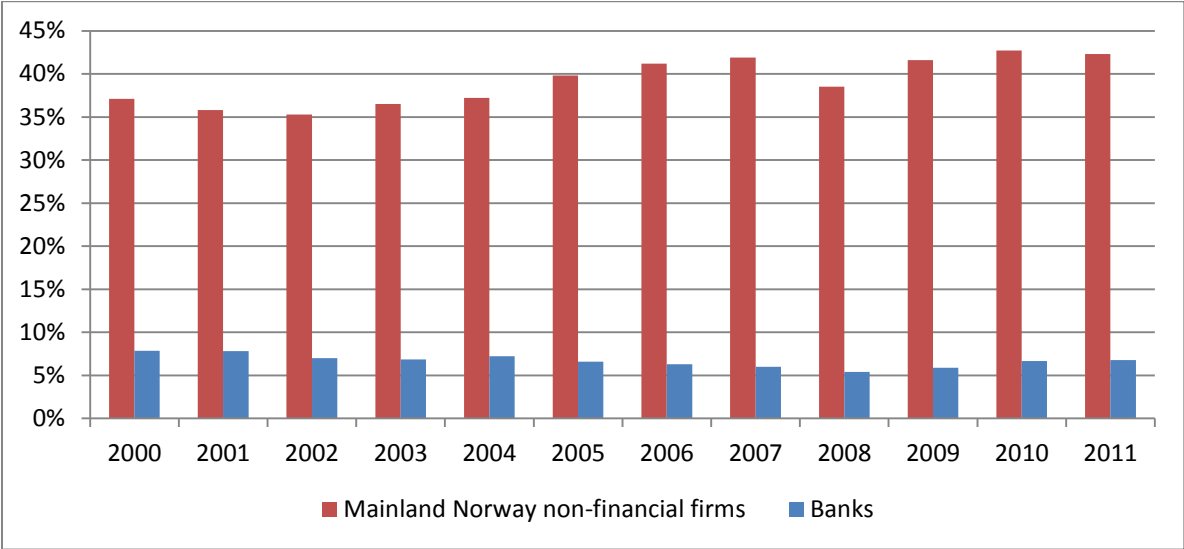
Source: Statistics Norway
Note: The equity ratio is defined as equity relative to total assets (see Chart 3.6 for details). The chart presents a weighted average of equity ratios for the two groups, banks and non-financial firms. Banks comprise domestically controlled banks and subsidiaries of foreign banks, while branches of foreign banks are excluded.

Chart 3.8: Equity ratio to return on equity (ROE) 2010
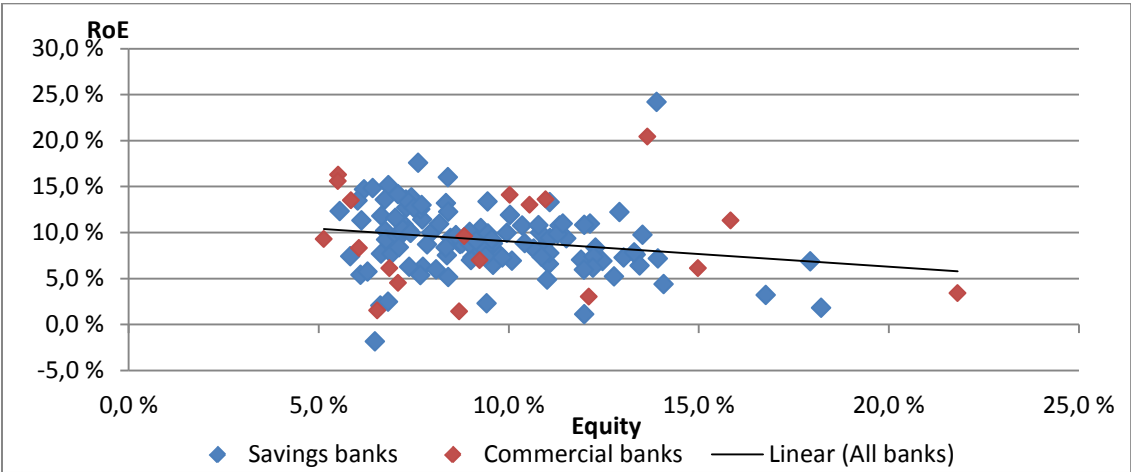
Source: Finance Norway (FNO)
Note: The correlation coefficient is at -0.27 and is significantly different from zero at a 95 percent confidence level.

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[20] Note, however, that in Miles,Yang and Marcheggiano (2011), the required ROE is proxied by realised actual earnings over the share price. In our analysis, the book value of equity is used as denominator rather than the share price, which may give a somewhat more crude measure of required return.

4. Market structure and competition in the Norwegian banking sector

The Norwegian banking sector comprises commercial banks and savings banks. Commercial banks are organised as joint stock companies, while savings banks in general are organised as self-owned institutions. Depending on ownership structure, commercial banks may in turn be split into two groups: domestically controlled banks and foreign banks.

The following types of commercial banks are active with a geographical presence in Norway: domestically controlled groups, stand-alone banks, subsidiaries of foreign-controlled banks and domestic branches of foreign controlled banks. There are also some foreign banks that operate in the Norwegian market without a geographical presence in Norway. However, the market share of these banks is insignificant.

A foreign subsidiary bank is controlled by a foreign-controlled parent bank.[21] In line with EU financial sector regulation, the domestic subsidiaries of foreign-controlled banks are treated as autonomous legal entities, and are under the regulatory supervision of the country in which they operate. Hence, the institutions competing in the Norwegian banking market which are subject to the regulatory authority of Norwegian regulators include domestically controlled banking groups, stand-alone banks, and the domestic subsidiaries of foreign-controlled banks, while domestic branches of foreign-controlled banks in general do not fall under the regulatory authority of Norwegian regulators.

In 2000, there were 130 savings banks and 22 commercial banks in Norway. In 2012, the number of savings banks had fallen to 109, while there were 32 commercial banks operating in Norway. [22]

Among the commercial banks, two foreign subsidiary banks and nine foreign branch banks operated in Norway in 2000. In 2012, the number of foreign subsidiary banks had increased to four and the number of foreign branch banks had increased to 12.[23]

The structure of the Norwegian banking sector has changed significantly since 2007 when covered bonds issued by specialised mortgage institutions were introduced. Due to the change in legislation, several commercial and savings banks have established covered bond mortgage companies. A large share of banks' mortgage lending has been transferred to these mortgage companies.

4.1 Market concentration

The banking sector is characterised by high concentration. According to the international comparison provided in Section 2, the level of concentration in the Norwegian banking sector is also slightly above the EU average.

Compared to virtually any other Norwegian industry, the degree of market concentration in the banking sector stands out. Table 4.1 shows the market share for the largest, the five largest

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[21]By definition, the parent institution holds more than fifty percent of the stocks in the subsidiary institution.
[22] See Norges Bank Historical Monetary Statistics.
[23] See Norges Bank Historical Monetary Statistics and the Financial Stability report 2/2012. These figures do not include mortgage companies.

and the ten largest banks, measured as a percentage of total lending and deposits respectively, and developments in the degree of concentration over time. In 2011, the largest Norwegian bank had a more than 30 percent share of both deposits and lending, while the ten largest banks accounted for more than 65 percent of deposits and more than 70 percent of the total lending market.

Table 4.1: Market concentration in the Norwegian financial sector based on lending to and deposits from customers of financial institutions in Norway

	2000	**2005**	**2011**
Deposits			
Market share of the largest institution	21.6 %	35.0 %	33.8 %
Market share of the 5 largest institutions	55.4 %	55.8 %	56.5 %
Market share of the 10 largest institutions	65.3 %	64.3 %	66.8 %
Lending			
Market share of the largest institution	16.9 %	29.4 %	33.3 %
Market share of the 5 largest institutions	51.3 %	52.2 %	58.5 %
Market share of the 10 largest institutions	65.2 %	66.4 %	72.1 %

Source: Finance Norway (FNO)
Note: Market shares are calculated relative to total deposits and total lending respectively. Total deposits are given by the sum of deposits from all customers exluding foreign and domestic banks to commercial banks and savings banks in Norway. Total lending is given by the sum of lending from all financial institutions in Norway, i.e. banks, mortgage companies, the Norwegian central bank, finance companies, state lending institutions, insurance companies and pension funds, to all customers excluding foreign and domestic banks. See Finance Norway for details.

Chart 4.1 and Chart 4.2 illustrate clearly that not only is market concentration in the Norwegian banking sector high, but it has also increased over the past decade, especially after the merger between DnB and Gjensidige NOR in 2003. The structure of the Norwegian banking sector is in particular characterised by the extraordinarily high market share of the largest bank.

There are several reasons for high market concentration in the banking sector, which we observe in most countries.[24] First, when production is characterised by scale advantages, an increase in market concentration may be welfare enhancing. Empirical evidence has been mixed and estimates of these scale effects have differed, typically varying with the choice of econometric method.[25] However, new methods of estimation suggest that there are indeed scale effects in the banking sector (see Hughes and Mester, 2011). Recent literature points to the existence of scale advantages in the banking sector both related to risk diversification and to the benefits of information technology.[26]

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[24] See Section 2 for a review.
[25] The older literature, using data from the 1980s, failed to find scale effects for larger banks, while more recent studies using new methods of measuring scale advantages tend to find significant scale effects. See Mester 2005 and 2010 for a review of the literature.
[26] See Wheelock and Wilson (2012) and Humphrey and Vale (2004).

Chart 4.1: Major institutions' lending market shares, 2000
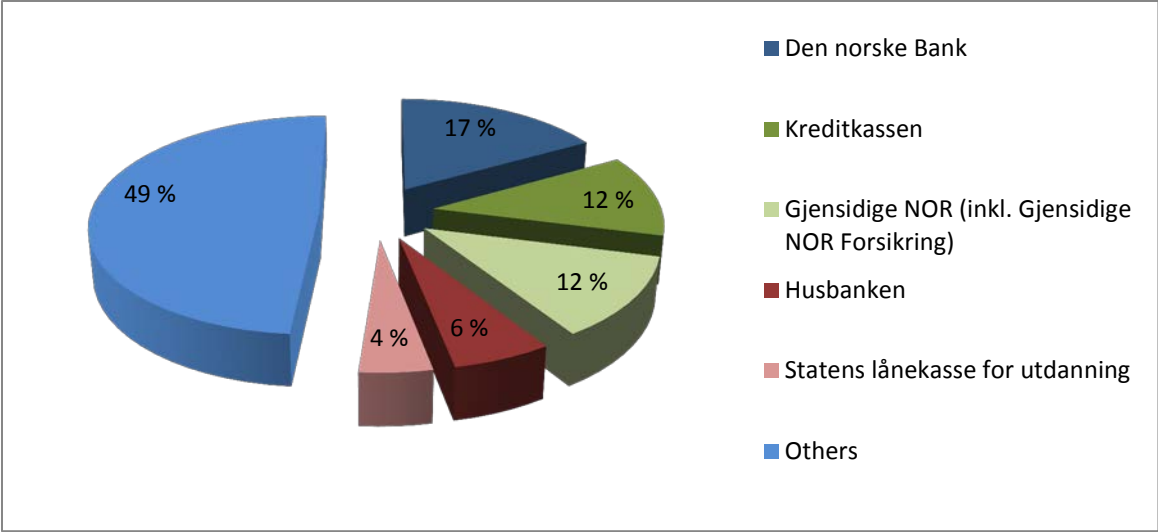
Legend:
- Den norske Bank
- Kreditkassen
- Gjensidige NOR (inkl. Gjensidige NOR Forsikring)
- Husbanken
- Statens lånekasse for utdanning
- Others

Pie values: 17 %, 12 %, 12 %, 6 %, 4 %, 49 %

Source: Finance Norway (FNO)
Note: Total lending is given by the sum of lending from all financial institutions in Norway, i.e. banks, mortgage companies, the Norwegian central bank, finance companies, state lending institutions, insurance companies and pension funds, to all customers, excluding foreign and domestic bank. See Finance Norway for details.

Chart 4.2: Major institutions' lending market shares, 2011
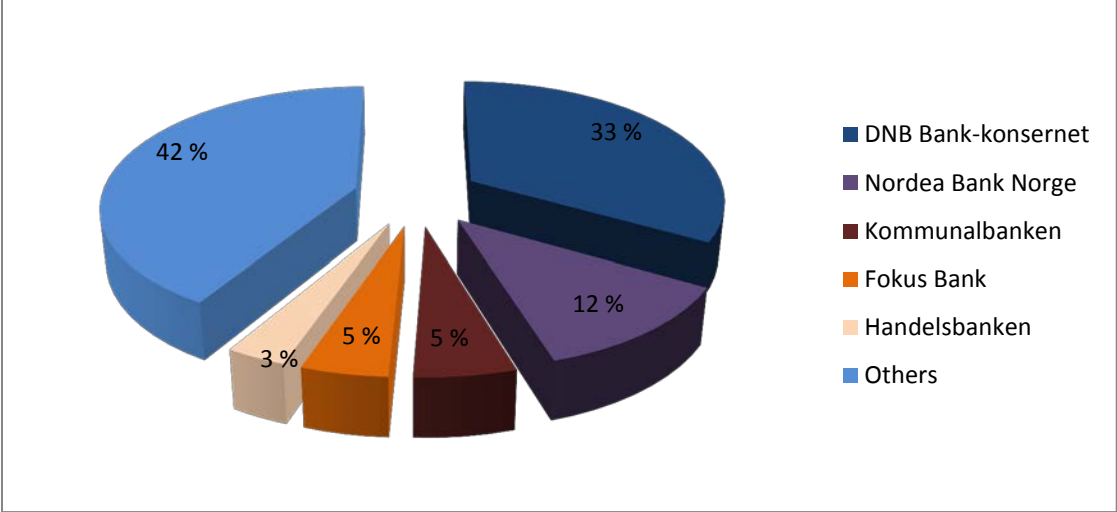
Legend:
- DNB Bank-konsernet
- Nordea Bank Norge
- Kommunalbanken
- Fokus Bank
- Handelsbanken
- Others

Pie values: 33 %, 12 %, 5 %, 5 %, 3 %, 42 %

Source: Finance Norway (FNO)
Note: Total lending is given by the sum of lending from all financial institutions in Norway, i.e. banks, mortgage companies, the Norwegian central bank, finance companies, state lending institutions, insurance companies and pension funds, to all customers excluding domestic and foreign banks. See Finance Norway for details.

Second, informational asymmetries between bank and borrower tend to reward local knowledge and long-term customer relations, and thus create natural barriers to entry (see Boot, 2002). This is especially important for loans made to small and medium-sized

businesses (SME) and loans made to households.[27] In these segments, banks without a local geographical presence are seen to have a clear disadvantage. Based on Norwegian bank data for the period 1988 to1996, Kim et al. (2003) find that about one third of the average bank's market share can be attributed to its established customer relationship.

4.2 The nature of competition in the Norwegian banking sector

In general, Norwegian (domestically controlled) financial institutions face three different types of competition. First, they face competition from foreign financial institutions with a geographical presence in Norway. Foreign financial institutions may serve the Norwegian market through branches or subsidiaries. According to the EEA agreement, only the latter are subject to the regulatory authority of Norwegian regulators. Second, Norwegian financial institutions face competition from institutions without a geographical presence in Norway, and finally, they also face competition from the bond market.

Competition from foreign subsidiaries and branches
Norwegian financial institutions compete with branches and subsidiaries of foreign financial institutions. Chart 4.3 documents developments in market shares of total lending for domestic and foreign controlled banks from 2000 to 2013.

Chart 4.3 shows developments in market shares of total lending (both retail and corporate) from 2000 to 2013. There are two key messages to take away from this chart: First, over the past decade, competition from foreign institutions has become considerably more intense. Second, the nature of the competition from abroad has changed. But it should be noted that foreign competition has so far been more or less limited to competition from Nordic banks, and in particular Swedish and Danish banks.

From 2000 to 2006, Norwegian commercial banks lost about 15 percentage points of their market share. More recently, from 2006 to 2013, Norwegian commercial banks lost a further two percentage points of their market share, while savings banks increased their share. Hence, over the period 2006 -2013, Norwegian banks and mortgage companies have in total, maintained their market share relative to foreign subsidiaries and branches. But the nature of the foreign competition has changed significantly from 2006 to 2013. While the market share of subsidiaries of foreign banks has decreased, branches of foreign banks have become more dominant. This implies that an increased share of the competition from abroad facing Norwegian banks is not subject to the same rules as the domestically controlled banks, since they are not subject to the regulatory authority of Norwegian regulators. However, Norwegian financial market regulation must comply with EU rules, and the EEA agreement sets some clear limits on national discretion. The extent to which Norwegian banks may face different and stricter regulation than their foreign competitors is thus limited.

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[27] See NOU 2000:9, p 70.

Chart 4.3: Distribution of market shares of total lending in the Norwegian lending market
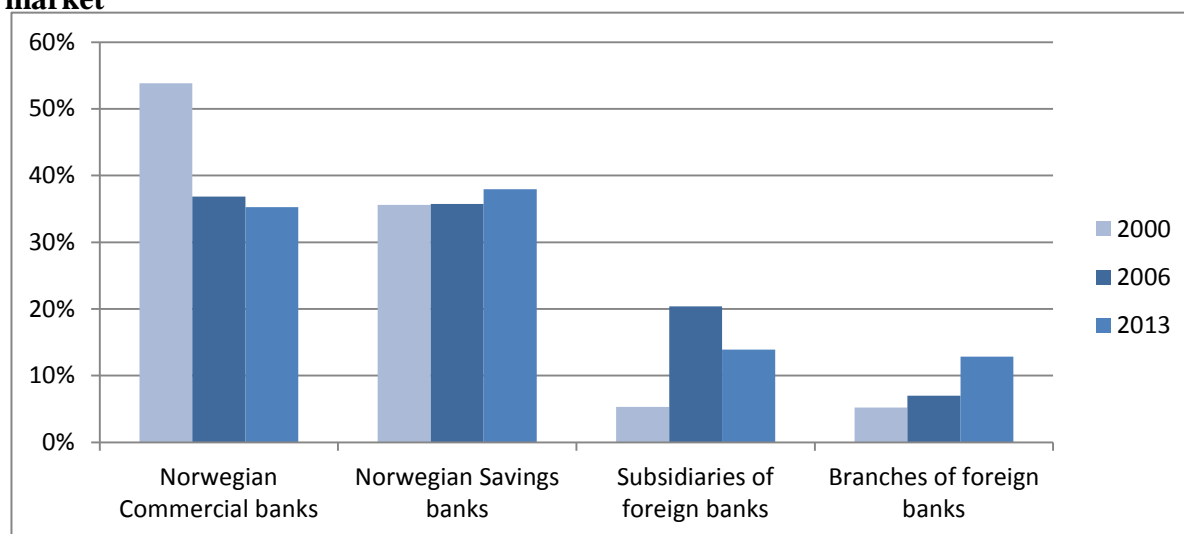
In order to obtain a more comprehensive picture of competition in the Norwegian banking sector, we proceed by examining the retail and corporate markets separately, and by calculating market shares based not only on lending but also on deposits.

Table 4.2–4.4 show that foreign-controlled institutions had – and have – a larger presence in the corporate market than in the retail market. Subsidiaries and branches of foreign banks have increased their market share in Norway from 2000 and up to the present, both in the retail and the corporate market, and in terms of both lending and deposits. Their position has gone from being rather weak to becoming much more significant. But this has happened at the same time as the retail lending market in Norway has almost quadrupled while the other segments have more than doubled.

From 2000 to 2006 subsidiaries of foreign banks in Norway increased their market share to 18 percent of the retail market and 25 percent of the corporate market. This increase in market share was triggered by the merger of Kreditkassen and three other Scandinavian banks in 2000 into Nordea.

Between 2006 and 2013, foreign subsidiary institutions reduced their market share while branches of foreign banks increased their share across all segments in the retail as well as the corporate market. This was partly driven by the conversion of the subsidiaries Fokus Bank and SEB into branches.

Table 4.2: Market shares in the Norwegian banking market, January 2000[28]

	Gross lending to		Deposits from	
	Retail	*Corporate*	*Retail*	*Corporate*
Norwegian commercial banks[29]	51 %	57 %	52 %	61 %
Norwegian savings banks[30]	41 %	29 %	42 %	29 %
Subsidiaries of foreign banks in Norway[31]	4 %	8 %	4 %	6 %
Branches of foreign banks in Norway[32]	3 %	8 %	2 %	6 %
Total	100 %	100 %	100 %	100 %
Total market (in NOK bn)	518	419	330	264

Sources: ORBOF, Norges Bank.
Note: Total lending comprises total gross lending from banks and covered bond mortgage companies operating in Norway (as listed in the footnotes) to the retail and corporate market.

Table 4.3: Market shares in the Norwegian banking market, January 2006

	Gross lending to		Deposits from	
	Retail	*Corporate*	*Retail*	*Corporate*
Norwegian commercial banks[33]	37 %	36 %	37 %	39 %
Norwegian savings banks[34]	39 %	29 %	46 %	30 %
Subsidiaries of foreign banks in Norway[35]	18 %	25 %	8 %	17 %
Branches of foreign banks in Norway[36]	6 %	10 %	8 %	14 %
Total	100 %	100 %	100 %	100 %
Total market (in NOK bn)	1,017	564	498	381

Sources: ORBOF, Norges Bank.
Note: Total lending comprises total gross lending by banks and covered bond mortgage companies operating in Norway (as listed in the footnotes) to the retail and corporate market.

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[28]Mmarket shares are calculated by summing the balance sheet items for the institutions in the different groups.

[29] DNB Bank ASA, Nordlandsbanken, Gjensidige Bank ASA, BNbank ASA, Christiania Bank og Kreditkasse ASA, and Voss Veksel- og Landmandsbank ASA.

[30] Sparebank 1 alliansen (27 banks), Bank 1 Oslo-Akershus, 83 savings banks affiliated with Terra- gruppen AS, Sparebanken Vest, Sparebanken Møre, Sparebanken Sør, Sparebanken Pluss, Sparebanken Sogn og Fjordane and 20 other savings banks.

[31] Fokus Bank ASA and Bergensbanken ASA.

[32] Citibank NUF, J.P. Morgan Europe Limited, Oslo Branch NUF, BNP Paribas NUF, Handelsbanken NUF, Skandiabanken AB NUF, Danske Bank NUF, Skandinaviska Enskilda Banken AB NUF, Unibank Filial Oslo and FöreningsSparbanken.

[33] DNB Bank, Nordlandsbanken, DNB Boligkreditt in addition to six other commercial banks.

[34] Sparebank 1 alliansen (27 banks), Bank 1 Oslo-Akershus, 79 savings banks affiliated with Terra- gruppen AS, Terra Boligkreditt AS, Sparebanken Vest, Sparebanken Møre, Sparebanken Sør, Sparebanken Pluss, Sparebanken Sogn og Fjordane and 16 other savings banks.

[35] Nordea Bank Norge, Santander Consumer Bank, SEB Privatbanken, Nordea Eiendomskreditt, Glitnir bank, Fokus Bank and BN-bank.

[36] Handelsbanken, Citibank, Danske Bank, Swedbank, Skandiabanken BNP Paribas and GE Moneybank.

Table 4.4: Market shares in the Norwegian banking market, January 2013

	Gross lending to		Deposits from	
	Retail	*Corporate*	*Retail*	*Corporate*
Norwegian commercial banks[37]	35 %	35 %	38 %	38 %
Norwegian savings banks[38]	42 %	31 %	45 %	31 %
Subsidiaries of foreign banks in Norway[39]	12 %	17 %	8 %	16 %
Branches of foreign banks in Norway[40]	10 %	17 %	9 %	15 %
Total	100 %	100 %	100 %	100 %
Total market (in NOK bn)	1,904	1.100	843	546

Sources: ORBOF, Norges Bank.
Note: Total lending comprises total gross lending from banks and covered bond mortgage companies operating in Norway (as listed in the footnotes) to the retail and corporate market.

Competition from the bond market

In the corporate market, Norwegian banks not only face competition from foreign banks, but also from large non-financial firms that also have access to other funding sources. Chart 4.4 illustrates developments in corporate bond issues by enterprises in Norway over the period 2000-2012. From 2000 to 2012, the value of corporate bond issues more than doubled, increasing from NOK 52 billion to NOK 111 billion.

Chart 4.5 shows developments in non-financial firms' debt by their credit source over the past fifteen years. Despite the significant increase in bond issuing by non-financial firms, the chart shows that bank and mortgage company lending is still the dominant source of funding for non-financial corporations.

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[37] DNB Bank, Nordlandsbanken, DNB Boligkreditt, DNB Næringskreditt, 10 other commercial banks and three covered bond mortgage companies.
[38] SpareBank 1-alliansen (15 banks), SpareBank 1 Boligkreditt, BN Bank, Bank 1 Oslo Akershus in addition to one residential mortgage company, one commercial mortgage company, Terra BoligKreditt, Terra Finans og Kredittbank, 77 savings banks and Voss Veksel-og Landmandsbank ASA which are owners of Terra-Gruppen AS (Voss, one other residential mortgage company, Sparebanken Vest, Sparebanken Møre, Sparebanken Sør, Sparebanken Pluss, Sparebanken Sogn og Fjordane , in addition to 14 other savings banks, 10 residential mortgage companies and one hybrid covered bond mortgage company.
[39] Nordea Bank Norge, Santander Consumer Bank, and Nordea Eiendomskreditt. (Fokus Bank converted from subsidiary institution to branch bank in 2008).
[40] Fokus Bank (branch of Danske Bank) Handelsbanken, SEB, Swedbank, Handelsbanken Eiendomskreditt, Skandiabanken and seven other branches of foreign banks.

Chart 4.4: Corporate bond issues by enterprises in Norway (in billions of NOK)
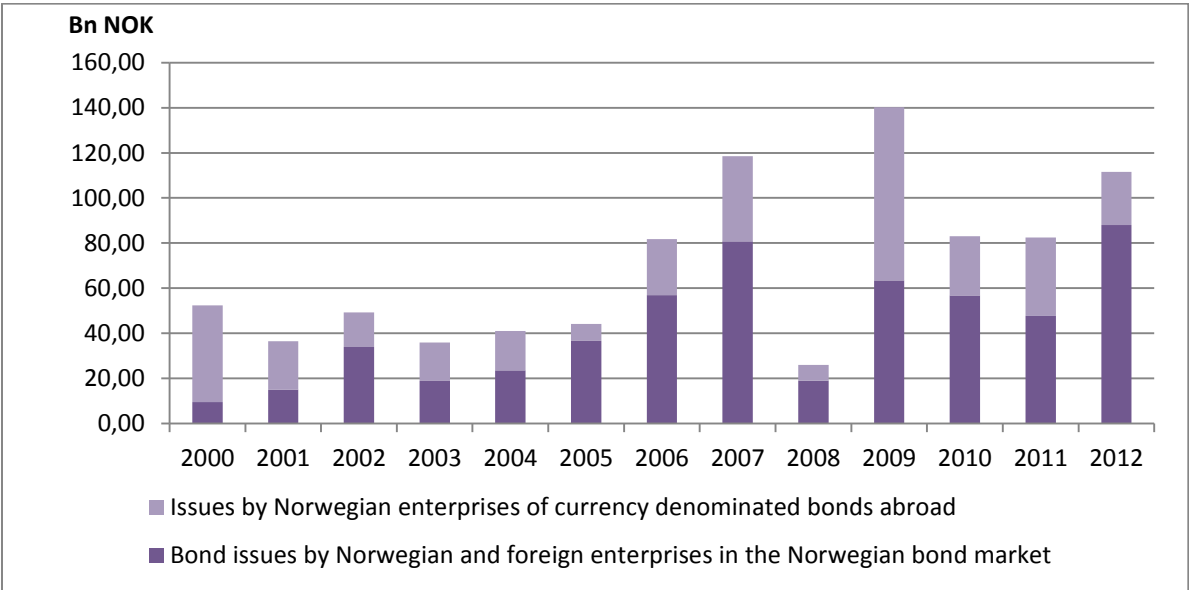
Sources: Stamdata and Bloomberg (Financial Stability report 2/12, Norges Bank)
Note: All bonds registered in VPS, the Norwegian Central Securities Depository. Including bonds
denominated in NOK and foreign currency.

Chart 4.5: Debt of non-financial firms by credit source (stock in billions of NOK)
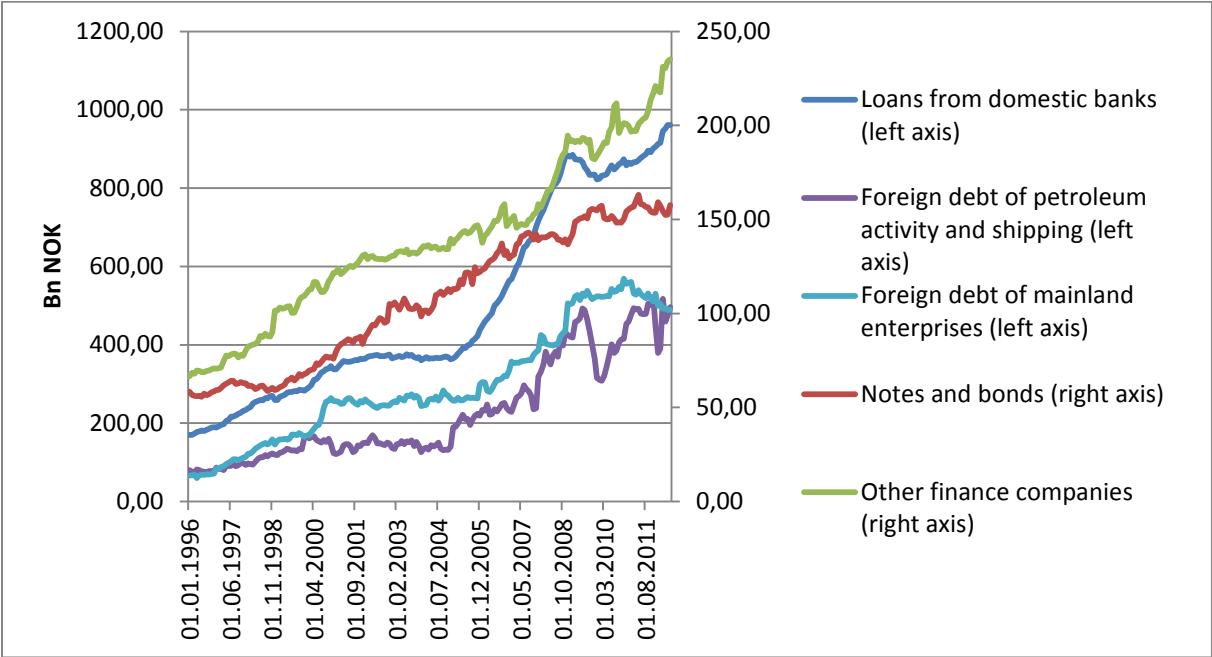
Sources: Statistics Norway and Financial Stability report 2/12, Norges Bank
Note: Domestic banks refer to Norwegian banks (commercial and savings banks), subsidiaries and
branches of foreign banks located in Norway. Notes and bonds comprise notes and bonds issued by non-
financial firms and held by domestic holders registered at VPS (Norwegian Central Securities
Depository). Foreign debt includes all debt held by foreign creditors, including notes and bonds issued by
non-financial firms in Norway. Other finance companies include mortgage companies, finance companies,
state lending institutions and insurance companies.

In 2012, lending from banks accounted for approximately 41 percent of non-financial firms' total debt, while non-financial firms' foreign debt (petroleum, shipping and mainland) accounted for 42 percent of total corporate debt. Debt in the form of notes and bonds held by domestic institutions and persons only amounted to about 7 percent of the total debt of non-financial firms in 2012. However, as the category *notes and bonds* refers only to domestic holders of bonds and notes registered at the VPS (Norwegian Central Securities Depository), bond debt held by foreigners is not accounted for, and may thus lead us to underestimate the role of notes and bonds as a source of credit. However, according to Statistics Norway, bonds and notes constitute approximately 20 percent of firms' foreign debt in 2012.[41] Taking this into account, notes and bonds held by domestic and foreign institutions and persons amounted to approximately 15 percent of non-financial firms' total debt, while foreign debt excluding notes and bonds amounted to 34 percent.

From 1996 to 2012, non-financial firms' debt to banks in Norway increased by more than 460 percent, while non-financial firms' total debt in notes and bonds held by domestic institutions and persons increased by 170 percent. Hence, bank lending is still the dominant source of lending in the Norwegian corporate market. Growth in bank lending has far exceeded growth in bond debt even over the past fifteen years.

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[41] Statistics Norway does not provide information on non-financial enterprises' note and bond debt to foreign holders, but the sum of households, non-financial enterprises' and municipalities' gross note and bond debt to foreign holders is available. However, as the majority of foreign debt in bonds and notes is held by non-financial enterprises rather than the two other groups, we believe that this allows us to calculate a good proxy for the share of foreign debt represented by the note and bond debt of non-financial enterprises.

5. Why – and how – banks are regulated

In this section, we first review the rationale for treating banks differently, why they require regulation and what measures are typically used. Second, we provide an overview of the regulatory measures that are applied in Norway. We compare these to those applied in Denmark and Sweden. The reason for our focus on these two other Scandinavian countries to benchmark Norwegian regulatory policies is related to the nature of the competition in the Norwegian banking sector, which is further discussed below.

5.1 Why regulate banks?[42]

We start by providing a review of the economic literature explaining the rationale for regulating banks. The review is not exhaustive with respect to the academic papers covered.

Regulation is justified by market failures. More precisely, regulation is beneficial when market outcomes are socially inefficient and regulation can improve efficiency in a way that outweighs the costs of regulation. In general, inefficiencies can stem from market power or externalities and information asymmetries. Consumer protection and securing the provision of goods and services that are important to society are two common reasons given for regulation.

Banks provide services that are important in a market-based economy: they channel money from savers to borrowers and monitor the borrowers; they provide maturity transformation, execute payments and distribute risk. However, there are market failures that could make unregulated banking systems unstable and put the safe provision of bank services at risk. This is likely to lead to a smaller provision of bank services than what is socially optimal. Section 5.1.1 presents an important mechanism that could lead to such instability: a coordination problem stemming from the fact that banks borrow short-term and lend long-term. Section 5.1.2 discusses another source of market failure, i.e. that bank behaviour at individual bank level could have important negative externalities for the economy at aggregate level. Section 5.1.3 discusses moral hazard in banks: banks have incentives to choose portfolios that are too risky, because depositors are not able to effectively monitor their banks or do not have incentives to do so.

5.1.1 Multiple equilibria when banks borrow short-term and invest long-term

Bank creditors must have sufficient confidence in banks' ability to repay their debts for the banking system to work properly. Without confidence, the banking system can shift from stability to instability – possibly in a very short time. This vulnerability arises because banks' funding is typically based on deposits which the depositor can withdraw at any time, while banks typically invest these deposits in assets with maturity several years ahead. These assets are normally illiquid. That is, if the assets are sold (liquidated) before maturity, the bank will incur a loss relative to the value of holding the assets until maturity. The loss is incurred because the market has a lower valuation of the asset than the bank, e.g. because the bank has more information about the asset. This valuation asymmetry is related to one of the most important roles of banks in the economy, namely banks' comparative advantage in screening and monitoring loans – on behalf of depositors. When liquidating assets before maturity

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[42] This section is based on Borchgrevink et al. (2013)

entails a loss, investing short-term deposits in long-term assets make banks vulnerable to excessive deposit withdrawals (bank runs). A bank run forces the bank to liquidate assets prematurely. Banks are vulnerable to bank runs even if they only engage in relatively short-term lending. For example, even 3 months' trade financing loans funded by on-demand deposits can create runs.

Diamond and Dybvig (1983) illustrate the vulnerability to bank runs using a game involving multiple equilibria. These multiple equilibria are the source of market failure that causes instability: A good equilibrium is where bank customers do not withdraw their deposits before the bank's assets mature, except a fraction of the depositors who have a real need for their money earlier. In this good equilibrium, the bank can pay all the depositors their deposit claims including interest at the time of withdrawal. As a consequence, it is rational for depositors not to withdraw their deposits earlier than their real need for funds. But there is also a bad equilibrium where bank customers withdraw their deposits before they need their money, because they expect their bank to run short of funds. This expectation is self-fulfilling: the bank must liquidate assets prematurely to be able to meet its deposit claims. As a result, the bank incurs a loss, and depositors who withdraw late get less money back than the bank had promised. Thus, it is rational for depositors to withdraw early. This coordination problem involving multiple equilibria can lead sound banks into bankruptcy, entailing a real economic loss to society. The loss stems from the liquidation of assets before the natural point of maturity, and is arbitrarily distributed among depositors. Diamond and Dybvig show that solvent banks can become insolvent because of a run on the bank. In practice, banks can of course become insolvent even without a bank run, when bank asset payoffs at maturity are too low. Uncertainty about a bank's solvency can ignite a bank run that leads to the bank becoming insolvent. The Diamond and Dybvig model considers consumer deposits. The coordination problem described is arguably even more prevalent for short-term wholesale financing.

A straightforward way of eliminating banks' vulnerability to runs is to abolish deposits and let banks be funded by equity only, similar to a mutual fund. In contrast to deposits, equity contracts do not have a promised value. Equity holders who sell their equity contracts receive their share of what the bank is currently worth. Therefore there will not be an incentive to sell equity contracts ("withdraw") earlier than needed. That is, there is no incentive to run on the bank. Even if some sell their equities earlier than needed, there will be no negative impact on the value of the equities of those who sell later.[43] However, abolishing deposits has negative effects. The fixed (nominal) value of deposits and their given rate of interest make deposits preferable as a savings instrument for risk-averse consumers. Moreover, equity contracts are less attractive for payment purposes because of the variable value. Banks' transformation of demand deposits into longer-term assets with higher payoffs, thus gives a benefit that can justify the cost of leaving banks vulnerable to runs or the cost of public measures that reduce this instability, and make maturity transformation a viable business. As deposits are debt contracts that add to a bank's leverage, it also follows from this discussion that in order to reap the benefits of deposit contracts one has to accept that banks are more highly leveraged than other firms.

Deposit insurance is a measure that can help prevent bank runs. When deposits are insured, there is less incentive to withdraw early. In fact, US bank lending was mostly short-term before more robust regulation, including deposit insurance, was established with the 1933 and

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[43] This holds provided that those who sell earlier than needed do not sell sequentially, but get their sell order served at the same point in time so that the (mutual fund) bank manager perfectly knows what the bank is worth, as he may need to liquidate parts of the bank's long term assets.

1935 Banking Acts. Until then, it was considered too risky to lend long-term based on demand deposits.[44] These acts thus allowed for a greater extent of socially valuable maturity transformation. Similarly to the way in which deposit insurance can rule out the negative equilibrium in the Diamond and Dybvig model, central bank lending of last resort (LLR) can reduce the coordination problem. When liquidity is available from the central bank as an alternative to selling assets with a loss, the incentive for depositors and other creditors to run on a bank is reduced. Liquidity reserve requirements can also to some extent be used to reduce the vulnerability from banks borrowing short and lending long. Deposit insurance, LLR from the central bank and liquidity requirements are examples of regulations that can improve the market outcome. In that sense, the coordination problem described by Diamond and Dybvig is a market failure.

5.1.2 Pecuniary externalities

A further rationale for banking regulation is the pecuniary externalities associated with banks' activity. *Pecuniary* externalities are externalities that primarily only affect the distribution of wealth between agents. In a first-best economy with perfect markets, these externalities do not affect the efficiency of resource allocation. In such an economy, a Pareto optimal resource allocation can be achieved from any initial distribution of wealth. However, once there are market imperfections, such as asymmetric information or incomplete markets, the efficiency of the real economy is no longer immune to pecuniary externalities. These kinds of imperfections will typically be present in credit markets. For example, if actions by other agents cause the value of a borrower's collateral to deteriorate, the borrower may become credit constrained and his profitable investment will not be carried out. As a result, a pecuniary externality has caused an efficiency loss in the real economy. Banks that suffer losses to their capital may also become constrained in funding markets and be forced to reduce their lending. If their borrowers do not have easy access to other sources of credit these borrowers may have to forego profitable investments. Hence, banks pecuniary losses may cause losses in the real economy. When a pecuniary externality is likely to cause inefficiencies of macroeconomic proportions, intervention by the authorities can be justified.

Pecuniary externalities can also occur between banks. When a bank is in distress and does not pay the full amount on its liabilities, the counterparties of the bank incur losses. This is direct financial contagion. Banks tend to have many and large exposures to other banks, so called interconnectedness. An important reason for interconnectedness is liquidity distribution among banks in the interbank market. The interbank market provides liquidity insurance to the participating banks, as shown in Bhattacharya and Gale (1987). Because of the high level of interconnectedness in the banking system, direct contagion between banks can be a threat to financial stability. Typically, a bank will not take into account losses imposed on counterparties, so this is an externality in the banking system.

Contagion can also be indirect through lowered market prices when a bank in distress liquidates assets rapidly (fire sales). When bank A sells assets at a low price, the market value of similar assets in bank B may be reduced. Fire sales can thus harm banks that are not directly exposed to the bank in distress. During the financial crisis of 2008-2009, fire sales contagion proved more important than direct contagion. With more marked-to-market accounting and with more highly leveraged banks, such indirect contagion is likely to be more

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[44] In 1913 57 percent of US bank loans matured in less than 90 days. In 1940 the proportion was 30 percent, see Klebaner (1974).

pronounced. Moreover, indirect contagion will be more important the more similar different banks' asset holdings are.

Banks that have similar portfolios will also be vulnerable to the same external shocks. Banks tend to become more similar when each bank diversifies its portfolio. In particular, large diversified banks operating in the same markets will be similar. Wagner (2010) has shown how although diversification makes each individual bank safer, the banking system becomes at the same time more vulnerable.

Similarly, banks' non-financial borrowers can be vulnerable to the same shocks, if they have pledged relatively homogeneous collateral. As an example, consider rapid growth in bank lending to the non-financial sector with housing as loan collateral. With an adverse shock to the economy, the value of these collateralised houses deteriorates. Due to incomplete markets, borrowers are unable to insure against adverse shocks to the value of the assets they have pledged as collateral. Hence, credit constraints on borrowers tighten, reducing their demand for real goods. This puts further downward pressure on the asset price, worsening the credit constraints. The larger the accumulated debt of the non-financial sector is, the larger are these negative effects from the adverse shock. Thus, individual lenders or borrowers generate pecuniary externalities that affect other agents through their lending and borrowing decisions. Rational expectations are not sufficient to avoid these losses as the individual decisionmakers have no incentive to internalise these pecuniary externalities. This is an example of why economic efficiency will increase if regulators curb a mortgage lending boom. For a formal exposition, see Bianchi (2011).

There can also be indirect contagion through interbank funding: If one bank incurs unexpected losses, it will tend to reduce its lending and hence reduce the supply of funding through the interbank market. This tightens the funding supply to other banks, and may lead to reduced lending from these banks. If banks expect such tightening to occur, precautionary liquidity hoarding may result, amplifying the tightening. Reduced liquidity in these funding markets can also lead to reduced liquidity in other asset markets where banks invest. Reduced liquidity in these markets can also contribute to reduce banks' funding liquidity, for instance through increased haircuts on collateral in repos.[45] This interaction between funding liquidity and market liquidity has been termed a liquidity spiral (Brunnermeier and Pedersen (2009)), and was one of the main drivers of the 2007-08 crisis.

The general message in this subsection is: the sum of the risks that the individual banks take into account is less than the sum of all the risks their activity generates, i.e. systemic risk. This difference is the sum of the pecuniary externalities.

Because pecuniary externalities can make the banking system vulnerable even when individual banks seem sufficiently robust, bank regulators must not only monitor risks at the micro level, but also at the macro level and have regulatory measures available to address vulnerabilities at the system level. Examples of such macroprudential regulation are liquidity requirements, capital requirements (both in general and higher capital requirements when systemic risk is rising), and requiring banks to clear derivatives through a central counterparty to reduce contagion risks in the OTC derivative market. In general, measurers that are thought of as micro regulation can also be used to for macroprudential purposes.

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[45] Funding liquidity is the ease with which funding can be acquired. See Brunnermeier and Pedersen (2009) for a more thorough discussion of these terms.

5.1.3 Moral hazard

Shareholders who control a firm with debt typically want the firm to take on high risk: If the firm succeeds, the shareholders earn a high return on equity because the equity is leveraged with debt. And if the firm fails, the shareholders only lose their equity stake, due to limited liability. Creditors have to shoulder the rest of the losses, but have no direct influence on the firm's risk-taking. This phenomenon is prevalent in all firms with equity and debt. However, in banks, creditors not only lack direct influence, but also have less incentive to execute such influence for reasons explained below.

Depositors are less capable of disciplining banks than creditors in other firms. Depositors are too small and too many to be able to coordinate efficient monitoring of a bank. Moreover, depositors will in general also lack the skills and information needed to monitor a bank. In fact, these shortcomings of depositors are closely linked to why banks exist: Banks screen and monitor loans on behalf of depositors – because depositors are not well equipped for the task (Diamond (1984)). In addition, with deposit insurance in place, depositors have weak incentives to monitor their banks.

Even more professional creditors often do not have full incentives or sufficient information to monitor banks. The incentive problem arises because creditors might expect that the government will guarantee the bank's debt. This implicit guarantee stems from governments' inclination to bear the costs of saving a bank in distress rather than face the costs of letting the bank fail. When a failing bank is forced to close, its borrowers may try to switch to other non-failing banks. However, these borrowers risk encountering higher interest rates, and possibly no loan offer at all, from the other non-failing banks, as these banks may also often be under financial stress when there are bank failures. Furthermore, they have less information on the financial soundness of the borrowers of a failed bank. For the economy, the costs of such a credit crunch can be considerable. The government will thus often have incentives to save banks rather than letting them fail.

Banks have higher leverage than non-financial firms, i.e. banks have less capital (equity) relative to total assets, see e.g. the analysis in Section 3. The higher a bank's leverage, the stronger the incentives for shareholders to let the bank take on high risk, as explained above. One obvious reason for higher leverage in banks is that banks offer deposit contracts. Access to demand deposits is a good provided by banks, but deposits are debt contracts and therefore contribute to a bank's leverage. Another reason for high leverage is that bank debt is cheaper than equity because of the deposit insurance and the implicit government guarantee: Depositors and creditors will not demand high risk premiums even from risky banks when their loans to the bank are considered guaranteed.[46]

Government support may also benefit shareholders more directly, e.g. when the government buys troubled assets from a distressed bank where shareholders have not been wiped out. Expectations of such support will give shareholders incentives to choose more risky portfolios and higher leverage.

Shareholders will choose management and incentive schemes with a view to aligning the management's incentives with the incentives of shareholders. As a consequence, the management of a bank will also typically have incentives to take on too much risk. If the bank succeeds, the management will receive high remuneration and possibly also high non-pecuniary benefits from the success. However, punishment of the management if the bank

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[46] The value of a guarantee on a bank's debt increases with the riskiness of the bank, as shown by Merton (1977)

fails is limited to management losing their jobs, bonuses and social prestige. This appears to be too little punishment to induce bank managements to internalise the costs to society of financial distress in a bank.

These moral hazard issues entail higher than optimal risk in banks and can justify regulation. Removing the guarantees (deposit insurance and implicit government guarantees) will remove a fundamental reason for moral hazard in banks. But removing deposit insurance will increase the probability of bank runs (cf. Section 5.1.1). To remove the implicit government guarantee is not credible unless the authorities have other credible tools for tackling financial distress in a systemically important bank. The type of regulation that most efficiently can reduce moral hazard due to the guarantees is therefore crisis management frameworks that let shareholders and creditors bear the losses, while sustaining the bank's provision of credit and other important services. There are also other types of regulation that can reduce moral hazard. Capital requirements will increase the capital lost in the event of failure and are therefore expected to reduce the incentive to take on high risk ("more skin in the game"). Moral hazard stemming from deposit guarantee schemes may to some extent be countered by risk-based deposit insurance premiums. Designating a public authority to monitor banks on behalf of depositors will help contain risk, since depositors are not well equipped to monitor banks. And regulation of the remuneration schemes of bank managers can induce managers to behave more prudently, e.g. by rewarding management more for profit in the long term and less for short-term profits.

5.2 Regulatory policies in Norway in a Scandinavian perspective

Above, we presented the rationale for banking regulation and the main regulatory policy tools that governments currently use in order to mitigate the problems related to externalities and moral hazard. These tools include deposit guarantee schemes, emergency borrowing facilities, capital requirements, liquidity requirements and bank resolution policies.

We now move on to present the regulatory measures faced by the Norwegian banking sector in comparison with those applied in Denmark and Sweden. We focus on these countries due to the nature of the competition facing Norwegian banks regarding their customers (i.e. borrowers and depositors). As discussed in Section 4, domestically controlled Norwegian banks face competition from the subsidiaries of foreign banks as well as branches of foreign banks. As a general principle, foreign branches are subject to supervision and regulation by their home countries, whereas subsidiaries are supervised and regulated by the host country. The major foreign bank branches that operate in Norway are from Denmark (Danske Bank) and Sweden (Handelsbanken). There is only one significant foreign bank subsidiary in Norway, Nordea Norway, with its parent company based in Sweden. Hence, the former group of banks is subject to the Norwegian government's regulatory authority, while the latter is not.

We will examine the differences in regulatory policy between the Scandinavian countries, and the regulatory costs of Norwegian domestic banks compared to those of the branches and subsidiaries from other Scandinavian countries operating in Norway.

In our discussion of regulatory policy issues, we will not consider emergency borrowing facilities in any detail. There are no rules of a sufficiently explicit nature to facilitate any analysis of its impact on banks' relative competitiveness. As for resolution regimes, although there are differences in the current resolution regimes of the different countries, it is expected that these policies will be harmonised when the EU directive on bank recovery and resolution

has been passed. The lack of explicitly written rules may nevertheless also be a problem with regard to resolution policies. Hence, our focus will be on deposit insurance, capital regulation and, to some extent, liquidity regulation.

5.2.1 Deposit insurance

All three countries have mandatory deposit insurance for all banks. This follows from the EU directive on deposit-guarantee schemes (Directive 94/19/EC). The current directive sets minimum standards and thus allows for considerable national discretion. A new directive that will harmonise national deposit-guarantee schemes is still being discussed by EU policy bodies. Hence, deposit guarantee schemes currently differ across the Scandinavian countries.

In Denmark as well as in Sweden, the deposit guarantee scheme covers deposits equivalent to EUR 100,000 per depositor per bank, whereas in Norway the scheme covers deposits equivalent to almost EUR 270,000.[47] In all three countries, the deposit guarantee is funded ex ante through a fund to which banks have to pay a certain fee. In Denmark the annual fee is 0.25 % of the covered net deposits.[48] In Sweden the fee is 0.10 % of deposits. In addition Swedish banks have to pay a fee of 0.036 % of their total liabilities to a financial stability fund. In Norway banks pay a fee of 0.10 % of covered deposits plus 0.05 % of risk weighted assets (RWA), both adjusted for banks' capital ratios.

Furthermore, it was announced by the Swedish government on 26 August 2013 that Swedish banks will have to pay a fee to Sveriges Riksbank (the Swedish central bank) for the foreign reserves the central bank holds in order to be able to lend to banks in an emergency.

Subsidiaries in Norway owned by foreign banks have to participate in the Norwegian deposit guarantee scheme on a par with Norwegian banks. Branches in Norway of banks incorporated in another EEA country will be covered by the deposit guarantee scheme in their home country. However, in order to benefit from the higher coverage in Norway, these branches can top up their home country coverage by an amount equivalent to the difference between the Norwegian coverage and the coverage in their respective home countries. If so, they will have to pay a fee in Norway equivalent to 0.10 % of total deposits covered minus the amount covered in the home country's deposit guarantee scheme. This fee will be adjusted for the bank's capital ratio as it is for Norwegian banks. These branches do not pay the extra 0.05 % of their RWA. The two major bank branches from Denmark and Sweden, Den Danske Bank and Handelsbanken, have both topped up their home country deposit coverage by also participating in the Norwegian scheme.

In both Norway and Sweden, banks have to pay the fee to the deposit guarantee fund every year irrespective of the size of the fund. In Denmark, however, payment ceases as long as the total fund exceeds 1 % of covered net deposits.[49]

In Sweden the deposit guarantee scheme is set up to cover deposits only, in the event a bank is unable to meet its obligations to the depositors or if it fails. In Denmark and Norway, however, the deposit guarantee schemes have a wider mandate, in that they can cover

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[47] In Denmark loans which the depositors may have at the bank are deducted from the amount covered. At the other end, certain bank deposits are covered fully, beyond the EUR 100,000 limit.
[48] See Danish Guarantee Fund (2012).
[49] However, until 2013, Norwegian banks did not have to pay the guarantee fund fee when the fund had reached its minimum level.

unsecured creditors in addition to covered depositors. In Denmark this can only be done if bailing out the bank in that way is less costly than closing a failing bank and reimbursing the covered depositors. There is an equivalent, albeit slightly softer, "least cost rule" in the statutes of the Norwegian Banks' Guarantee Fund.[50]

Comparing the fees paid, the Swedish fee (including the financial stability fee) and the Norwegian fees are fairly equal (see Finansdepartementet, 2012). The Danish fee is higher, but is paid on covered net deposits only. There is no financial stability fee in Denmark. Thus, a branch of a Danish bank operating in Norway with a topped up deposit guarantee does not need to pay the extra 0.05 % of its RWA nor the 0.036 % of its debt on its marginal lending that is required from Norwegian banks or branches of Swedish banks respectively. Nor will a Danish branch have to pay the fee for the home country part of its deposit guarantee when the Danish fund exceeds 1 % of covered net deposits. On the other hand, when the fund is below 1 %, the fee is higher than the equivalent Norwegian and Swedish fees.

In total, taking into account both the size of the fees and the coverage ratios, differences in the Scandinavian deposit insurance schemes more or less cancel out in terms of competitiveness among the Scandinavian banks present in the Norwegian market. The only difference would be the from time to time slightly lower marginal cost of lending for Danish banks compared to Norwegian or Swedish banks.

5.2.2 Capital regulation

Although all the three Scandinavian countries are subject to the capital adequacy requirements set out in the EU directive 2006/49/EC and its amendments, there are a number of differences in the way the minimum capital requirements have been implemented in the three countries. Cross-country comparisons of the current regulations are therefore quite difficult (cf. discussion in Section 2.5). However, the EU has recently adopted a new directive and regulation on capital requirements, CRD IV and CRR, to implement Basel III in the EEA that provide greater harmonisation of the rules, making comparisons a little easier in the future. Furthermore, the financial authorities in all three countries have also announced how they may implement key parts of this directive into national laws. Hence, the comparison between the three countries is based on these plans for implementing the new directive. Nevertheless, CRD IV and CRR do not represent complete harmonisation; there is still room for national discretion, which will be discussed later in this section.

First, however, we present some common basics for capital regulation in the EEA as they appear in CRD IV. In the EU and EEA, national supervisors set the capital requirements for domestically chartered banks, i.e., banks with head offices in the country and subsidiaries of banks with head offices in other EEA countries. Branches of banks chartered in other EEA countries are not subject to capital regulation by the host country. However, the bank in the home country is required by its home regulator to hold capital for the risk represented by the branch.

All banks, must maintain a minimum ratio of total capital to risk-weighted assets (RWA) of 8%. At least 6 % of RWA must be Tier 1 capital, including common equity of at least 4.5 % of RWA, referred to as Common Equity Tier 1 or CET1. Thus, the remainder of the 6 %

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[50] See http://www.bankenessikringsfond.no/no/Hoved/Om-oss/Lover-og-vedtekter/Vedtekter-for-Bankenes-sikringsfond/#17 (in Norwegian only).

requirement can be met with hybrid capital instruments. The remainder of the 8 % capital requirement can be met with supplementary capital such as Tier 2 capital. (See left column in Chart 5.1). In addition to the CET1 of 4.5 %, banks must have a capital conservation buffer of 2.5 %. If a bank breaches this buffer, i.e. if its CET1 ratio falls below 7 %, it is required to submit a plans to rebuild the ratio to above 7 %. In the meantime, dividend payments will be restricted.

Additionally, the supervisory authorities may require a bank to hold a systemic risk buffer of up to 3 % of RWA related to its domestic risks. This buffer will apply to all domestically chartered banks, banks with their head office in the country as well as subsidiaries of banks headquartered in other EEA countries. However, this buffer will not automatically apply to branches from another country, although their domestic supervisors may recognise the buffer and apply it to the branches' exposures in the host country. On top of this, individual banks identified as domestic systemically important financial institutions (SIFI) may be subject to an extra capital requirement of up to 2 % of RWA. Both these systemic requirements have to be met with CET1. The SIFI requirement will apply to a subsidiary of a foreign bank that in itself is a SIFI (either a global SIFI or a domestic SIFI) provided the systemic risk buffer to which it may be subject in the host country only applies to risk exposures in that country. Furthermore, national authorities can require all banks operating in their country to hold a countercyclical buffer, consisting of CET1 capital, normally up to 2.5 % of RWA. The countercyclical buffer is reciprocal in the following sense: Let authorities in country A turn on the countercyclical buffer. Assume a bank chartered in country B has a branch in country A. Then the authorities in country B must require its bank to hold extra capital corresponding to the countercyclical buffer in country A for the bank's risk-weighted exposure in country A. This reciprocity is, however, only mandatory for the part of the countercyclical buffer that is at or below 2.5 % of RWA.

After the introduction of Basel II in the EEA in 2007, banks were allowed to use internal risk models in order to calculate RWA, rather than using the standard weights of Basel I. Banks using these internal risk models (internal ratings-based approach, or IRB, banks) were under Basel II able to reduce their RWA considerably (cf. discussion of Chart 2.17 in Section 2.5). In order to prevent IRB banks from reducing their capital too much, a transitional floor for their capital was introduced. Banks' capital under current rules must not fall below 80 percent of what it would have been under Basel I. This rule will be in force until 2017.

Chart 5.1: Basel III and CRD IV capital requirements
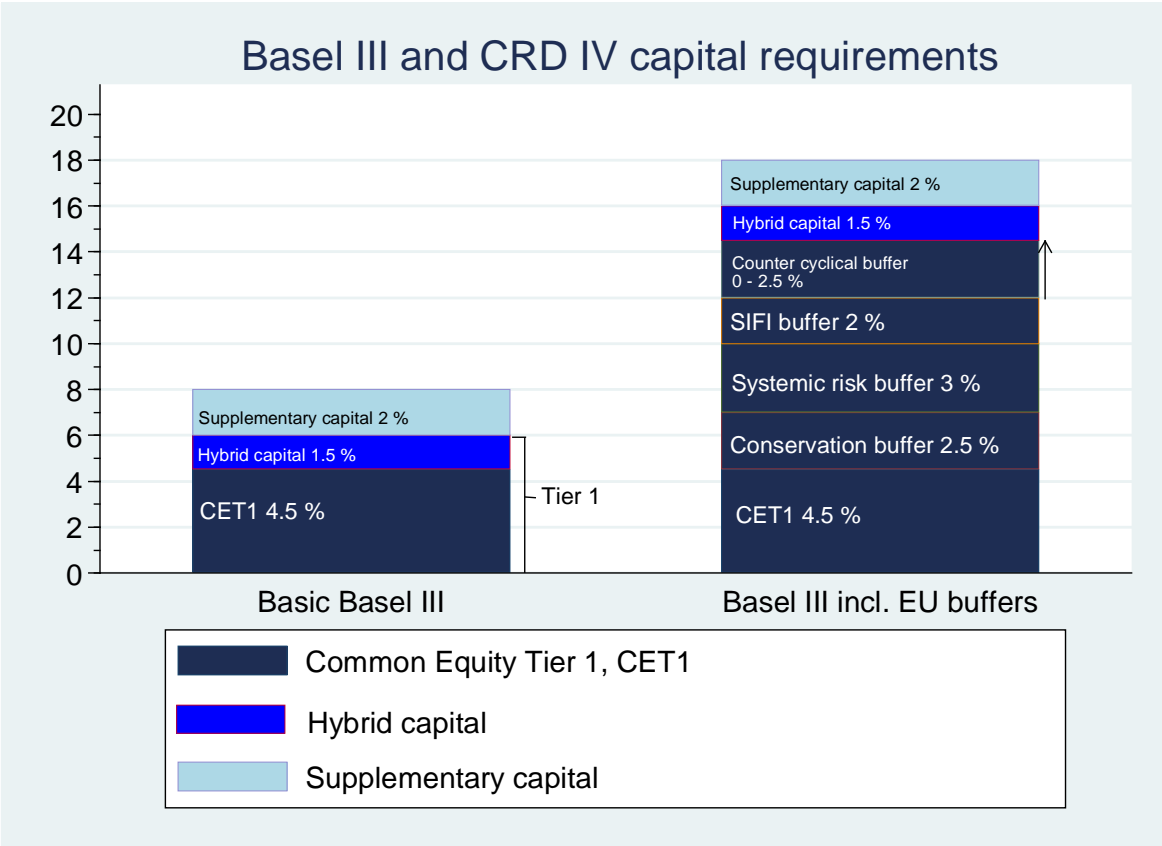
Note: Sizes of buffers included are the maximum allowable under EU's bank capital regulation directive, CRD IV, or the maximum size that automatically triggers reciprocity regarding branches from other EEA countries. The capital requirements in the left column, Basic Basel III, are hard in the sense that they have to be met by all banks at all times. The buffers in the right column are soft in the sense that if they are not met by a bank, the bank faces restrictions on distribution of dividends and it has to submit a plan to supervisors on how to satisfy the buffer requirements.

Norway

On 4 June 2013, the Norwegian parliament adopted the proposal from the Ministry of Finance for higher capital requirements for Norwegian banks in accordance with CRD IV. All domestically chartered banks in Norway are required to hold a minimum CET1 ratio of 4.5% as of 1 July 2013. The conservation buffer requirement was also implemented at the same time. In addition, a systemic risk buffer requirement of 3 % CET1 for domestically chartered banks' risk-weighted exposures in Norway will also be implemented gradually, starting at 2 % on 1 July 2013 and coming into full effect on 1 July 2014. Furthermore, banks judged to be systemically important (SIFI) will have a 1 % CET1 buffer as of 1 July 2015, stepped up to 2 % CET1 by 1 July 2016. I.e., all domestically chartered banks in Norway are required to have a CET1 capital ratio of 9 % as of 1 July 2013 and 10 % as of 1 July 2014. SIFIs will have to step up further to 11 % as of 1 July 2015 and 12 % as of 1 July 2016. Chart 5.2 provides an illustration of the requirements and their expected developments over the next few years.

Chart 5.2: Phasing in of new CET1 requirements in Norway
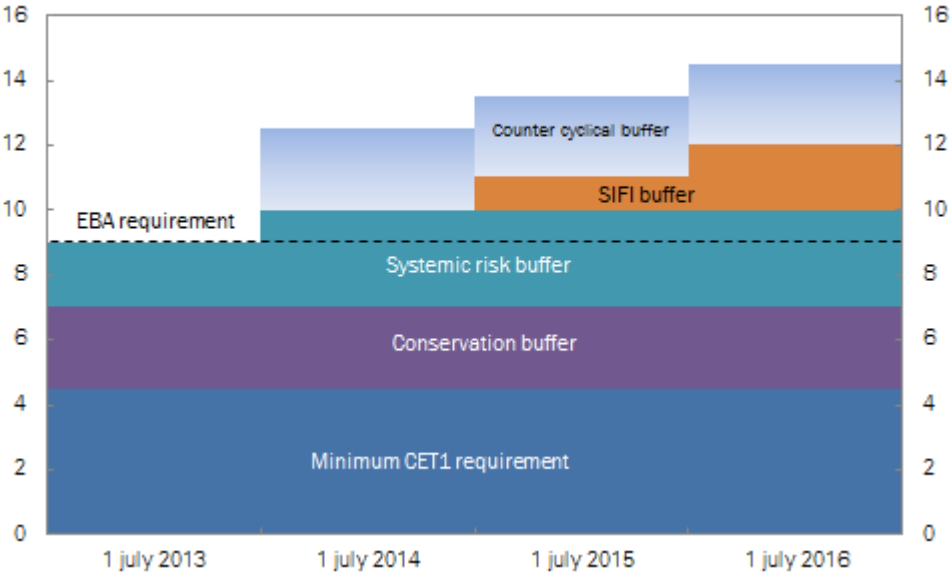
Source: Ministry of Finance and Norges Bank.
Note: The EBA requirement refers to the decision by the European Banking Authority under which 71 systemically important EU banks were required to hold a minimum CET1 ratio of 9% as of 30 June 2012. The Norwegian FSA decided to apply the same minimum requirement to all Norwegian banks as of June 2012. The counter cyclical buffer is in the illustration set to its maximum potential value.

Sweden

During 2013 and 2014 the four largest Swedish banks (Handelsbanken, Nordea, SEB and Swedbank) are required to meet a SIFI buffer CET1 requirement of 3 %. This buffer will be increased to 5 % as of 1 January 2015. This comes in addition to the conservation buffer of 2.5 % which is already in force. The largest Swedish banks will thus face a minimum CET1 requirement of 10 % in 2013 and 12 % as of 1 January 2015. Note, however, that in calculating their CET1 to meet these requirements, the Swedish banks will not be subject to the transition floor requiring the capital to be no lower than 80 % of what it would have been had the risk weights of Basel I been used to calculate RWA. See Chart 5.3 for an illustration of the requirements and their expected developments over the next few years.

Chart 5.3: Phasing in of new CET1 requirements in Sweden

Source: Sveriges Riksbank. The EBA requirement refers to the decision by the European Banking Authority under which 71 systemically important EU banks were required to hold a minimum CET1 ratio of 9 % as of 30 June 2012. The Norwegian FSA decided to apply the same minimum requirement to all Norwegian banks as from June 2012.

Denmark

Denmark will gradually phase in the conservation buffer and the buffer for systemic risk according to CRD IV. However, as long as CET1 requirements including the conservation buffer and the systemic risk buffer are below 9 % – the requirement introduced by the European Banking Authority for 71 systemically important banks as from 30 June 2012 – one might expect that 9 % will be the binding minimum requirement for systemically important banks in Denmark, i.e. until 1 January 2018. See Chart 5.4 for an illustration of the requirements and their expected developments over the next few years.
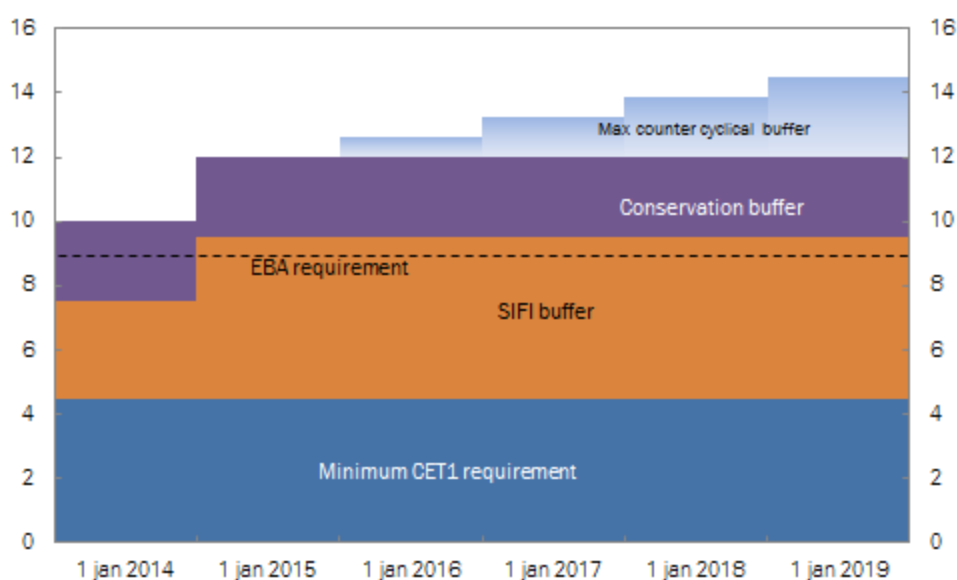
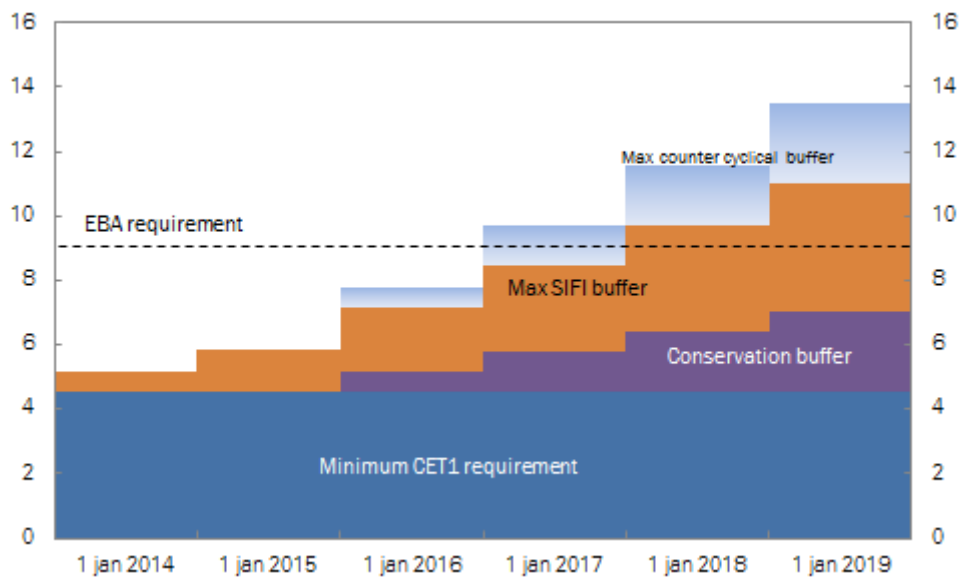**Chart 5.4: Phasing in of new CET1 requirements in Denmark**

Source: Nationalbanken. The EBA requirement refers to the decision by the European Banking Authority under which 71 systemically important EU banks had to hold a minimum CET1 ratio of 9 % as of 30 June 2012. The Norwegian FSA decided to apply the same minimum requirement to all Norwegian banks as from June 2012.

Comparing capital regulation in the three Scandinavian countries

In order to compare the phasing in of the CET1 requirements in the three countries, the implementation dates and the new total CET1 requirements are summarised in Table 5.1.

Table 5.1: Phasing in of new CET1 requirements in Scandinavia

Date	Norway	Sweden	Denmark
1.7.2013	9	10	9
1.7.2014	10	10	9
1.7.2015	11	12	9
1.7.2016	12	12	9
1.7.2017	12	12	9
1.7.2018	12	12	9.7
1.7.2019	12	12	11

Note: For Denmark, it is assumed that the EBA requirement of 9 % will be binding for SIFI banks until the sum of the basic CET1 requirements, the conservation buffer and the maximum systemic risk buffer exceeds 9 %. Countercyclical buffers are not included in this table.

The permanent CET1 requirements (basic CET1 of 4.5 % plus conservation buffer and combination of systemic risk and SIFI buffers) in Norway and Sweden will apparently be similar to but above the Danish requirements. However, due to room for some national discretion in CRD IV and CRR, there are some caveats to such a conclusion:

- The Swedish requirements, at least for SIFIs, will not be subject to the 80 % transitional floor, whereas the transitional floor for the Norwegian banks may not be phased out until 2017.
- Assuming that the transitional floor will be maintained in all three countries, one has to take into account that the way the floor is implemented in Norway differs from how it is implemented in Denmark and Sweden. The two latter countries follow the EU standard by which the 80 % is applied to the absolute amount of capital banks have, i.e., the numerator of the capital ratio. In Norway, however, the floor is implemented according to the original intention of the Basel Committee: a bank's risk-weighted assets cannot be lower than 80 % of what they would have been under Basel I. This difference implies that a Swedish bank can achieve very high capital ratios just by lowering its RWA and maintaining its total capital, and still satisfy the 80 % transition rule. However, a Norwegian bank cannot do this as its RWA would soon hit the 80 % floor. Hence, the Norwegian bank may seem less capitalised than the Swedish bank. In order to correct this impression, DNB for instance has in its annual statements over the past three years reported its RWA with and without the transition floor.
- As mentioned in Section 2.4, some IRB banks have calculated the risk weights for their mortgage loans to be below 10 per cent. To counter this, the Swedish

supervisory authorities have decided to introduce a minimum risk weight of 15 % for mortgage loans at IRB banks. It has recently been announced by Swedish supervisors that the minimum risk weight may be raised to 25 %. In Norway, the Ministry of Finance announced in October that the loss given default IRB banks use to calculate risk weights for residential mortgages cannot be lower than 20 %. This translates into a minimum risk weight of approximately 20 %. However, for most Norwegian banks the transitional floor, as mentioned above, will be the binding constraint for their risk weights.

- In Denmark, the Pillar 2 capital requirements – discretionary requirements that supervisors can impose on individual banks – have been published. This is not the case in Sweden or in Norway. Thus the publicly available CET1 requirements for Danish banks are for many banks higher than those presented in Table 5.1.

The different implementations of the transitional floor imply that it is more likely that the floor is binding for a Norwegian bank than it is for a Swedish bank. In this case the marginal loan from the former for a residential property would be assigned a risk weight of 40 %. For the Swedish bank, as long as its capital is more than 80 % of what it would have been under Basel I, the risk weight of the marginal loan could still be calculated by the use of IRB models and maybe be as low as 15 % in the case of a residential property. A similar effect may also be present for lending to non-financial firms; a Norwegian bank bound by the minimum RWA of 80 % will have to apply a risk weight of 80 % on its lending to firms. A Swedish or Danish IRB bank can operate with lower risk weights on loans to the same firms.

Overall, Norwegian banks appear to be subject to somewhat higher capital requirements regarding mortgage lending, and partly also for business lending. This is mainly due to the Norwegian implementation of the transitional floor.

6. Taxation of the financial sector in Norway

Among the policies that have a significant impact on banks' competitiveness, tax policy ranks high. Moreover, this is a policy area where new measures have been debated extensively in the aftermath of the financial crisis. Hence, in this section we review the tax regime applied to banks in Norway, comparing it with the regimes applied to other industries in Norway and to banks' international competitors. A full comparison of effective taxation of the financial sector in different countries is difficult, since tax bases differ, with various possibilities with respect to exemptions and deductions. However, this review is mainly meant to provide a rough benchmark in order to shed light on distinct differences in tax treatment.

6.1 The tax regime applied to the financial sector in Norway

In this section we review corporate income taxation, VAT (value added tax) and other taxes applied to the financial sector in particular. In Norway, membership of the Banks' Guarantee Fund is mandatory for all banks. This fund is financed by fees paid by banks according to their guaranteed deposits and core capital. Because of its mandatory nature, this fee may be regarded as a sector-specific tax. However, the deposit guarantee scheme was reviewed and discussed in Section 5, which examines why and how banks are regulated, and will thus not be further analysed here.

Corporate income taxation

Firms in the financial sector in Norway in general face the same corporate income taxes as the rest of the private sector.[51] Hence, there is no additional taxation on financial services, nor are there special exemptions. Interest income is taxed as ordinary income, and interest expenses are fully deductible for financial institutions. A flat corporate income tax rate of 28 percent applies to both financial institutions and other corporations.[52]

VAT

Financial services are – with a few exceptions – exempted from value added tax (VAT). This exemption is in line with the tax regimes in most other OECD countries.[53] The historical reason for this exemption has been the problem of establishing a good measure of the tax base, since due to the nature of financial services it is difficult to adequately measure the value added arising from the provision of these services. Moreover, related to a set of financial services, levying a VAT has been considered technically challenging.[54]

VAT on financial services was assessed by the *Storvik* committee, which delivered its report on VAT on services in general in 1990. The majority of the committee recommended keeping the VAT exemption of the financial sector. The committee recognised that its recommendation of maintaining the exemption for financial services was not consistent with its main recommendation of a neutral VAT system without differential treatment for some sectors or activities. However, the committee emphasised that while its recommendation of

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[51] Note that there are differences in how losses are deducted. Financial institutions can deduct provisions for future losses while other industries can deduct only realised losses.

[52] Since other taxes paid from corporate income – such as wealth tax – as well as tax credits are of marginal importance, assessed taxes as a share of taxable income are close to 28 per cent in the financial sector as well as other comparable industries (see Rabben and Røvik, 2013). The ratio is somewhat lower in manufacturing than in wholesale and retail trade or financial and insurance activities due to R&D tax credits in particular.

[53] The exemption applies to the sale of insurance services, finance services, payment services, financial instruments and management of securities and investment companies. (NOU 2011:1)

[54] See NOU (2011:1) and Rabben and Røvik (2013) for more thorough discussions of the exemption of financial service from VAT.

keeping the VAT exemption of the financial sector was related to the technical difficulties of levying VAT on financial services, it was principally based on considerations of international competitiveness and the fact that financial services typically were exempted from VAT in most other countries.

What is the pecuniary magnitude of the financial sector's exemption? In general, the tax on value added in Norway amounts to 25 percent. However, calculating the advantage of the sector's exemption, one needs to be aware that exemption of financial services does not imply that value added is not taxed at all. A firm supplying financial services or insurance cannot reclaim VAT embedded in the price of its purchases. Consequently, whether the financial sector is undertaxed or overtaxed is decided by the distribution of its services between business customers and non-registered customers such as households, non-profit organisations and the public sector.

Rough calculations (see NOU 2011:1 and Rabben and Røvik, 2013) suggest that the VAT exemption constitutes about NOK 12.5 billion in lost tax income. However, as a firm supplying financial services cannot recover the VAT on its purchases, we need to subtract the taxes paid by the financial sector through input taxation. This is found to amount to around NOK 4 billion, leaving the financial sector with a NOK 8 billion tax advantage.

Financial transaction tax
Formerly, financial transactions were taxed through stamp duties. These duties were, however, removed during the liberalisation and deregulation of the financial sector in the 1980s, as they were deemed to hinder the efficiency of stock markets and supply of equity to industry and trade. In Norway, financial transactions have not been subject to any taxes since 1988.

Stability tax
Some activities in the economy create a social cost beyond the private cost a firm pays to supply this activity. We refer to these as negative externalities. Pollution, for instance, constitutes an extra social cost from production of certain goods beyond the private cost paid by the firm. If activities generating negative externalities are left unregulated, this leads to an inefficient overproduction of the good carrying this externality.

As pointed out in Section 5, production of financial services generates substantial negative systemic risk externalities, and thus increases the sector's vulnerability to financial instability. Moreover, as discussed in Section 5, the financial sector enjoys an implicit state guarantee which means that the sector does not pay for the full cost of the risk that their activity generates, which in turn gives financial firms an incentive to take on excessive risk. In Norway, there is no special stability tax on the financial sector to compensate for its potential negative externalities, as has been introduced in some other countries (see Section 6.2 for a review of these). However, it could be argued that the Norwegian mandatory deposit guarantee scheme compensates to some extent for the lack of such a tax due to the scheme's extended mandate and the fact that part of the fee is levied on banks' risk-weighted assets rather than just on insured deposits.[55] Nevertheless, the financial crisis commission recommended the introduction of a separate stability fee on financial services firms in Norway (see NOU 2011:1). The commission argued that such a fee may act to correct market failure, promote financial stability, and help to finance future government interventions. It

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[55] Norwegian banks have to pay 0.05 % of their risk-weighted assets in addition to 0.10% of covered deposits as the annual fee to the deposit guarantee scheme, see Section 5.2.1.

also noted that systemically important financial institutions should be charged a higher fee than other institutions.

6.2 Financial sector taxation in other countries

Corporate income taxation

In terms of corporate income taxes, the tax treatment of the financial sector does not in general diverge from that of the rest of the economy for countries in the European Union (European Commission, 2012).[56] In general, corporate income tax applies equally to financial firms and non-financial firms.[57] The corporate income tax rate varies substantially across European countries. However, for the home countries of the banks competing in the Norwegian market, the corporate income tax rate is somewhat lower, but fairly close to the Norwegian rate.[58]

VAT

The financial sector is in generally exempted from VAT in OECD countries for the same reason as in Norway. The European Commission notes that this exemption implies an under-taxation of sales from the financial sector compared with non-financial firms. In order to correct for this difference in tax treatment, some countries have – unlike Norway – adopted special payroll taxes for the financial sector, see OECD (2013) and Table A.6.1 in the appendix for details. In Denmark, a "Lønsumafgift" is imposed on all sectors not paying VAT at a rate of 10.9 percent of the firm's total labour cost.[59] In France, a tax is paid at a progressive rate on financial companies' wage bills.[60] The tax has been introduced to compensate for VAT exemptions and is payable by all sectors not subject to VAT. In Iceland, a 5.45% tax on total remuneration of employees in financial institutions and insurance companies was introduced in 2012, as was an extra tax on profits for financial companies with an income tax base in excess of ISK 1 billion. Israel has since 1976 had a type of financial activities tax which is calculated on the basis of the sum of wages and profits.

Financial transaction taxation

Financial transaction tax is a type of tax that has been the subject of much debate since the financial crisis. In March 2013, the European Commission set out the details of a financial

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[56] Certain countries have adapted taxes on bonus payments in the financial sector, although some are temporary (European Commission, 2012).

[57] There are two main exemptions, the treatment of bad and doubtful loans, and the non-application of thin capitalisation rules. However, these differences can be explained by the business structure in the financial sector where interest paid and received constitutes part of the business and not just the financing of activities (European Commission, 2012).

[58] As of 2013: Sweden 22 percent; Denmark 25 percent; Finland 24.5 percent; UK 23 percent; Germany 30.2 percent including local taxes, and France 34.4 percent (OECD Tax policy analysis). Note that the statutory corporate tax rate may differ substantially from effective average and marginal tax rates, as it does not take into account tax laws pertaining to the tax base and the possibility of benefiting from special exemptions such as deductions and various depreciation schemes.
See: http://www.oecd.org/tax/tax-policy/oecdtaxdatabase.htm#C_CorporateCaptial

[59] This tax is scheduled to increase to 12.3 percent in 2021 (OECD, 2013)

[60] 4,25% on annual wages up to EUR 7,604; 8.50% between EUR 7,604 and EUR 15,185 and 13.60% above EUR 15,185 (OECD, 2013)

transaction tax to be implemented by 11 member states.[61] The tax would apply to all transactions at a rate of 0.1 percent for shares and bonds and 0.01 percent for derivatives. It is estimated that the new financial transaction tax would raise EUR 57 billion in revenue.[62]

The European Commission has emphasised the importance of coordination in the level and base of the taxation. If introduced by one country alone, the tax may only serve to move transactions to countries with more favourable tax regimes (European Commission, 2012). This point is well illustrated by the consequences of introducing a tax on share transactions in Sweden in the 1990s, which contributed to a substantial relocation of stock trading activities to other financial centres (NOU 2011:1). Nevertheless, the Commission has not been able to reach an agreement among all 27 member states on a common financial transaction tax.

Still, some countries already operate with some form of financial transaction tax. In for instance the UK, stamp duty ensures that the purchase price of existing shares for a company incorporated in the UK or maintaining shares in the UK register is taxed at 0.5 percent (OECD, 2013). However as financial intermediaries are excluded from the duty, only a small share of actual trades is taxed.

Stability tax

In the aftermath of the financial crisis, several countries have introduced special taxes on financial institutions' balance sheets in order to limit risk-taking behaviour in the financial sector. In 2009, Sweden introduced a stability fee for financial institutions. The tax rate of 0.036 percent is levied on banks' and credit institutions' total liabilities, with an exemption for equity capital and some junior securities. Swedish banks are obliged to pay for their branches in foreign countries but not, however, for their subsidiaries abroad. For 2013, Sweden expects revenue from the tax of SEK 3.1 billion, which will be paid into a stability fund (OECD 2013).

The UK introduced a similar stability tax in 2011. A tax rate of 0.088 percent is levied on the global consolidated balance sheet of UK banks, excluding some equity, protected deposits and repo liabilities secured against sovereign debt.[63] Between April 2011 and March 2012, the tax generated GBP 1620 million. Similar stability fees have been introduced in France and Germany as well. In France a tax rate of 0.5 percent is levied on banks with capital requirements above EUR 500 million to reflect systemic risk. In Germany, a levy with progressive rates on all credit institutions authorised to provide banking operations was introduced in 2011 (OECD 2013).[64]

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[61] These are France, Germany, Belgium, Austria, Slovenia, Portugal, Greece, Slovakia, Italy, Spain and Estonia. See http://europa.eu/rapid/press-release_IP-13-115_en.htm.

[62] The tax will be due if any party to the transaction is established in a participating Member State, regardless of where the transaction takes place. Furthermore, financial instruments issued in the 11 member states will be taxed when traded, even if those trading are not established within the 11 member states. See http://ec.europa.eu/taxation_customs/taxation/other_taxes/financial_sector/.

[63] The total tax base includes the global (i.e including foreign subsidiaries) consolidated balance sheet of UK banking groups and building societies, the aggregated UK group and UK subsidiary balance sheets, together with a proportion of the balance sheets of foreign banks operating in the UK through permanent establishments which are members of foreign banking groups, the balance sheets of UK banks and banking sub groups in non-banking groups and the balance sheets of UK banks that are not members of groups, see OECD (2013).

[64] Liabilities below EUR 300 million are exempt. Thereafter the rate is 0.02% up to EUR 10 billion, 0.03% for amounts between EUR 10 billion toEUR 100 billion, 0.04% for amounts between EUR 100 billion to EUR 200

6.3 Financial sector taxation in a national and international perspective

In terms of taxation, the financial sector in Norway face the same tax regimes and tax rate as the other sectors of the economy – with the exception of VAT. The VAT exemption of the financial sector distorts relative prices and therefore gives rise to inefficiencies in the Norwegian economy. VAT-registered businesses are over-charged for financial services since embedded VAT is non-recoverable, while households are under-charged since there is no output VAT added to the margin on financial services they consume. As a consequence, households receive cheaper financial services than they would under a neutral tax system. This distorts their demand away from the consumption of other products and services and towards financial services. In addition, as pointed out by Rabben and Røvik (2013), the VAT exemption provides incentives for inefficient in-house production in financial institutions. Outsourcing of auxiliary services from a financial institution incurs VAT on the service. The exemption implies in-house production will be profitable for a bank up to an extra cost of 25 percent on the service. Important to note is the fact that this also leads to a distortion of the industrial structure, since auxiliary services can most likely be produced more efficiently by large than by smaller companies. This gives smaller financial institutions a disadvantage relative to their competitors.

As for international competitiveness in terms of corporate taxation, the differences between Norway and other countries do not seem significant. Furthermore, the VAT exemption of the financial sector is applied throughout Europe. But Denmark, France, Iceland and Israel tax remuneration in the financial sector in order to level taxes between sectors (OECD, 2013), and to compensate for the VAT exemption. No such compensation exists in Norway, but one of our neighbouring countries has actually imposed a heavier tax burden on their financial sector.

The introduction of stability fees in several European countries has not been followed by the same initiative in Norway. However, to some extent the Norwegian deposit guarantee system already includes a stability fee at 0.05 percent, which is comparable to that of stability fees in other countries. The decision to make fees to the Norwegian guarantee fund permanent regardless of the size of the fund ensures that the fee is paid on a continuous basis and makes it similar to the stability fees introduced in most other countries. Cf. discussion in Section5.

All in all, the Norwegian financial sector does not appear to be more heavily taxed than that of other European countries. On the contrary, the tax on financial sector remuneration in Denmark and France, and on remuneration as well as profits in Iceland, suggest that the tax burden for the Norwegian financial sector is in fact lighter than in some other European countries. This impression is reinforced by the fact that, unlike many EU countries, Norway does not plan to introduce a financial transaction tax (FTT). [65]

6.4 Implications of the EEA agreement on taxation of the financial sector

Within the EEA agreement, Norway enjoys considerable flexibility with respect to tax policies. In the European Union, taxes are in general defined as a national concern and the

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billion, 0.05% for amounts between EUR 200 and EUR 300 billion, 0.06% for amounts above EUR 300 billion. The addition component amounts to 0.0003% of the nominal amount of derivatives. The bank levy is limited to either a maximum of 20% of the annual profits or to a maximum of 50% of the average annual profits for the past 3 years (OECD 2013)

[65] See http://europa.eu/rapid/press-release_IP-13-115_en.htm

EEA agreement does not include rules on harmonisation of direct or indirect taxation as long as taxation complies with general internal market rules, and thus with rules of non-discrimination and state subsidies. Thus in principal, member states may choose their preferred tax system as long as it is consistent with the common agreements. The European Commission has adopted a recommendation on harmonisation of taxes for the financial sector, but this recommendation is not binding for the member states.

Taxation and regulation may to some extent serve as substitutes for policy measures to correct for externalities in the banking sector. Due to the EEA agreement, the Norwegian authorities obviously face few binding restrictions with respect to measures that may be regarded as taxes, since taxation is not part of the agreement. On the other hand, since the financial sector as such is one of the sectors included in the EEA agreement, measures regarded as sector-specific regulation must comply with EU legislation. However, the EEA agreement does not specify the criteria determining whether a tax directed towards the financial sector is a tax or a sector-specific regulation. Hence, there is room for discretion.

Not only do the Norwegian authorities face fewer restrictions regarding taxation. A measure that qualifies as a tax rather than as financial regulation can be applied to all institutions operating within the jurisdiction of Norway, while a regulation initiative only applies to those institutions that are subject to Norwegian regulators' regulatory authority. As a consequence, a tax measure may have less adverse effect on the levelness of the playing field within the Norwegian bank sector.

7. On the concept of a level playing field

In the previous sections of this *Staff Memo*, we have described the Norwegian banking sector in a national, cross-industry perspective as well as in an international perspective. We have examined the performance and market structure of the sector as well as the regulation and taxation regimes applied to the sector. In this section, we move on to a general discussion of the concept of the level playing field and its pros and cons.

7.1 The aim of a level playing field

The concept of an international level playing field has long been emphasised by policymakers and researchers in a number of different areas. As the world economy is becoming more integrated, different national standards on – amongst others – labour policies, environmental policies and financial regulation cause producers and politicians to complain about what they consider unfair competition (Hudec, 1999). Firms located in more weakly regulated countries, they argue, enjoy an unfair cost advantage because they are excused from complying with proper practices.

Those in support of this view claim that fair competition requires competition on equal terms, i.e. a level playing field (Hudec, 1996). Such a concept of competitive fairness rests on the assertion that economic outcome should be based on merit. Businesses are supposed to succeed or fail based on how well they compete. The competition is fair as long as no competitor has an advantage that is not based on merit. Conversely, competition will be unfair whenever foreign producers have an advantage created by their government that is unavailable to domestic producers.

In theory, a government may level the playing field by removing the cost disadvantage facing its local firms in three ways. First, it could lower its own regulatory standards. However, depending on the rationale for regulation, this could potentially harm the domestic economy. Second, it could subsidise the domestic producers to compensate for the loss they face; yet this would require a higher rate of taxation to fund the subsidies. Third, to the extent that it is possible, the government could increase taxes and tariffs to reduce the foreign producers' cost advantage. However, such initiatives will typically not comply with the country's international agreements.

Hence, as this reasoning illustrates, even though the aim of a level playing field certainly has an intuitive appeal, it may be challenging to achieve. Providing a level playing field is not straightforward and comes with a number of practical and theoretical problems. First, producers in different countries experience a set of different economic and policy induced advantages and disadvantages. Not only do taxation, subsidies and regulations differ, so do for instance also macroeconomic conditions, infrastructure, the quality of government education and the enforceability of contracts and property rights. Thus in practice, there is a problem of defining what conditions national governments are responsible for levelling. Second, due to the wide differences in business conditions, it is nearly impossible to evaluate how level the international playing field is. Hence, whether a certain policy reform levels the playing field between domestic and foreign producers is hard to assess.

Disregarding these practical issues, there are also theoretical problems related to whether a policy of promoting a level playing field is consistent with an efficient use of resources and welfare maximisation. From an economic perspective, there is no reason why government regulation should be concerned only with providing equal competitive conditions. On the contrary, from the point of view of a national government, it is optimal that regulations, taxes and subsidies ensure that resources are allocated so that their returns are maximised. This implies that economic agents may indeed be treated differently if this enhances the return on society's resources (cf. von der Fehr, 2002)

In particular, the government enhances welfare when it addresses problems of market imperfections such as externalities, which typically differ across sectors and activities. Poor labour standards, pollution and excessive risk-taking are all examples of behaviour which may generate costs to society that the unregulated producers do not incorporate in their cost function. In a closed economy, this problem can be solved by taxation or regulation so that the full marginal cost of production equals the marginal benefit of the good produced (Strøm and Vislie, 2007).

However, in a small, open economy such regulation and taxation, if not internationally coordinated, might incur a welfare loss, as the factors of production are internationally mobile. An internationally coordinated increase in regulation or taxation may, however, be problematic since different countries have different preferences. Moreover, if the externality is global, a free-rider problem arises. The unregulated foreign country can enjoy the same benefit from regulation as the regulating countries do, but without any of the cost (Hoel, 1996,)

If action is taken by one country alone, it would, all else being equal, create a cost advantage to foreign producers and trigger the migration of production to other countries. But as long as the externalities are local, that is, they only affect the country in which the production occurs, the home country might still be better off. Even if the stricter regulation or increased taxation encourages the movement of production to foreign countries, home country welfare might increase as the negative externalities are reduced. Such a development would violate the

principle of the level playing field, but at the same time be welfare-enhancing for the home country.

However, to the extent that the externalities are global, i.e. production in the foreign country imposes a negative externality on the home country as well, regulation and taxation in the home country alone is not sufficient. The leakage, i.e. how much of production that is moved abroad in response to the stricter regime in the home country, determines how the home country's welfare is impacted by the regulation regime.

Level playing field and CO_2 emissions

A level playing field in environmental regulation has long been the subject of debate. Fossil fuel combustion generates both CO_2, which has a negative global externality, and SO_2, which has a local negative externality. Decision-makers at the country level can internalise the local pollution of SO_2, but will have to deal strategically with other countries to reduce CO_2 emissions (Yang, 2006). The US has for instance a tradable permit mechanism for domestic SO_2 emissions, but has not committed to the Kyoto protocol on CO_2.

If fossil fuel combustion only generated the local externality, it could be welfare-enhancing for the country to regulate even if other countries chose otherwise. But since the process also generates a global externality, a single country regulation will not be fully effective.

Any national policy that curbs emissions will raise domestic energy costs, which would enable unregulated foreign firms to expand their production. Hence some of the national effort will be offset by increasing emissions in other countries, so called carbon leakage (Eichner and Pethig, 2011). Such a policy not only gives domestically located firms a competitive disadvantage, but may also trigger costly reallocation of capital as firms move abroad. The typical second-best policy in this case is to set tariffs or border taxes to compensate the home country's domestic producers (Harstad, 2012). Note that even without border taxes, the national initiative might still be welfare-enhancing depending on the extent to which externalities are reduced relative to the leakage to foreign production. Thus, in this perspective, the demand for a level playing field cannot be supported unconditionally.

7.2 For and against a level playing field in banking regulation

To what extent are the considerations related to a level playing field relevant for the regulation of the financial sector? In Section 5 we examined the rationale for regulation of the banking sector. There are certain aspects of banking that call for particular regulation of this sector relative to others. As the banking sector is characterised by a set of market imperfections, a poorly regulated banking sector may harm society and lead to reduced welfare.

Hence, due to market failures there is a viable rationale for regulation of the financial sector. Moreover, the theoretical considerations in favor of regulation are supported by empirical

evidence. Angkinand (2009) finds that countries with high deposit insurance coverage in combination with more stringent bank capital requirements are affected less severely once a banking crisis strikes. Evidence from Barth et al (2004) shows that stricter capital adequacy standards tend to reduce the probability of a banking crisis, although the relationship is not very robust. Finally, stricter regulations ex ante may reduce government bailout costs in the event of a crisis (Tchana, 2011).While the need for regulating the banking sector is widely recognised, the importance of a level playing field in financial regulation has been stressed by many policymakers since the introduction of the Basel II Accord in 1999, and has been emphasised since. Supporters of this notion argue that a level playing field improves welfare by ensuring that financial institutions compete on an equal footing (Morrison and White, 2009). However, the literature on financial regulation is not unequivocally supportive of this view. There is essentially a set of potential problems with an international level playing field in financial regulation.

First, the international level of regulation standards might be too low to counter negative externalities in the respective domestic banking sectors. Second, general macroeconomic conditions vary across countries and affect the need for, and consequences of, regulation. Third, the relative importance of institutions affecting financial stability, but that are not covered by the Basel agreement, differs across countries. The sum of these differences creates differential needs for regulation in the respective countries.

International regulatory spillovers

However, while different countries may have preference for different regulation, this does not mean that "the sum of regulation" across countries will be fully effective. In many cases there are transnational negative externalities from financial sector activities. During the Japanese banking crisis in the 1990s, Japanese banks retracted from international financial markets, with significantly negative effects on the US real economy (Peek and Rosengreen, 1997). As large parts of the US banking sector collapsed in 2008, its problems were rapidly transmitted to the rest of the global financial sector. Due to these transnational interdependencies, we recognise that a country may also be harmed by the lack of regulation in other countries, while on the other hand it may gain from other countries introducing relatively stricter regulation than itself.

This mechanism is well illustrated in the works of Dell'Ariccia et al. (2006) who develop a model to highlight the costs and benefits of centralised and decentralised banking regulation. In their model, loan monitoring is kept at a socially inefficient level in unregulated banks due to the existence of limited liability and deposit insurance. They show that competition between regulators in two countries with equal preferences will lead to a level playing field with respect to capital adequacy standards, but that the standards will be lower than optimal. This occurs because banking regulation in one country creates a positive externality for the other country when capital is mobile. Higher capital adequacy standards in one country not only increase the financial stability of that country, but also the stability of the foreign banking system. The reason is as follows: when domestic banks experience tighter regulation, they will reduce lending. As a result, more domestic borrowers will turn to foreign banks, increasing the demand for loans from these banks and allowing them to charge a higher price, i.e. higher interest rates. This boosts foreign banks' revenue and the average return to lending rises. Return to monitoring also increases, enhancing stability in the foreign country.

In the model by Dell'Ariccia et al, the benefit to the other economy is not internalised by the domestic regulator. The regulator thus imposes standards lower than the Pareto optimal that would have been chosen by a centralised regulator. Furthermore, the domestic regulator might be concerned about the shareholders of its banks and impose lower capital standards in order to provide them with a competitive advantage and increase their profitability. These results lead to what the authors describe as a competition in laxity, where regulators seek to promote domestic banks rather than financial stability.

Hence, decentralised regulation may provide a level global playing field, but international competition among policy makers may also lead to less than optimal standards. On the other hand, cross-country differences in financial regulation do create costs for the more strongly regulated state. The more efficiently a country is able to regulate its financial sector, the stronger is the competitive position of the more weakly regulated foreign banks, and the more likely are leakages in financial activity, for instance to branches of these more weakly regulated foreign banks. Moreover, this might lead to a financial structure where the households and firms in a country become more dependent on lending from foreign banks. Gianetti and Laeven (2011) find that banks have a tendency to rebalance their portfolio away from international markets when hit by a negative shock to their wealth. A country whose firms and households are very dependent on lending from foreign banks may therefore experience a stronger contraction in lending in the event of global financial distress.

Different countries – different needs

The argument is frequently made that capital requirements must be seen in connection with a country's different institutions. Imposing the same standards on countries with different needs is not necessarily a good solution. An argument for such reasoning is for instance found in the work of Acharya (2003), who looks at convergence in bank capital requirements in the presence of divergent closure policies. His analysis underscores the importance of not focusing on one area at a time when aiming at providing a level playing field, and emphasises the role of complementarities between different measures of regulation. Regulative measures interact in determining final outcomes in terms of firm behaviour and welfare, and these interactions must be accounted for in order to avoid negative impacts of regulation and policy convergence.

Acharya's (2003) point of the departure is the fact that, from the standpoint of bank owners, bank capital and regulatory forbearance are substitutes. In contrast, from the regulatory standpoint, these are complements. As Acharya puts it: "the optimal minimum capital requirement, when it binds, increases in the extent of forbearance practiced by the central bank. A higher level of forbearance induces greater moral hazard, which is counteracted with a greater minimum capital requirement" and vice versa.

Acharya analyses a case involving two countries, where regulators impose capital requirements as an ex ante mechanism to reduce the probability of a banking crisis and have an ex post closure policy of bailing out banks in the event of a crisis. Banks grant loans and raise deposits at home and abroad. The banks in the two economies hold a uniform amount of capital but are subject to different forbearance regimes exercised by the central bank of their respective home countries. This creates a spill over from more forbearing economies to less forbearing economies, and reduces the competitive advantage of banks in less forbearing economies. Since banks regulated by the different regimes compete in the same market, the

risk-taking of banks in more forbearing regimes will affect the profitability of banks from less forbearing regimes. It is shown that if the difference in the degree of forbearance is high, behaviour in the less forbearing regime will either drive banks below their reservation values or lead them to take excessive risk. In turn, this will lead the regulator in the less forbearing regime to lower its standards to avoid the collapse of domestic banks. Subsequently, what he refers to as a "regression toward the worst forbearance regime" occurs in equilibrium. Thus, in the presence of different degrees of forbearance the convergence of international capital adequacy standards actually exacerbates problems of moral hazard as countries are forced to apply a more forbearing closure policy.

7.3 Implications for a small open economy

To conclude, supporters of the notion argue that a level playing field improves welfare by ensuring that financial institutions compete on an equal footing. However, our review of the literature makes clear that from welfare economics point of view, a level playing field is in itself not a goal.

The financial sector is characterised by a particular need for regulation. Our review makes it clear that a level playing field in capital regulation for countries with different needs and taste for regulation is not necessarily beneficial. A level playing field in international financial regulations may e.g. be insufficient to counter the problems of moral hazard in the domestic banking sector when forbearance regimes differ across countries. Finally, a level playing field in financial regulation may result in lower-than-optimal levels of regulation due to a type of race towards the bottom between governments. Hence, from the point of view of a national regulator, optimal capital requirements may differ from international standards.

What does this imply for a small open economy that wishes to single-handedly tighten its financial regulation? First, the regulator must ask whether international capital requirements are sufficient to solve problems of moral hazard in the domestic economy. When looking at this question, it is important that the regulator considers how international capital requirements fit with the other domestic regulatory measures affecting financial stability. More generous deposit insurance in the home country, for instance, points towards stricter capital requirements. Secondly, the regulator must ask whether the benefit of country-specific regulation is higher than the negative effect of imposing higher standards on the domestic banks than those faced by their competitors.

With the above discussion on the pro and cons of a level playing field, in the next section we turn to an assessment of the effect of country-specific regulation and taxation on the Norwegian banking sector and economy.

8. Welfare effects of Norwegian bank regulation

As was observed in Section 7, a level playing field has an immediate intuitive appeal, in that it sounds fair and does not discriminate among competitors. However, as also pointed out in Section 7, aiming for a level playing field in regulation and taxation will in general not be an optimal solution from the point of view of an individual country. If a country's macroeconomic conditions, needs (due to e.g. different forbearance regimes), or preference in terms of regulation, differ from that of other countries, it may be optimal for its government to deviate from policy regimes as they are in other countries, despite the potential for negative effects.

In this section, we identify specific bank regulatory needs for Norway, as compared to its neighbouring countries Sweden and Denmark. We limit the comparison to these two countries, as they are the home countries of the vast majority of the foreign banks operating in Norway through subsidiaries and branches, cf. Section 4. We outline reasons why stricter capital regulation may be more beneficial to Norway than to the two other countries. However, the benefits of such stricter regulation may come at some social cost. We discuss how this cost may be manifested and its effect on a welfare analysis of bank regulation.

Finally, in the light of international developments with respect to taxation of the financial sector, we also discuss the effects of the introduction of new forms of taxation of the financial sector in Norway and the potential impact on Norwegian banks' competitiveness.

8.1 Regulatory needs and benefits for Norway

Some characteristics of the Norwegian economy make the banking sector in Norway more vulnerable. Many Norwegian industries are directly or indirectly geared towards supplying and servicing the offshore oil and gas industry. A sharp drop in oil and/or gas prices could seriously lower the earnings of these industries and thus their ability to service their debt. This dependence on one commodity price is unique to the Norwegian economy compared to the other Scandinavian economies.[66]

Moreover, a downturn in the mainland industries serving the offshore sector may also have a negative impact on private consumption and house prices. There may now be more scope for a fall in residential house prices in Norway than in Denmark and Sweden. As illustrated in Chart 8.1, house prices in Norway have continued to rise sharply after a brief fall in 2008. In Denmark, in particular, but also in Sweden, house prices over the past couple of years have fallen or remained flat. In Norway, where an exceptionally large percentage of households live in owner-occupied houses or apartments, a fall in house prices will have an accordingly negative impact on household consumer demand, further amplifying an initial downturn caused by a potential shock as described above.

The first point is an argument for a systemic risk buffer requirement for Norwegian banks and/or a higher capital requirement under Pillar 2 (cf. Basel III, see Section 5) for banks that are particularly exposed to a fall in oil or gas prices.

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[66] Bjørnland and Thorsrud (2013) show that 40 percent of the fluctuations in the Norwegian mainland economy are driven by variations in the activity of the offshore industry and the oil price.

The second point relates to the discussion of pecuniary externalities in Section 5.1.2. All banks are aware that the risk of a sharp fall in house prices is higher the greater the number of mortgages offered. Nevertheless, an individual bank has no incentive to internalise the risk it indirectly imposes on other banks when it offers a mortgage. Thus, capital regulation that increases banks' costs of holding mortgages can mitigate this negative pecuniary externality. Referring to the discussion of Chart 8.1, this externality is most likely more pronounced in Norway at the present time than in Denmark or Sweden. This is an argument for assigning higher risk weights to mortgage loans provided by a bank operating in Norway than for a bank in Denmark or Sweden.

Chart 8.1: House price index for detached houses in Norway, Sweden and Denmark. 1992 Q1 - 2012 Q4, 2005 Q1 =100
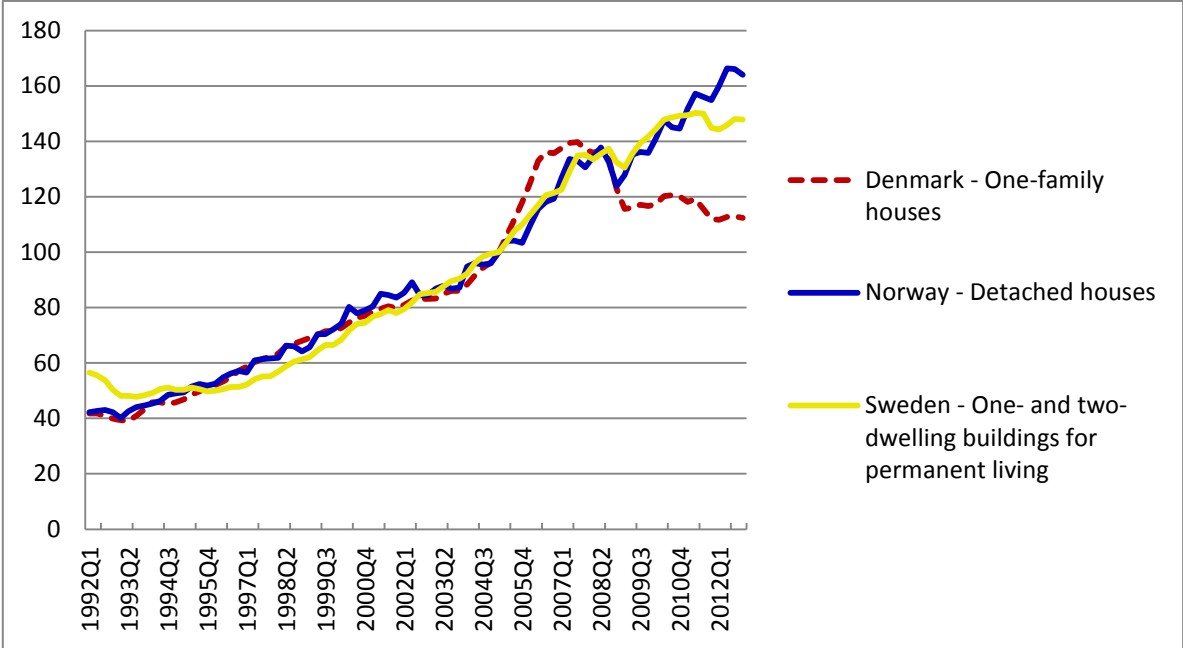
Sources: Real estate price index, Statistics Sweden:
http://www.scb.se/Pages/SSD/SSD_SelectVariables_____340507.aspx?px_tableid=ssd_extern%3aFastpiPS RegKv&rxid=5de99ec2-fb40-435d-bc6b-53dbb523855a .
Price index for sales of property, Statistics Denmark:
http://www.statbank.dk/statbank5a/default.asp?w=1280 .
House price index, Statistics Norway:
https://www.ssb.no/statistikkbanken/selectvarval/Define.asp?subjectcode=&ProductId=&MainTable=Ny Boligindeks3&nvl=&PLanguage=1&nyTmpVar=true&CMSSubjectArea=priser-og-prisindekser&KortNavnWeb=bpi&StatVariant=&checked=true.

The Norwegian banking sector is not only more vulnerable from a macroeconomic point of view. But as reviewed in Section 5, the deposit guarantee scheme applied in Norway also implies a more forbearing closure regime than in the rest of Europe. With reference to the discussion of the level playing field in Section 7, this suggests that from a regulator's point of view, the more forbearing regime should be matched with stricter capital requirements in order not to increase the problem of moral hazard and to reduce negative international spillovers.

8.2 Social costs of relatively stricter domestic bank regulation

Higher capital requirements or taxes may affect costs and product market competition in the banking sector. In this section, our aim is to focus on the overall costs to the economy, i.e. the social costs of stricter capital regulation for Norwegian banks as compared to foreign banks competing in the Norwegian market. In order to do this, we first need to look at how Norwegian banks' costs are affected by the stricter regulations. Next, we need to analyse how these costs impact on the competition for bank customers in the Norwegian market and the costs and behaviour of the customers themselves. Finally, what is the net welfare cost of the altered situation in the banking sector?

8.2.1 Impact on funding costs

According to the Modigliani-Miller theorem, total funding costs are independent of debt to equity ratio. An increase in equity ratio has a threefold effect on total funding costs: 1) the firm's more expensive funding (equity) increases and its cheaper funding (debt) decreases; 2) a higher equity ratio means safer debt and requires a lower risk premium and thus a lower required return on debt; 3) a higher equity ratio means lower volatility in the value of equity, hence it also requires a lower risk premium and lower required return on equity. Following Modigliani-Miller, the combined impact of these three effects on funding costs should be zero.

However, Modigliani-Miller does not hold in practice as several of its assumptions are violated. In particular, with regard to banks, there is an implicit (government) and explicit (deposit insurance) guarantee for their debt. These guarantees mean that banks' debt financing costs may not be reduced by an increased equity ratio to such an extent that it compensates for the higher cost of equity. As a consequence, higher capital requirements increase banks' total funding costs, see e.g. Miles et al (2010), Kashyap et al (2010), or Vale (2011). Hence, stricter regulation in Norway as compared to other countries will raise Norwegian banks' funding costs relative to banks regulated by other countries.

Referring to Section 2, and in particular Chart 2.10, returns to shareholders of Norwegian banks have been high and steady compared to most other countries from 2004 and onwards. Although higher capital requirements on Norwegian banks imply a loss for the current shareholders, Norwegian bank shares may still appear as a fairly attractive equity investment compared to shares in other banks because of the lower value of the explicit and implicit guarantee.

However, let us assume that banks, i.e. shareholders, are able to fully pass on to their borrowers the increased funding costs resulting from higher capital requirements. An increase in a bank's CET1 ratio of, say, 2.5 percentage points can roughly be estimated to increase banks' funding costs, and thus the average interest rate charged to borrowers, by 0.2 percentage points.[67]

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[67] Let us assume an average ratio between risk-weighted assets and total assets of 0.6, a little on the high side for Norwegian banks. Then a 2.5 % increase in the CET1 ratio translates to roughly a 1.5% increase in the equity ratio. Furthermore, Let us assume a required return on equity (ROE) of 16 % before corporate tax. Let banks' average funding cost in the debt market be 2.25 %. We assume that neither ROE nor banks' funding costs in the debt market change as a result of a higher equity ratio. Let the initial equity ratio be 6 %, roughly equal to that of DNB Bank ASA. Prior to the increase in the equity ratio banks will have total funding cost of $0.06 \cdot 16 +$

8.2.2 Impact on product market competition

There are four main types of institutions competing in the Norwegian banking market. These are the domestically controlled banks, subsidiaries of foreign banks, branches of foreign banks and foreign banks without a geographical presence in Norway, cf. Section 4. As the latter group has been, and still is, rather insignificant, we choose to leave it out of the main discussion. Banks also have to compete with the bond market. While bond lending has increased substantially over the past decade, it is still relatively marginal as compared to bank lending, and limited to larger firms, cf. Section 4. Stricter regulation in the Norwegian banking market thus primarily affects competition between the banks subject to the regulatory authority of Norwegian regulators and those who are not. Domestically controlled banks as well as subsidiaries of foreign banks are in general subject to Norwegian regulations while branches of foreign banks are not. However, some subsidiaries of foreign banks are run more like branches than like independent subsidiaries, and are therefore to some extent also regulated by the authority of their home country. As a result of the asymmetric impact of regulation, a stricter Norwegian regime gives the domestically controlled banks a competitive disadvantage, and to a varying degree also impacts on the relative competitiveness of subsidiaries of foreign banks.

In order to analyse the impact of differences in regulation on competition and welfare, let us now consider a case where capital regulation in Norway becomes stricter than in, say, Sweden. Referring to Section 8.2.1 above, this would most likely imply that Norwegian banks face higher marginal funding costs. Assume Norwegian banks pass these extra costs on to borrowers, at least to some degree. Let us look at two extreme alternatives regarding how competition works between Norwegian and those Swedish banks which do not have to comply with Norwegian regulations:

1) Borrowers *switch en masse* to the cheaper Swedish banks.
2) Borrowers *do not switch* to any large extent due to switching costs or limited lending capacity at Swedish banks or both.

En masse switching

What costs would such an en masse switching represent to the Norwegian economy? That depends on the three following factors:

First, more lending by Swedish banks to Norwegian borrowers implies that more risk specific to Norway is held by Swedish banks. To the extent that Norwegian authorities' only motivation for regulating Norwegian banks is to reduce their direct exposure to risk, such a scenario may not represent a cost to the Norwegian economy. In fact, Swedish banks fund Norwegian borrowers and bear part of their risk. Switching implies that risk that would otherwise be held by Norwegian banks is transferred to Swedish banks. However, if the loans transferred to Swedish banks are lower risk loans, the average risk ratio of Norwegian banks may increase. If they maintain their absolute level of capital, the probability of failure may have decreased. This indicates that en masse switching may actually have a positive effect on the Norwegian economy, as risk is transferred to another country.

$(1 - 0.06) \cdot 2.25 = 3.075$. After the increase the total funding costs will be $0.075 \cdot 16 + (1 - 0.075) \cdot 2.25 = 3.2813$, an increase of 0.20625.

Second, a bank is not regulated just because of its direct exposure to risk. Another reason for regulation is the presence of pecuniary externalities, generated by borrowers not taking into account the pecuniary externalities they confer on other agents in the Norwegian economy, cf. Section 5.1.2. As an extreme case, let us assume that due to stricter regulation in Norway, credit risk representing pecuniary externalities inside the Norwegian economy is not reduced, but just transferred to Swedish banks. In such a case, stricter regulation is ineffective with regard to the pecuniary externality. This ineffectiveness of stricter regulation will represent a cost to the Norwegian economy as real resources are spent on enforcing and complying with the regulation. However, if there is en masse switching, although not to such an extent that all Norwegian customers change banks, not all of the risk incurred due to pecuniary externalities is transferred to Swedish banks. In this case, regulation will still be effective, but with extensive leakage, and thus at a distinctly reduced level. On the other hand, its effect in reducing pecuniary externalities may still be large enough to justify the use of real resources spent on regulation.

Third, multinational banks may have a tendency towards home bias, i.e. when a customer faces what may be temporary problems, the bank treats customers from its home country more favourably than customers from the host country, cf. Section 7. Showing such flexibility towards a customer may be easier for a bank when the actual credit decision is made closer to the customer's geographic location and the asymmetric information problem is lower. Some empirical support for this hypothesis was provided by a survey conducted by the government commission on the competitiveness of the Norwegian financial industry (NOU 2000:9). The survey showed that companies that only use Norwegian financial institutions are generally more satisfied with Norwegian institutions than companies using foreign financial institutions. Furthermore, when a multinational bank suffers losses due to a negative shock, it may restrict its lending abroad relatively more than its lending at home. Empirical evidence for such behaviour has been found by Peek and Rosengren (1997 and 2000) and Gianetti and Laeven (2011). Similarly, bank resolution authorities in a bank's home country have few incentives to take into account potential negative macroeconomic impacts in a host country from their recovery or resolution actions should the bank encounter problems.

However, rational individual borrowers will weigh the potentially negative effects associated of switching to a foreign bank against the positive effects of borrowing from such a bank. Thus, there should not, in principle, be any social cost (or benefit) associated with increased or reduced market shares of foreign banks in Norway. Nevertheless, with an en masse switching to foreign banks, Norwegian banks may become too small to serve some larger Norwegian borrowers effectively. In that sense, a move by a large number of Norwegian borrowers may confer a negative externality on other borrowers.

Ultimately, two questions remain:

First, do we a need a banking sector that is controlled from Norway in the sense of having their headquarters here? There is no straightforward answer to this question. There is an extensive literature discussing and analysing the importance of the location of headquarters in general, see e.g. Strauss-Kahn and Vives (2009) and Shilton and Stanley (1999), which refer to the positive regional externalities related to headquarters activity. The government commission analysing the competitiveness of the Norwegian financial industry (NOU 2000:9) also discussed the issue of the location of headquarters in the banking sector and networks of financial competence. The commission recognised the importance of maintaining a network of financial competence in Norway – a type of competence that most industries need.

However, the commission did not recommend the introduction of any industry-specific measures encouraging the location of financial headquarters in Norway.

The Norwegian government holds a sufficiently large minority of the shares in Norway's largest bank to veto any major decision such as reallocating the bank's headquarters out of Norway. As long as this is the case, and most of the regional savings banks are largely organised as self-owning institutions, the question has little practical relevance.

Second, labour productivity in the financial sector is higher than in most other sectors in Norway and wages are higher. Does this make the sector particularly valuable? We cannot know. Higher labour productivity and wages do not necessarily reflect higher efficiency, in the use of resources, for example. It may just as well indicate that the financial sector attracts highly skilled and talented employees, employees who would have contributed to higher productivity in other sectors as well. However, it may also be explained by the fact that financial activities are exempted from value added tax. This exemption may either result in lower prices for financial services or in higher returns to factors employed in this sector – or both, but this is difficult to quantify.

Little or no switching

In the previous paragraph, we discussed a scenario where bank borrowers switched en masse in response to more expensive borrowing at Norwegian banks. However, there are reasons why this may not be a likely scenario, at least in the short to medium run, i.e. one to at least five years.

First, there are costs to borrowers of switching banks.[68] These costs may be due to ordinary transaction costs, as well as to borrowers being informationally locked in, i.e. the current bank has private information about a borrower that a competing bank does not have. As a result, the borrower may not be able to get as good an offer at a competing bank.[69] Due to switching costs, borrowers may accept some increase in the interest rate charged by their present bank, without switching to a competing bank.

Second, all banks are limited in their capacity to capture new borrowers, at least in the short and medium run. One important limiting factor is the size of banks' regulatory capital. Furthermore, supervisors, or the bank's own prudential standard may directly curb a bank's ability to capture new borrowers. Such limits to capacity will in general limit the scope of competition for bank borrowers.

As a result, foreign regulated banks may prefer to follow the price increases of Norwegian banks and increase their profitability related to their existing stock of customers rather than focusing on attracting new customers with lower prices.

All in all, this implies that – at least in the short to medium run – little rather than en masse switching is most likely. As a consequence, when capital requirements according to CRD IV are stepped up a little faster in Norway and Sweden than in Denmark, en masse switching to Danish banks is unlikely. Similarly, as long as the stricter Norwegian implementation of the

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[68] Kim et al. (2003), analysing a data set spanning the early 1990s, estimate switching costs for Norwegian bank borrowers to be as high as one third of the interest rate paid on loans.
[69] See for instance v. Thadden (2004).

80 % transition floor from Basel I is not permanent, it is unlikely to cause an en masse switching.

8.3 Financial sector taxation – a lost opportunity?

Compared to other sectors in the economy, the Norwegian financial sector enjoys a smaller total tax burden due to the financial sector's exemption from value added taxation (VAT). Hence, the playing field is, if anything, tilted towards the banking sector. As outlined in Section 6, this tax exemption is unfortunate as the financial industry may grow artificially large at the expense of other industries with which it competes in the labour and capital markets.

The VAT exemption has been maintained for technical reasons as well as due to considerations related to international competitiveness. However, as pointed out in Section 6, in the aftermath of the financial crisis, many countries have started to debate the taxation of the financial sector, including the prevailing VAT exemption. The EU Commission has proposed several measures to ensure an increased contribution of the financial sector to public revenues, and in some countries a special stability tax as well as VAT compensating taxes, have already been introduced.

At the present, the taxation of the financial sector in Norway seems to be fairly closely in line with that of most other OECD countries, while less heavy than that of other European countries. However, if some or all of the proposed changes are implemented, the Norwegian financial industry may, with the present level of taxation, become undertaxed compared with our closest neighbours. This has clear implications for national tax revenues as well as for resource allocation in Norway, but it is also important to bear in mind the potential signalling effects it has on an international community focusing on establishing a level playing field.

Finally, there is one important feature of taxation that deserves attention. To some extent taxation and regulation may serve as substitutes to policy measures to correct for externalities in the banking sector. Due to the EEA agreement, Norwegian authorities face few binding restrictions with respect to measures that may be regarded as taxes, since taxation is not part of the agreement. On the other hand, since the financial sector as such is one of the sectors included in the EEA agreement, measures regarded as sector-specific regulation, have to comply with EU legislation. However, the EEA agreement does not specify what criteria determine, whether a tax directed towards the financial sector is a tax or a sector-specific regulation. Hence, there is room for discretion.

Choosing between taxes and regulation is not an academic exercise, due to the differential impact of the two measures on competition in the Norwegian banking market. As pointed out above, foreign banks operating in the Norwegian banking market via branches rather than subsidiaries are not subject to Norwegian regulators' authority. In addition, the market share of branches of foreign banks has increased over the past few years, while the market share of subsidiaries has decreased, underscoring the relevance of this point. As long as a tax is deemed non-discriminating, all firms, i.e. including branches, would have to pay it. Hence, any policy initiative introduced to correct for market imperfections in the banking sector may harm the competitiveness of Norwegian banks versus foreign banks to a lesser extent if it takes the form of a tax rather than sector regulation.

8.4 Concluding remarks

The market share of Norwegian-controlled banks has been high and stable over the past years. Furthermore, growth in bank lending in Norway has been distinctly higher than growth in the alternative funding source, the bond market. Norwegian banks are cost-efficient, more profitable than many other European banks and compensate their employees significantly higher than firms in other sectors. Other European countries have introduced financial activity taxes and financial transaction taxes leaving Norwegian banks, if anything, less taxed than other banks in Europe.

Adding to these points, current economic growth is higher unemployment lower in Norway than in Denmark and Sweden. Thus, potential costs ensuing from introducing stricter bank regulation now, like reduced bank lending (cf. Section 8.2 above), may actually serve to smooth the business cycle in Norway as compared to Denmark and Sweden.

Stricter regulation means higher funding costs or reduced profitability for banks or both. Only when perfect competition prevails in the banking market, will banks not be able to pass on the costs related to stricter banking regulation to their customers. The Norwegian banking market, or for that matter banking markets in general, are not characterised by perfect competition, cf. Section 4 and the discussion in Section 8.2 above.

Stricter banking regulation in Norway results in a more robust banking sector, but it also implies more expensive and/or less available credit for Norwegian borrowers. However, that is a desired side-effect. There will also be a little less banking activity in Norway, but this is consequently also a desired side-effect. Hence, neither more expensive credit nor reduced banking activity are in themselves arguments against regulation. Increased financial stability and reduced externalities benefit bank customers.

Our analysis has shown that in designing a country's banking regulation, there are significant arguments in favour of focusing on the national need for regulation, rather than sticking to the level playing field principle. However, if a country's regulation regime over time is far stricter than that of its neighbouring countries, there may be an en masse switching of borrowers to foreign banks, which may have undesired and adverse effects on national welfare.

Bibliography

Acharya, V., 2003. Is the international convergence of capital adequacy regulation desirable? *Journal of Finance* 58, 2745-2781

Admati, A., Demarzo, P., Hellwig, M. and P. Pfleiderer, 2011. Fallacies, Irrelevant Facts and Myths in the Discussion of Capital Regulation: Why Bank Equity is not Expensive. *Stanford Graduate School of Business Research Paper No. 2065.*

Admati, A., DeMarzo, P., Hellwig, M. and P. Pfleiderer, 2012. Debt Overhang and Capital Regulation, Research Paper Standford University

Angkinand A., 2009, Banking regulation and the output cost of banking crisis, *Journal of International Financial Markets, Institutions and Money* 19, 240-257

Barth, R., Caprio, G. and R. Levine, 2004. Bank regulation and supervision: What works best? *Journal of Financial Intermediation* 13, 205-248

Bhattacharya S. and D. Gale, 1987. Preference Shocks, Liquidity and Central Bank Policy. In *New Approaches to Monetary Economics*, W. Barnett and K. Singleton (eds.), Cambridge University Press, 69-88.

Bianchi J. 2011. Overborrowing and Systemic Externalities in the Business Cycle, *American Economic Review* 101, 3400-3426.

Bjørnland, H. C. and L. A. Thorsrud, 2013, Boom or gloom? Examining the Dutch disease in a two-speed economy, CAMP Working Paper Series No 6/2013

Bilicka, K., and M. Devereux, 2012. CBT Corporate tax ranking 2012. *Oxford University Centre for Business Taxation.*

Boot, A., 2002. Relationship Banking: What do we know? *Journal of Financial Intermediation* 9, 7-25.

Borchgrevink H., Søvik Y. and B. Vale, 2013, Why regulate banks? Norges Bank Staff Memo 16/2013

Brunnermeier M., Crocket A., Goodhart, C., Hellwig, M., Persuad, A. and H. Shin, 2009. The fundamental Principles of Financial Regulation, Geneva Reports on the World Economy 11, ICMB and CEPR

Dell'Ariccia, G. and R. Marquez, 2006. Competition among regulators and credit market integration, *Journal of Financial Economics* 79, 401-430

Diamond, D. 1984. Financial intermediation and delegated monitoring. Review of Economic Studies 51, 393-414.

Diamond, D. and P. Dybvig, 1983. Bank runs, Deposit insurance and Liquidity, in *Journal of Political Economy* 93, 401-419

ECB, 2010. Structural indicators for the EU banking sector.
http://www.ecb.int/pub/pdf/other/structralindicatorseubankingsector201001en.pdf

ECB, 2011. Financial Stability Review.

http://www.ecb.int/pub/pdf/other/financialstabilityreview201112en.pdf

Eichner, T., and R. Pethig, 2011. Carbon Leakage, The Green Paradox and Perfect Future Markets, *International Economic Review* 52, 767-805.

Eitrheim, Ø., Klovland, T. and J. Qvigstad, 2004. Historical Monetary Statistics for Norway 1819-2003, *Norges Bank*

European Commission 2012. Tax contribution of the financial sector, Part of seven explanatory notes of analysis and clarification on the Financial Transaction Tax. http://ec.europa.eu/taxation_customs/resources/documents/taxation/other_taxes/financial_sect or/fact_sheet/tax-contribution-fin-sector.pdf

European Commission, 2011. JRC Report under Article 12 of Directive 94/19/EEC

Financial Stability Board, 2012.Thematic Review on Deposit Insurance Systems, Peer Review Report.

Federal Deposit Insurance Corporation (FDIC), 2013. http://www.fdic.gov/news/news/press/2013/pr13061.html

Finanstilsynet, 2010. Rapport for Finansinstitusjoner 1.-4. Kvartal.

Gianetti, M., and L. Laeven, 2011. The flight home effect: evidence from the syndicated loan market during financial crises. *CPER discussion paper 8337*

Harstad, B., 2012, Buy Coal! A Case for Supply-Side Environmental Policy, *Journal of Political Economy* 120, 77-115

Hoel, M., 1996, Should a carbon tax be differentiated across sectors? *Journal of Public Economics* 59, 17-32

Hoenig, T., 2013. Basel III Capital: A well-intended illusion. Remarks by FDIC Vice-chairman Thomas M. Hoenig to the International Association of deposit insurers 2013 Research conference in Basel, Switzerland. http://www.fdic.gov/news/news/speeches/spapr0913.html

Hudec R., 1999. Essays on the nature of international trade law, London: Cameron May.

Hudec R., 1996. Differences in National Environmental Standards: The Level-Playing-Filed Dimension" *Minnesota Journal of Global Trade* 1, 1-28

Hughes, J. and L. Mester, 2011, Who Said Large Banks Don't Experience Scale Economies? Evidence from a Risk-Return-Driven Cost Function. Working Paper No.11-27, Federal Reserve Bank of Philadelphia.

Humphrey, D. and B. Vale, 2004. Scale economies, bank mergers and electronic payments: A spline function approach. *Journal of Banking and Finance* 28, 1671-1696.

International Monetary Fund, 2011, Financial Sector Assessment Program Update – Technical Note on Contingency Planning, Crisis Management and Bank Resolution, IMF Country Report No 11/287

Kashyap, A., Stein, J. C. and S. Hanson, 2010. A Macroprudential Approach to Financial Regulation. *Journal of Economic Perspectives* 25, 3-28.

Kashyap, A. K., Stein, J. C. and S. Hanson, 2010. An Analysis of the Impact of 'Substantially Heightened' Capital Requirements on Large Financial Institutions, Manuscript, Harvard University, Unpublished.

Kim, M., Kliger, D. and B. Vale, 2003. Estimating switching costs: The case of banking. *Journal of Financial Intermediation* 12, 25-56.

Kim, M., Kristiansen, E.G. and B. Vale, 2011. Life-Cycle Patterns of Interest-Rate Mark-Ups in Small-Firm Finance. *Scandinavian Journal of Economics* 114, 629-657.

Lunde, H., and K. Grini, 2007, Bonus – hvor mye og til hvem?, Statistics Norway Report 2007/18

Merton R. 1977. An analytic derivation of the cost of deposit insurance and loan guarantees: an application of modern option pricing theory. Journal of Banking and Finance 1, 3–11.

Mester, J., 2005. Optimal industrial structure in banking. Working Paper No.08-2, Federal Reserve Bank of Philadelphia.

Mester, J., 2010. Scale economies in banking and financial regulatory reform. The Region, Federal Reserve Bank of Minneapolis, September 2010, 10-13.

Morrison A. and L. White, 2009. Level Playing Fields in International Financial Regulation, *Journal of Finance* 64, 1099-1141

Morrison A. and L. White, 2004. Financial Liberalisation and Capital Regulation in Open Economies, Oxford Financial Research Centre Working Paper No. 2004-FE-10.

Miles, D., Yang, J. and G. Marcheggiano, 2011. Optimal bank capital. Bank of England Discussion paper No. 31.

NOU 2000: 9 Konkurranseflater i finansnæringen.

http://www.regjeringen.no/nb/dep/fin/dok/nouer/2000/nou-2000-9.html?id=117179

NOU 2011:1 Bedre rustet mot finanskriser. Finanskriseutvalgets utredning

http://www.regjeringen.no/nb/dep/fin/dok/nouer/2011/nou-2011-1.html?id=631151

NOU 2011: 5 Teknisk Beregningsutvalgs (TBU) endelig rapport 2011. http://www.regjeringen.no/upload/AD/publikasjoner/rapporter/2011/TBU_2011_oppsummering.pdf

NOU 2012:2 Utenfor og innenfor. Norges avtaler med EU.

http://www.regjeringen.no/nb/dep/ud/dok/nou-er/2012/nou-2012-2.html?id=669368

Norges Bank, 2012. Financial Stability Report No. 2.

OECD, 2013.Centre for tax policy and administration committee on fiscal affairs, 2013. Annex: Tax policy roundtable – Financial sector taxes in OECD

Peek, J., Rosengren E., 1997. The international transmission of financial shocks: the case of Japan, *American Economic Review* 87, 495-505

Peek, J., Rosengren E., 2000. Collateral Damage: Effects of the Japanese Bank Crisis on Real Activity in the United States, *American Economic Review* 90, 30-45

Philipon, T., Reshef, A., 2009. Wages and Human Capital in the Financial Sector 1909 – 2006", NBER Working Paper No. 14644

Rabben A., Røvik, A., 2013. Norwegian Economic and Legal Report for the Nordic Tax Research Council in Yearbook for Nordic Tax research 2013.

Statistics Norway, 2012. SSB sektorinndeling 2012. http://www.ssb.no/a/innrapportering/sektor2012/sektor_def_i_tabeller.html

Statistics Norway, 2000. Prinsipper og definisjoner i kredittmarkedsstatistikken. http://www.ssb.no/bank-og-finansmarked/prinsipper-og-definisjoner-i-kredittmarkedstatistikken#Finansielle_foretak

Shilton, L. and C. Stanley (1999): Spatial patterns of headquarters, Journal of Real Estate Research 17, 341-364

Strauss-Kahn, V. and X. Vives (2009): Why and where to headquarters move? Regional Science and Urban Economics 39, 168-186

Strøm, S., Vislie, J., 2007. Effektivitet, fordeling og økonomisk politikk, *Universitetsforlaget,* Oslo

Syversten, B. D., 2012 Sammenligning av nordiske og norske banker basert på ulike soliditetsmål, Aktuell kommentar nr. 9/2012, Norges Bank, http://norges-bank.no/en/about/published/publications/economic-commentaries/2012/9/

Thadden, E.L., 2004. Asymmetric Information, Bank Lending, and Implicit Contracts: The Winner's Curse, *Finance Research Letters* 1, 11-23.

Tchana, F., 2012. The welfare cost of banking regulation, *Economic Modelling* 29, 217-232

Vale, B., 2011. Effects of higher equity ratio on a bank's total funding costs and lending, Norges Bank Staff Memo 10/2011.

Von der Fehr, N.H., 2002. Næringspolitikk på like vilkår. Noen prinsipielle betraktninger, SNF-rapport 33/02 Bergen.

Wagner W. 2010. Diversification at financial institutions and systemic crises. Journal of Financial Intermediation 19, 373-386.

Wawrzyniak, D., 2011. Company Taxation in the European Union. *Comparative Economic Research* 14, 119-136.

Wheelock, D. and P. Wilson, 2012. Do large banks have lower costs? New estimates of returns to scale for US banks. *Journal of Money, Credit and Banking* 44, 171-199.

Yang, Z., 2006. Negatively correlated local and global stock externalities: tax or subsidy, *Environment and Development Economics* 11, 301 -316

Appendix

Appendix to Section 2

This appendix explains in detail various aspects of the methodology, in particular that related to the treatment of data used throughout Section 2. We present the different sources of the data used in this paper and discuss the merits of the data in terms of their adequacy in answering the questions raised by the project. Particular attention is given to the extent to which the data presented in this paper are comparable across countries. We also present and briefly discuss some supplementary material which we chose not to include in the main text.

Data used in the international comparison

We first present the data sources used in the international comparison in Part 1. We also discuss the definitions of a selection of the concepts and variables presented in the various tables and graphs. We then describe and discuss in more detail the source used in the analysis of different sectors of the Norwegian economy.

Many of the figures presented in the international comparison include data found in the OECD report *Bank Profitability*[70]. This report was last updated in 2010 and thus the most recently recorded data are from 2009. Personal communication from the OECD *iLibrary* staff confirms that the report will not be updated in the near future. In an attempt to continue the data series, we have compiled the available data from the sources cited by OECD, which in general involve the central bank or the financial supervisory authority of the countries in our sample. In most cases the updating of the data has been unproblematic, though some minor discrepancies from the original data are to be expected.

In the case of the UK banking sector, the data available from the OECD only included seven of the major domestic banking groups. Since the other countries mainly reported aggregate data for the banking sector, the OECD data on the UK banking sector were deemed unfit for the international comparison in our project. We therefore compiled data on the relevant variables for the UK banking sector from the statistical database available on the Bank of England website.

An extension of the OECD data on the US banking sector also proved difficult and we therefore chose to extract an entire new series based on data available from the Federal Deposit Insurance Corporation (FDIC). Where the series from the OECD and the FDIC overlap, the differences are deemed negligible for the purposes of our analysis (see Chart A.2.1).

The various sources used by the OECD and in our updating of the OECD data differ in their reporting standards in several respects. One major point of concern has been the potential differences in the definition of the banking sector used by the central banks and financial supervisory authorities in the different countries. In the case of Norway and Sweden, we chose to extract new data series in order to conform to a geographical coverage of the banking

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[70] http://www.oecd-ilibrary.org/finance-and-investment/bank-profitability-financial-statements-of-banks-2010_bank_fin-2010-en-fr

sector considered more relevant for the purposes of our analysis. As pointed out in the main text, this geographical coverage is intended to capture the regulatory jurisdiction and responsibilities of the respective countries. This also allowed for the use of a common definition of the banking sector shared by as many countries as possible.

Common to all countries is that domestically owned banks and the subsidiaries of foreign owned banks operating within the country in question are included in their data. Data on foreign subsidiaries of domestic banks are excluded. With regard to the treatment of branches of domestic banks abroad and domestic branches of foreign banks, the institutional coverage in the reporting by the different countries exhibits some variation. These differences are briefly summarised in the following:

In Belgium, Denmark, Finland, Germany, Norway and Sweden, branches of foreign banks are excluded. In Ireland, the Netherlands, and the UK, such branches are included.

In Belgium, Denmark, Finland, Germany, Norway and Sweden, the foreign branches of domestic banks are included in the data. For the Netherlands, Ireland and the UK, these branches are not included.

In the case of the US, the data include all commercial banks and savings institutions, domestic or foreign, which are chartered under US law and registered with the FDIC. Institutions operating in the US as branches and agencies of foreign banks are not included, nor are credit unions.

Chart A.2.1: Total assets to GDP ratio of the US banking sector, based on data from the OECD (blue line) and from the FDIC (red line)
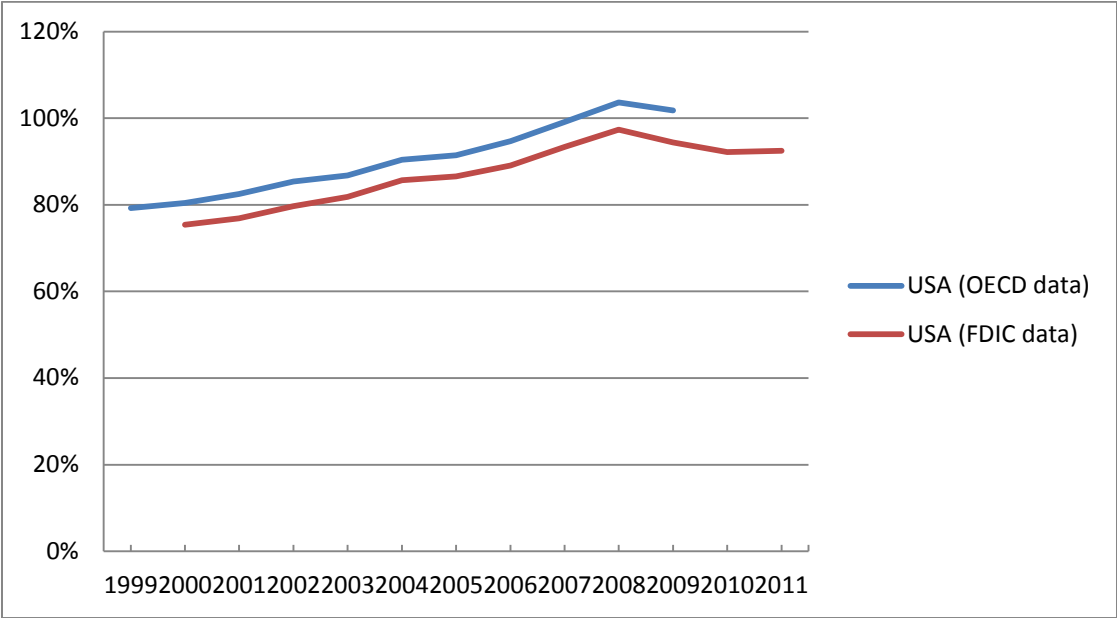
Sources: OECD, FDIC.
Both sets of data include all institutions, foreign or domestic, which are chartered under US law. Institutions operating in the US as branches and agencies of foreign banks are not included. The OECD statistics include data on credit unions. These institutions are not included in the FDIC data.

Countries also differ with respect to the forms of financial institutions that are included in their definition of the banking sector: In Belgium all credit institutions "whose business

consists of taking deposits of money or other redeemable funds from the public and making loans for their own account" are included. The statistics for Denmark cover the activities of commercial banks and savings banks. The data on Finland includes commercial banks, savings banks and co-operative banks. In Germany all banks which comply with the ECB's definition of a Monetary Financial Institution (MFI) are included.[71] In the case of the Netherlands, universal banks, banks organised on a co-operative basis, savings banks, mortgage banks, other capital market institutions and security credit institutions are covered. Data on the Swedish banking sector includes commercial banks, savings banks and co-operative banks, whereas data on Norway cover commercial and savings banks in addition to Norwegian covered bond mortgage companies (OMF-foretak) as of 2007.[72] In the case of the UK, generally all institutions authorised to accept deposits are included, with the exception of credit unions, firms authorised to accept deposits only in the course of effecting or carrying out contracts of insurance in accordance with that authorisation, and friendly societies. Irish data includes all licensed banks. In the latter two countries, data on building societies are also included.

Despite the differences in institutional and geographical coverage in the reporting by the different countries, we believe that the data used in the presentation of the different variables in this document are the most relevant material for the purposes of this project, given the available data on the banking sector in the different countries. We recognise, however, that there are limits to the validity of some of the results in the international comparison, and that the results should be interpreted with caution. Still, in the case of the three Scandinavian countries, the data seem to be comparable. These countries are also the most relevant ones for the connection to contestable market theory.

The other main sources of data for the variables related to activity and remuneration levels in the banking and financial sectors were EUROSTAT, Statistics Norway (SSB) and the UK Office of National Statistics (ONS), and the data were extracted from the national account statistics. As noted in the main text, we made use of a detailed breakdown of the economy into different sectors, based on the NACE classification. These "[a]nnual national accounts are compiled in accordance with the European System of Accounts – ESA 1995" (EUROSTAT 2010[73]). Furthermore, "[t]he 1995 ESA is broadly consistent with the System of National Accounts of the United Nations (1993 SNA) as regards the definitions, accounting rules and classifications." (EUROSTAT 1996a[74]). We will therefore provide a brief summary of some of the definitions used in the latter System which are relevant to the treatment of the financial sector.

In the case of the OECD data on the banking sector, a major point of discrepancy between countries was the extent to which domestic branches of foreign banks and foreign branches of domestic banks were included in the data for a given country. In the case of the national

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[71] "For statistical purposes, MFIs comprise resident credit institutions as defined in Community law and all other resident financial institutions whose business is to receive deposits and/or close substitutes for deposits from entities other than MFIs, and, for their own account (at least in economic terms), to grant credits and/or make investments in securities." (http://www.ecb.int/ecb/legal/pdf/l_33320011217en00010046.pdf)

[72] From 2007 on, Norwegian banks have been able to transfer their portfolios of mortgage loans to separate subsidiaries which are not part of the traditional banking sector. These subsidiaries are funded by Norwegian covered bonds (OMF). Due to these transfers, the mortgage loans will generally not be included in the balance sheet of the issuing bank and thus not included in the data on the total assets of the banking sector. To account for the transfer of these mortgage loans in the aggregate activity of the banking sector, the balance sheet and income statement of these covered bonds funded subsidiaries were included in the data.

[73] http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/nama_esms.htm

[74] http://circa.europa.eu/irc/dsis/nfaccount/info/data/esa95/en/een00000.htm

accounts statistics, the situation is somewhat simpler. The following information is taken from SNA 1993:

> "An institutional unit is resident in a country when it has a centre of economic interest in the economic territory of that country. It is said to have a centre of economic interest when there exists some location - dwelling, place of production or other premises - within the economic territory on, or from, which it engages, and intends to continue to engage, in economic activities and transactions on a significant scale either indefinitely or over a finite but long period of time. In most cases, a long period of time may be interpreted as one year or more, although this is suggested only as a guideline and not as an inflexible rule." (Sub-section 4.15)

Moreover,

> "Corporations may be resident in countries different from their shareholders and subsidiary corporations may be resident in different countries from their parent corporations. When a corporation, or unincorporated enterprise, maintains a branch, office or production site in another country in order to engage in a significant amount of production over a long period of time but without creating a subsidiary corporation for the purpose, the branch, office or site is considered to be a quasi-corporation (i.e., separate institutional unit) resident in the country in which it is located." (Sub-section 4.16c))

Furthermore, as noted in the section on the rest of the world account:

> "Corporations and quasi-corporations are said to have a centre of economic interest and to be resident units of a country (economic territory) when they are engaged in a significant amount of production of goods or services there, or own land or buildings located there. They must maintain at least one production establishment there which they plan to operate indefinitely or over a long period of time - a guideline of one year or more is suggested, to be applied flexibly […].Production undertaken by the personnel (and plant and equipment) of a resident unit outside its economic territory is to be treated as part of the production of the host country and the unit treated as a resident unit (branch or subsidiary) of that country if it meets the conditions noted above […]. Such a unit usually maintains a complete and separate set of accounts of local activities (i.e., income statement, balance sheet, transactions with the parent enterprise), pays income taxes to the host country, has a substantial physical presence, receives funds for its work for its own account, etc." (Sub-sections 14.22-14.23)

We also noted that in the OECD data there were some discrepancies between countries regarding the institutional coverage of banks pertaining to other aspects than their residence. In particular, countries differed in what kinds of institutions were considered to be part of the banking sector. In the System of National Accounts, which does not limit its institutional coverage to banks only, but includes various sub-categories of the financial sector, the following definition is used:

> "The financial corporations sector consists of all resident corporations or quasi-corporations principally engaged in financial intermediation or in auxiliary financial activities which are closely related to financial intermediation. […] Financial intermediation may be defined as a productive activity in which an institutional unit incurs liabilities on its own account for the purpose of acquiring financial assets by

engaging in financial transactions on the market. The role of financial intermediaries is to channel funds from lenders to borrowers by intermediating between them. They collect funds from lenders and transform, or repackage, them in ways which suit the requirements of borrowers. They obtain funds by incurring liabilities on their own account, not only by taking deposits but also by issuing bills, bonds or other securities. They use these funds to acquire financial assets, principally by making advances or loans to others but also by purchasing bills, bonds or other securities. A financial intermediary does not simply act as an agent for other institutional units but places itself at risk by incurring liabilities on its own account." (Sub-sections 4.77-4.78)

When gathering data from the national accounts, we wanted to make use of the narrowest classification of the financial sector which seemed to be the closest to our idea of the banking sector. We therefore mainly considered the sector "financial service activities, except insurance and pension funding". This category is found in the revised version of the NACE classification, NACE Rev. 2 from 2008. The institutional coverage of this sector includes central banking, banks, savings banks and credit unions, postal giro and postal savings bank activities, money order activities in addition to credit granting for house purchase by specialised deposit-taking institutions, activities of holding companies, trusts, funds and similar financial entities as well as financial leasing. The category excludes all forms of insurance and pension funding.[75]

The data available from the EUROSTAT database did not include (updated) data for Norway or the UK. In the case of Norway, the series could easily be updated by collecting additional data from Statistics Norway (SSB). For convenience, we chose to extract the entire series on Norway from the SSB database. These data were, apart from the occasional revision, identical to those reported by EUROSTAT. In the case of the UK, there were no available data from EUROSTAT on the relevant sub-category of the financial sector. These data were hence extracted from the ONS database. The ONS data are based on the UK Standard Industrial Classification of Economic Activities from 2007 (SIC 2007). This does not present a problem, however, as the latter classification follows the NACE Rev.2 classification exactly, but includes additional subclasses to those found in NACE.[76]

The above information indicates that the data on the financial sector collected from EUROSTAT, SSB or the ONS are intended to be comparable across countries. This would suggest that the international comparison of the data based on these sources is less problematic than in the case of data on the banking sector described earlier. The downside of these data, however, is that they do not conform to the institutional coverage appropriate for the analysis of the regulatory jurisdiction and responsibilities of the different countries. It is our contention that the data based on the national accounts nevertheless provide relevant information for the purposes of this project.

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[75] "NACE Rev. 2 - Statistical classification of economic activities
in the European Community" (http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-RA-07-015/EN/KS-RA-07-015-EN.PDF)
[76] See the SIC 2007 "Structure and explanatory notes" (available at http://www.ons.gov.uk/ons/guide-method/classifications/current-standard-classifications/standard-industrial-classification/sic2007---explanatory-notes.pdf).
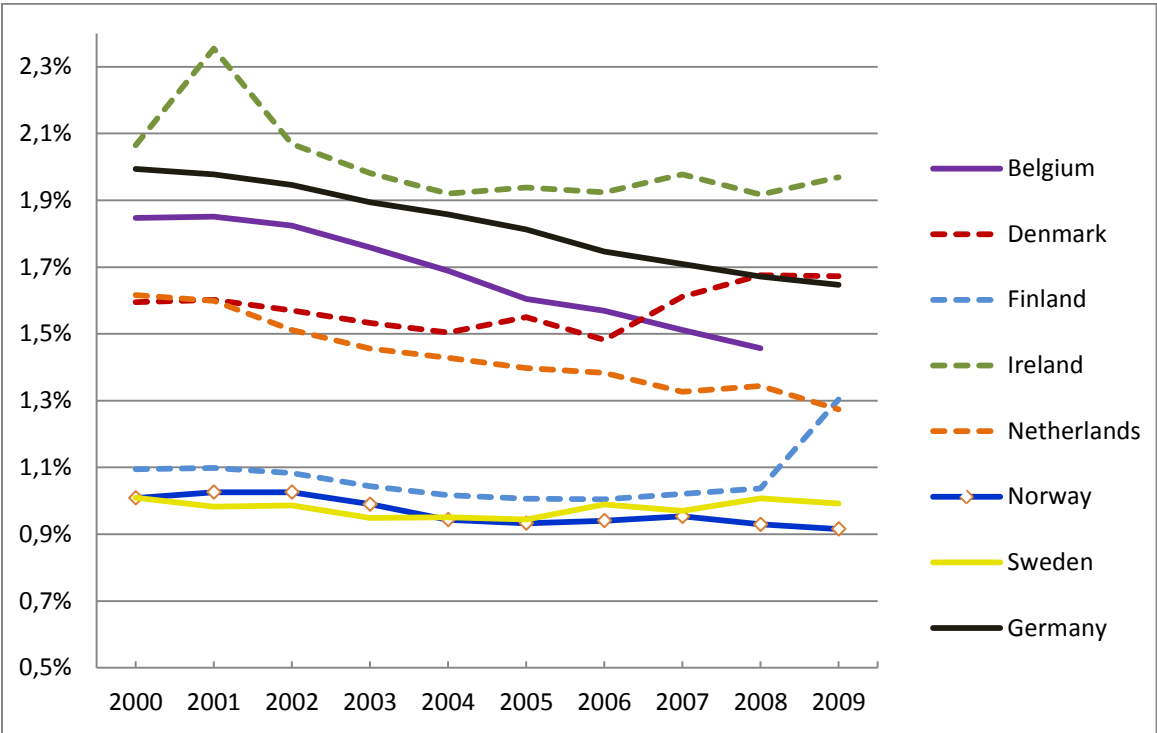
Chart A.2.2 Gross value added from financial and insurance activities, as a share of national gross value added (GVA)
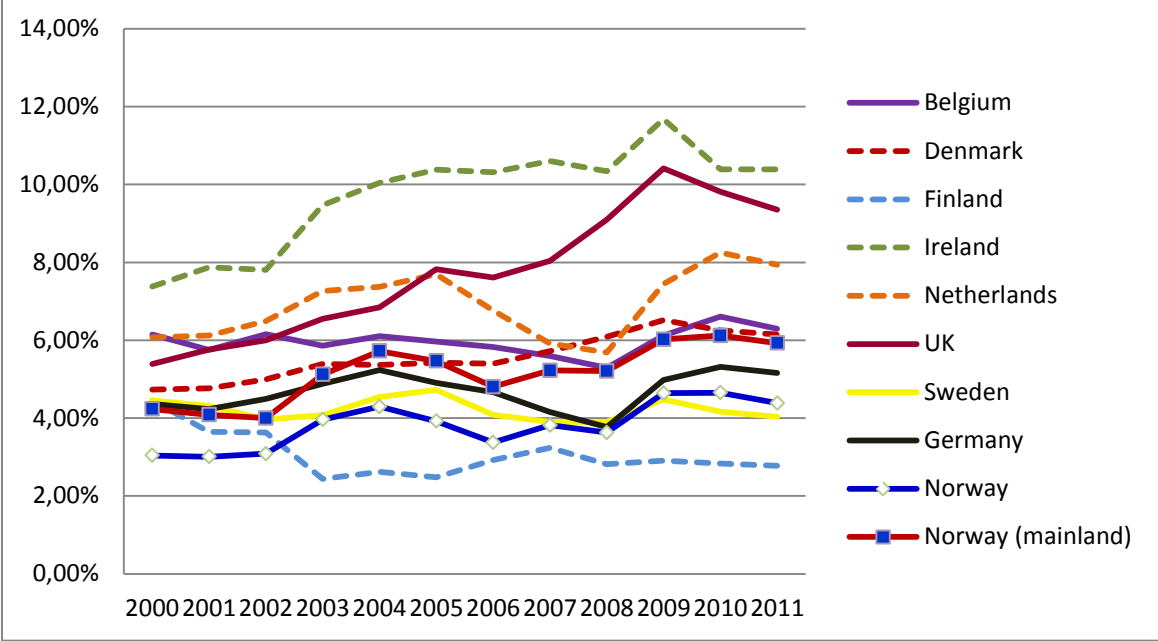
Source: European Central Bank (ECB).
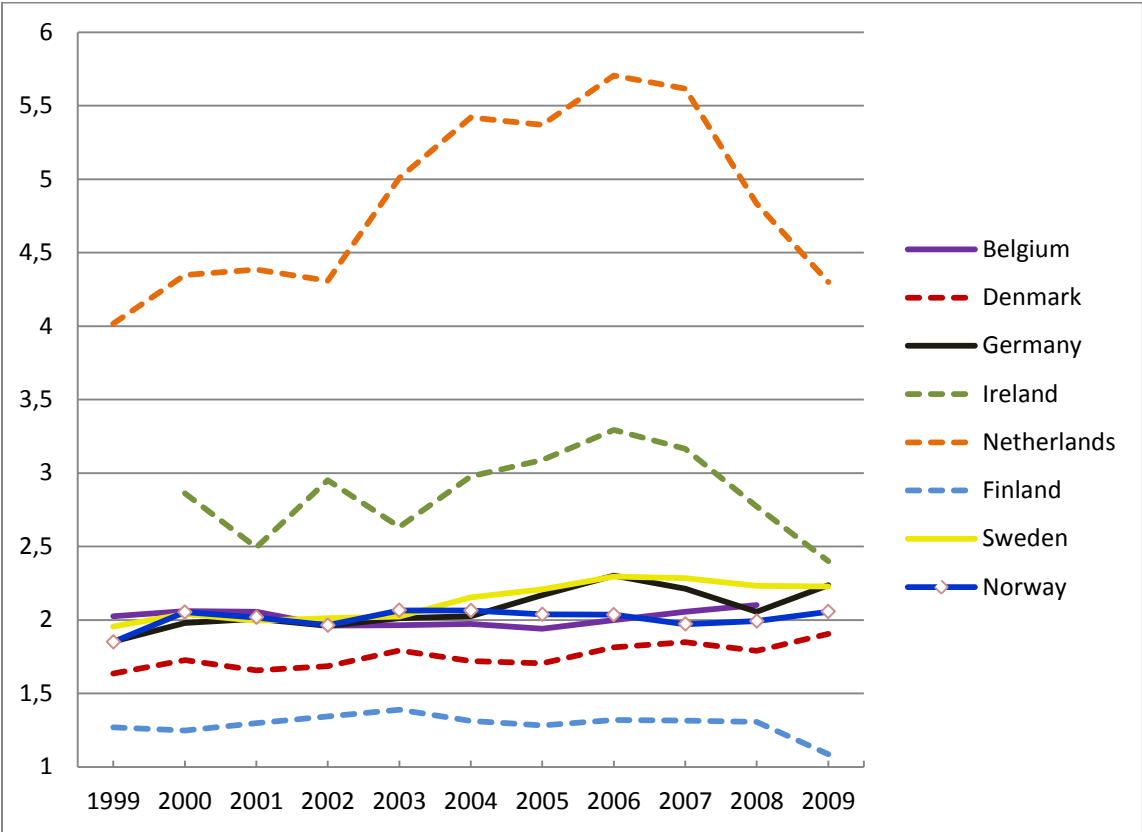**Note: Gross value added is defined as GDP minus taxes less subsidies.**

Chart A.2.3: Employment in the banking sector, as a percentage of total employment in the economy

Source: OECD.
Note: The data presented in this figure are based on the report *Bank Profitability* from 2010. The banking sector of a country, as a general rule, refers to domestic banking groups and stand-alone banks in addition to domestic subsidiaries of foreign controlled banks. In addition, in the case of the Netherlands, the UK and Ireland, Sweden and Norway domestic branches of foreign banks have been included. This is not the case for Belgium, Germany and Finland. Ireland further distinguishes itself from the other countries in the sample, as foreign subsidiaries of domestic banks are included as well. For Norway, Ireland, the UK and the Netherlands data on foreign branches of domestic banks are excluded, whereas such branches are included in the data on Belgium, Denmark, Finland, Germany and Sweden. Also, data on the Norwegian covered bond mortgage companies (OMF-foretak) are not included.

Chart A.2.4 Staff costs per employee relative to the average compensation per employee

Source: OECD.
Note: The data presented in this figure are based on the report *Bank Profitability* from 2010. The banking sector of a country, as a general rule, refers to domestic banking groups and stand-alone banks in addition to domestic subsidiaries of foreign controlled banks. In addition, in the case of the Netherlands, the UK and Ireland, Sweden and Norway domestic branches of foreign banks have been included. This is not the case for Belgium, Germany and Finland. Ireland further distinguishes itself from the other countries in the sample, as foreign subsidiaries of domestic banks are included as well. For Norway, Ireland, the UK and the Netherlands data on foreign branches of domestic banks are excluded, whereas such branches are included in the data on Belgium, Denmark, Finland, Germany and Sweden. Also, data on the Norwegian covered bond mortgage companies (OMF-foretak) are not included.
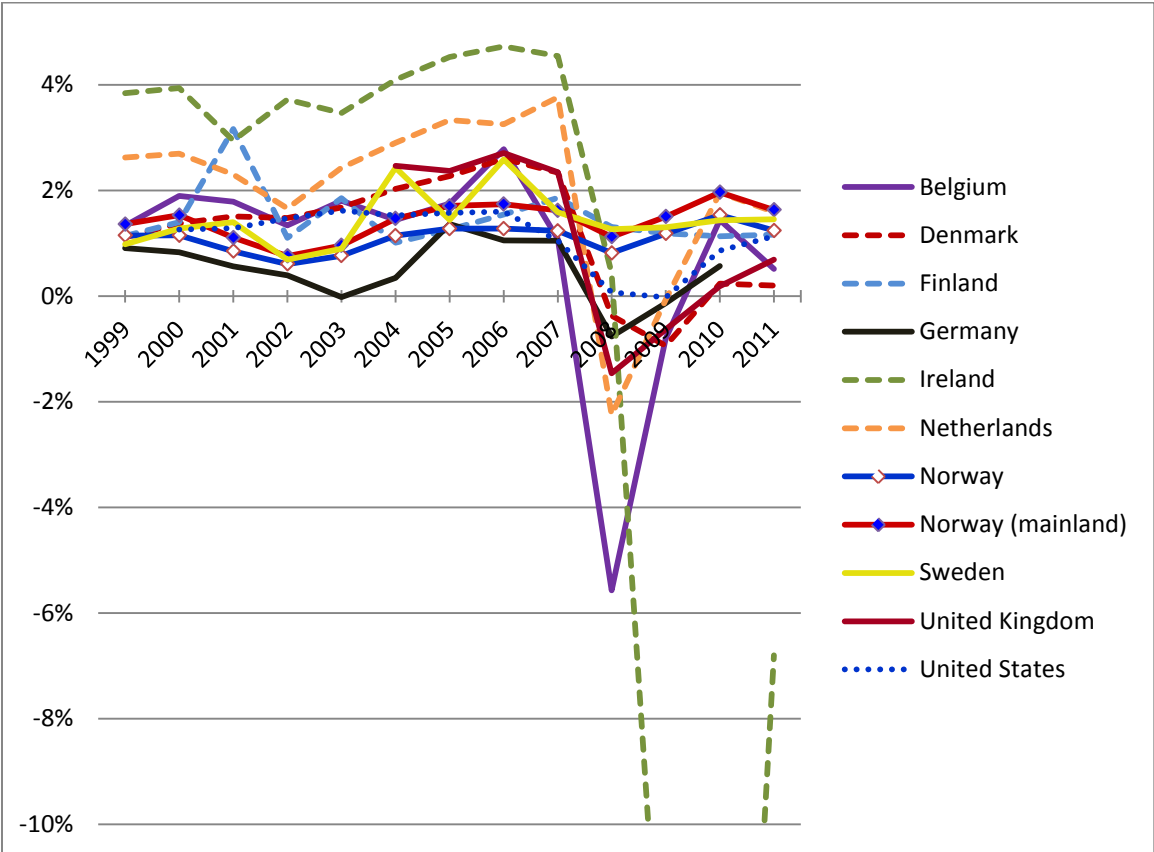
Chart A.2.5: Pre-tax income of the banking sector relative to GDP

Sources: OECD, Bank of England (BoE), Deutche Bundesbank (DBB), Banque national de Belgique (NBB), Statistics Sweden (SCB), Statistics Finland (SF), Danish Financial Authority (DFA), Norges Bank (NB), Federal Deposit Insurance Corporation (FDIC), De Nederlansche Bank (DNB).

The banking sector of a country, as a general rule, refers to domestic banking groups and stand-alone banks in addition to domestic subsidiaries of foreign controlled banks. In addition, foreign branches of domestic banks are included, whereas foreign subsidiaries of domestic banks and domestic branches of foreign banks are excluded. However, there are a few exceptions to this general rule: In the case of the Netherlands, the UK and Ireland, domestic branches of foreign banks have been included. Ireland further distinguishes itself from the other countries in the sample, as foreign subsidiaries of domestic banks are included as well. Starting from 2007, data on the Norwegian covered bond mortgage companies (OMF-foretak) are included. Also, Fokus Bank (Danske Bank) was a subsidiary until mid-2007, and was hence included in the data on Norway up until 2006. In the case of Ireland the source of the data for 2010 and 2011 is the European Central Bank (ECB), whereas the corresponding data for Finland are taken from Statistics Finland. These series do not match/overlap perfectly with the data from the OECD, but present some minor deviations. See the appendix for further information and discussion.

Appendix to Section 4

Table A.4.1: List of foreign subsidiaries and branches included in Table 4.2 – 4.4

2000	2006	2013
Subsidiaries	**Subsidiaries**	**Subsidiaries**
Fokus Bank ASA	Nordea Bank Norge	Nordea Bank Norge
Bergensbanken ASA[77]	Santander Consumer Bank	Santander Consumer Bank
	SEB Privatbanken	Nordea Eiendomskreditt
	Nordea Eiendomskreditt	
	Glitnir Bank	**Branches**
Branches	Fokus Bank	Citibank NUF
Citibank NUF	BN-bank	J.P. Morgan Europe
J.P. Morgan Europe		BNP Paribas NUF
BNP Paribas NUF	**Branches**	Handelsbanken NUF
Handelsbanken NUF	Handelsbanken	GE Money Bank NUF
Skandiabanken AB NUF	Citibank	Bluestep Finans AB, Filial
Danske Bank NUF	Danske Bank (NUF)	SEB AB NUF
Skandinaviska Enskilda	Swedbank (NUF)	Nordnet Bank NUF
Unibank Filial Oslo	Skandiabanken	Skandiabanken AB NUF
Föreningssparbanken[78]	BNP Paribas	Skandinaviska Enskilda
	GE Money Bank	Danske Bank NUF
		Kaupthing Bank HF NUF
		Ekspressbank NUF
		Swedbank NUF

Source: Norges Bank

Important changes in the banking sector 2006 – 2013:
- Fokus bank was converted from a foreign subsidiary bank to a foreign branch bank in 2007
- BN-bank merged with Glitnir Bank in 2008, but was taken over by a group of savings banks and changed its name back to BN-bank
- New laws on covered bonds were introduced in 2007 and were followed by large transfers from the banks to covered bond mortgage companies.

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[77] Bergensbanken ASA had been a commercial bank since 1996 and merged with Handelsbanken in 2001, see http://www.fno.no/Hoved/Statistikk/Bank/Forretningsbanker-i-Norge---fusjoner-og-opphor/

[78] Föreningssparbanken changed its name to Swedbank i 2006.

Table A.6.1: Additional payroll and other taxation on financial sector activities in selected European countries

	Additional payroll tax	**Other taxes**
Denmark	10.5 % of the financial sectors' total labour costs related to its VAT-exempt activities	
Finland		
France	A progressive tax rate from 4.25 % to 13.6 % based on annual wages[79]	
Germany		
Iceland	5.45 % on total remuneration paid to employees in all financial institutions. Pension funds excluded.	A tax on profits for financial companies' income in excess of ISK 1 billion is levied at a rate of 6 %.
Norway		
Sweden		
UK		

Sources: Wawrzyniak (2011) OECD (2013), European Commission 2012, NOU (2003:9)
Note: "Additional payroll taxes and other taxes on the financial sector" refer to taxes imposed in order to limit the VAT exemption in the financial sector. This table is not exhaustive with respect to taxes levied on the financial sector.

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[79] The tax is levied at a progressive rate (4.25% on annual wages up to EUR 7,604; 8.50% between EUR 7,604 and EUR 15,185; 13.6 % on annual wages above 15,185)

Table A.6.2: Stability fees/ bank levies in the financial sector for selected countries

	Tax Base	Tax rate
Denmark		
Finland		
France	Tax on "systemic risk" on the amount of a bank's equity over EUR 500 million.	0.5%
Germany	A progressive rate on the balance sheet total less liabilities to customers on all credit institutions authorised to perform banking operations. In addition a flat tax is levied on the nominal amount of derivatives for the same institutions.	Progressive rate of 0.02-0.06% on balance sheet total, and 0.00015 % on the nominal amount of derivatives. [80]
Iceland	Depository institutions' year-end total liabilities	0.04%
Norway		
Sweden	Bank and Credit institutions' total liabilities with the exception of equity capital and some junior securities	0.036%
UK	A bank levy on the global consolidated balance sheet liabilities of UK banks and banking groups less "Tier 1", insurance liabilities, protected deposits, sovereign repo liabilities and other items.[81]	0.088 %

Sources: OECD (2013) and European Commission (2012)

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[80] Liabilities below EUR 300 million are exempt. Then the rate is 0.02% up to EUR 10 billion, 0.03% for amounts between EUR 10 billion and EUR 100 billion, 0.04% for amounts between EUR 100 billion and EUR 200 billion, 0.05% for amounts from EUR 200 to EUR 300 billion, 0.06% for amounts above EUR 300 billion. The bank levy is limited to either a maximum of 20% of the annual profits or to a maximum of 50% of the average annual profits for the past 3 years (OECD, 2013) .

[81] The tax is levied on the global (i.e. including foreign subsidiaries) consolidated balance sheet of UK banking groups and building societies; the aggregated UK group and UK subsidiary balance sheets, together with a proportion of the balance sheets of foreign banks operating in the UK through branches., the balance sheets of UK banks and banking sub-groups in non-banking groups; and the balance sheets of UK banks that are not members of groups.