Return on equity targets in the financial sector:

Earning strategy or risk trap? A focus on the Nordics

Internal discussion paper

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Summary

Should banks provide at all any return guidance to the financial markets and if they do what are the consequences? This fundamental debate has been running for more than a decade both in academic and banking circles.

Based on a unique hand-collected data of return on equity (ROE) targets set by the Nordic financial institutions, we investigate which financial institutions choose to set ROE targets, how they set the targets, and what are the consequences for the shareholders. This paper investigates the period from 2005 to 2015 in order to see if there has been any change in risk behavior after the crisis and does cover 607 financial institutions which is the largest and most comprehensive study ever conducted in this field.

Return on equity[1] is one of the most commonly used metrics for bank profitability and performance. Many banks set ROE targets, which are published and reviewed in their financial reports or during investor events and frequently discussed in the public media. This kind of guidance and openness should be in the interest of key stakeholders, including the shareholders and regulators. Yet, banks are criticized for targeting ROE, since banks could be encouraged to leverage their balance sheets to race with their competitors[2].

Consistent with the current debates, leverage is a concern for the financial institutions that set ROE targets, especially before the crisis. When we employ return on risk-weighted assets rather than ROA, the data does show that the financial institutions, which have set ROE targets, allocate more funding into high-risk assets to generate higher earnings, especially for banks. This risk-taking on the assets is a concern from the macro-prudential perspective. However, these institutions, on average, have higher performance (ROA and mostly ROE) in generating earnings, better asset quality, and better liquidity coverage, compared to the institutions that do not set

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[1] ROE is defined as the ratio of net income to total book equity.
[2] Notice that ROE is equal to return on assets (the ratio of net income to total assets) times leverage (the ratio of total assets to total equity). A higher ROE can be achieved by increasing leverage while holding ROA the same.

ROE targets. In addition, these institutions are generally large in size, and their risk-taking is relevant for the "too-big-to-fail" concern.

Among the Nordic countries, Swedish banks, which have set ROE targets, take more risks regarding their asset portfolio and leverage compared to banks that have not set ROE targets. Compared to Swedish banks, Danish banks have low leverages and asset risks, but low earnings (ROA and ROE) and low loan quality, especially since the crisis.

Regarding how the Nordic financial institutions set ROE targets, most of them choose to publish the exact levels of the targets and 40.3% of the targets are met. Although there is no exact pattern of how the targets are set, they do, to some extent, reflect the institutions' earnings and asset qualities, and the equity market conditions.

1. Introduction

The use of ROE as a performance measure has stirred significant attention in recent years. This is partly explained by the introduction of a new regulatory framework (Basel III[3]) following the financial crisis. Basel III has increased common equity requirements on banks to 7% of total risk-weighted assets in general[4] and higher for financial institutions considered "too big to fail" (New York Times, 25 July 2011). Moreover, the United Kingdom's decision to leave the European Union once again put focus on the topic as the Brexit decision caused several banks to adjust their ROE target downwards, or abolish the time frame of their performance ambitions (Bloomberg Markets, 5 Aug. 2016). ROE targets had already been significantly reduced after the financial crisis (Reuters 17 April 2014; Bloomberg Markets, 5 August 2016). Fines and loan-loss provisions following the failures and scandals in 2007-2009, higher equity requirements, and increased political and financial uncertainty imply that ROE targets can never hit post-crisis levels again (New York Times, 25 July 2011; Reuters, 17 April 2014). Many banks are now struggling to avoid single-digit levels, compared to the 30%-levels in the golden era before the crisis (Financial Times, 7 Nov. 2011).

The ROE measure's weaknesses have raised calls for fundamental changes on how bank performance is evaluated. High profile critics include Anat Admati, professor at Stanford University, and Andy Haldane and Robert Jenkins at the Bank of England, who have questioned the validity and distortive effects of using this measure (Financial Times, 7 Nov. 2011). Moreover, it is claimed, that return on equity is meaningless as a performance measure without accounting for the risk of equity (New York Times, 25 July 2011). Yet others state that they would prefer to see high and stable profitability (Reuters, 17 April 2014). It has even been

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[3] The Basel Accords are the supervision accords for banks promulgated by the Basel Committee on Banking Supervision.
[4] See "Basel III: International regulatory framework for banks" and "Basel III phase-in arrangement" at http://www.bis.org/bcbs/basel3.htm.

suggested that ROE could be an erroneous measure altogether (Financial Times, 7 Nov. 2011). This has given rise to a debate on more suitable measures and a few banks have embarked into finding such alternatives. Bank of America elaborates on return on economic capital - a measure considered shareholder-friendly as it takes cost of equity into consideration before calculating the return (Financial Times, 7 Nov. 2011). HSBC uses return on risk-weighted assets to ensure the spread of business is not too risky (Financial Times, 7 Nov. 2011).

Despite that the ROE targets have been lowered on several occasions in recent years, European banks have had a hard time to meet their goals (Reuters, 17 April 2014). The Nordic region, however, is doing better than the rest of Europe (Reuters, 17 April 2014). Still, also here ROE targets have become controversial. The Danish Central Bank has urged lenders to be more restrictive when setting ROE targets (Bloomberg, 24 June 2015). The effect has been limited, and Danske Bank has raised its ROE target to match its competitors in Sweden (Bloomberg, 24 June 2015). The unwillingness to reduce ROE targets can possibly be explained by reputational factors. ROE targets reflect investor expectations (Bloomberg, 24 June 2015).

2. Which financial institutions set ROE targets?

2.1 Aggregated statistics for financial institutions that have set ROE targets versus those have not

Our sample consists of 607 financial institutions in Nordic countries with annual financials from 2005 to 2015, the data of which is collected from Bereau van Dijk's BankScope database, unless otherwise stated. The information on ROE targets is hand-collected during May-July 2016 from institutions' financial reports or media. Notice that we can only observe ROE targets if they are published. For the institutions that have published at least once during the sample period, we consider the possibility of them having some targets during other years without publishing them. Then we group these institutions as "have set", and the rest are grouped as "have not set".

Table 1: Number of institutions (total 607) that have set vs not set ROE targets

Set	69				
Not set	538				
	DENMARK	FINLAND	ICELAND	NORWAY	SWEDEN
Set	16	5	3	33	12
Not set	138	63	37	158	142
	Banks	Savings banks and Mortgage financials	Diversified financials		
Set	32	27	10		
Not set	147	292	99		
DENMARK	Banks	Savings banks and Mortgage financials	Diversified financials		
Set	13	2	1		
Not set	57	63	18		

Table 1 summarizes the number of institutions that have set some ROE targets during our sample period versus those that have not set any target. Overall, it is about 11% of the institutions that have set some ROE targets. In each country, this proportion ranges from 7% to 10%, with an exception of 17% in Norway. Then we allocate all financial institutions into three categories based on their specializations: banks, saving banks and mortgage financials, and diversified financials.[5] Obviously, there are more of banks, about 18%, which have set ROE targets, especially in Denmark[6]. In short, it is more like a convention for banks rather than other institutions which set ROE targets, and there is a relatively high proportion of banks in Denmark racing for higher ROE.

It should also be noted that the actual number of financial institutions changed dramatically during this turbulent period. The especially remarkable in Denmark where the actual number declined from close to 140 in 2005 down to 80 in early 2016.

Table 2: Fundamentals of financial institutions that have set vs not set ROE targets

		Have set ROE targets			Have not set ROE targets		
		Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Size	Total Assets (billions of dollars)	670	62.70	139.00	3,621	6.00	26.90
Earning and Management	Return on assets (ROA)	669	0.62	1.32	3,620	0.53	10.94
	Return on equity (ROE)	669	8.03	9.85	3,619	5.44	30.03
	Return on risk-weighted assets (RORWA)	619	3.47	57.40	2,646	15.26	457.36
	Cost-to-income ratio	658	61.43	39.77	3,543	62.25	39.26
Asset quality	Non-earning assets to total assets	666	5.18	6.32	3,618	6.35	13.12
	Loan loss provision to gross loans	633	0.49	1.22	3,199	1.15	12.67
	Total risk-weighted assets (billions of dollars)	619	0.26	0.52	2,647	0.03	0.09
Capital adequacy	Total capital ratio	654	17.57	17.97	2,842	19.28	13.42
	Tier 1 capital ratio	591	16.15	18.97	2,336	17.89	13.34
	Equity-to-total assets	670	8.84	8.85	3,620	14.24	17.40
	Tobin's Q (market-to-book ratio)	209	1.00	0.57	386	1.39	1.46
Liquidity	Loan-to-deposit ratio	606	4354	28825	2,995	5286	219283
	Liquid assets to deposits and short-term funding	657	41.46	87.04	3,388	28.82	69.22
	Deposits and short-term funding to total liabilities	667	60.64	26,34	3,451	79.90	25.85
Dividend	Dividend payout ratio	130	43.91	62.31	194	43.40	57.78

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[5] The category "banks" includes commercial banks, cooperative banks, and investment banks; the category "saving banks and mortgage financials" includes saving banks, and real estate and mortgage banks; the category "diversified financials", includes bank holdings and holding companies, finance companies, investment and trust corporations, other non-banking credit institutions, private banking or asset management companies, securities firms, and specialized government credit institutions.

[6] Within the 13 banks which have set ROE targets, there are 12 commercial banks and 1 cooperative bank.

Are there any differences in the institutions that have set ROE targets versus those that have not? Is leverage the only concern?

Table 2 lists the summary statistics of fundamentals of these two groups of institutions from six aspects: size, earning and management, asset quality, capital adequacy, liquidity, and dividend payout ratio during the whole sample period.

Size is measured by total assets in USD. Size matters, especially with any too-big-to-fail concern. Our sample tells that it is very big institutions that race with ROE targets. Earning and management values the performance, profitability, and management capability of generating profits. Besides ROA and ROE, we calculated return on risk-weighted assets (RORWA), which takes into account the risk level of asset portfolio. On average, the institutions having ROE targets do perform better regarding ROA and ROE compared to the institutions not having ROE targets. Especially, the institutions that have set ROE targets, on average, produce 48% more ROE than the control group. However, average RORWA for the institutions with targets is less than a third of that for the control group. This indicates that these institutions tend to take much more asset risks by allocating more funding to high-risk assets in order to generate higher earnings and catch up the ROE targets, since high-risk assets are assigned with higher risk weightings in the calculation of the total risk-weighted assets. Yet, when it comes to management capability, they are more efficient when generating earnings. This efficiency is also consistent with lower average non-earning assets to total assets and loan loss provision to gross loans, where the latter is less than a half of that for the control group. Total risk-weighted assets are mostly driven by size.

Did the institutions with ROE targets gear up with high leverages and high funding risks? Total capital ratio and Tier 1 capital ratio are the ratios of capital to total balance sheet and off-balance sheet risk-weighted assets. These ratios are crucial measures regarding the institutions' abilities of absorbing shocks from assets and liabilities and are the central piece of regulation. On average, the capital ratios of the institutions that have set ROE targets are lower than those of the other institutions. This is mostly driven by their higher average leverage, indicated by a much lower equity-to-total assets ratio. The last measure regarding capital is Tobin's Q, which is valued by the ratio of market capitalization to total book equity. Tobin's Q measures institutions' charter value. The "charter value hypothesis" in the banking literature states that banks with market power extract rents from valuable bank charters, which makes them less prone to exploit risk-shifting incentives, because the opportunity costs of bankruptcy increase in profitability. Banks with higher charter value should thus be less risky (see, for example, Keeley, 1990). The financial institutions with ROE targets in our sample, on average, have a lower charter value than other institutions. This might indicates that they could be more prone to exploit risk-taking. Obviously, we have few public institutions in the sample. Regarding funding liquidity, the institutions with ROE targets, on average, have a lower loan-to-deposit ratio, less short-term funding (including deposits), and a relatively higher amount of liquid assets to cover liquidity risk.

However, the dividend payout ratio is about the same for the two groups despite that setting ROE targets is more relevant for shareholders and there is a possibility that setting ROE targets could substitute paying dividends.

To summarize, the financial institutions, which have set ROE targets, on average, are larger, and have higher performance in generating earnings, and better asset quality and liquidity coverage, compared to other financial institutions. However, they do race for higher ROE by taking higher leverage and allocating more funding into high-risk assets to generate higher earnings.

2.2 Time-series variation of the aggregated performance and leverage

The critics regarding ROE target is whether ROE measures financial institutions' performance without neglecting their true risks. It is possible to achieve high ROE by topping up earnings or gearing up leverage. Then, we compare the groups of institutions with or without ROE targets regarding their earnings, ROA, RORWA, and ROE, and their funding risk, leverage.

Figure 1: The cross-sectional averages of the performances and leverages of financial institutions that have set ROE targets vs those that have not
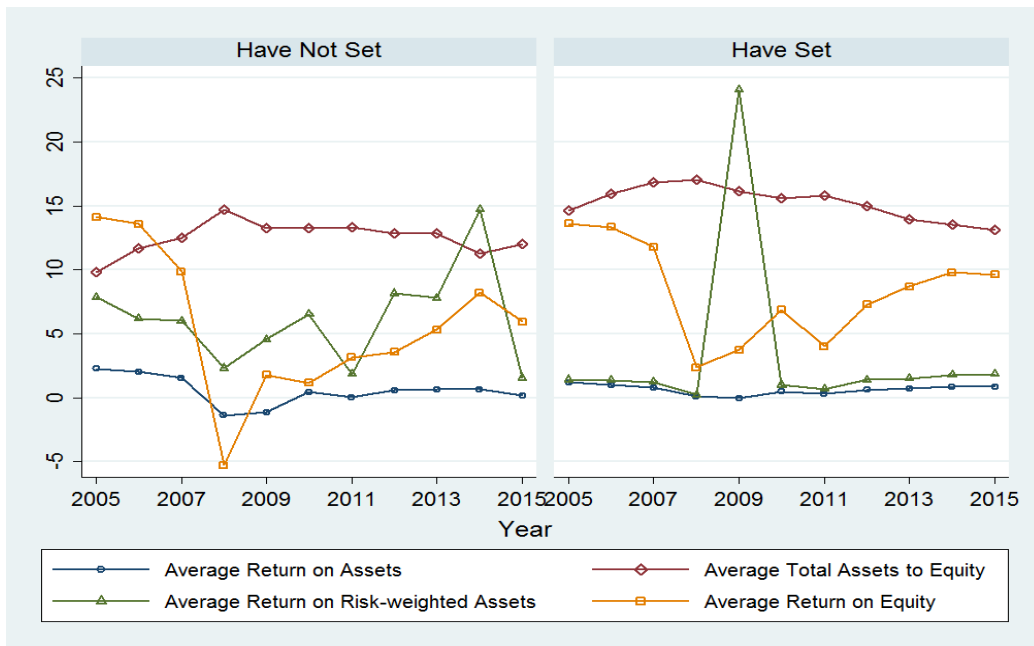
Although not obvious in Figure 1, the financial institutions that have set ROE targets generate a higher average ROA since 2008 than those that have not set ROE targets. Obviously, the group "have set" has a lower average RORWA except in 2009[7], which indicates a higher proportion of high-risk assets in their asset portfolio. Every year, the group "have set" has a higher average

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[7] The high RORWA in 2009 could be affected by the massive capital injection to banks, which are the majority that have set ROE targets.

leverage, which also helps this group to achieve a higher average ROE since 2007 than the group "have not set".

Figure 2: The cross-sectional averages of the performances and leverages of public financial institutions that have set ROE targets vs those have not
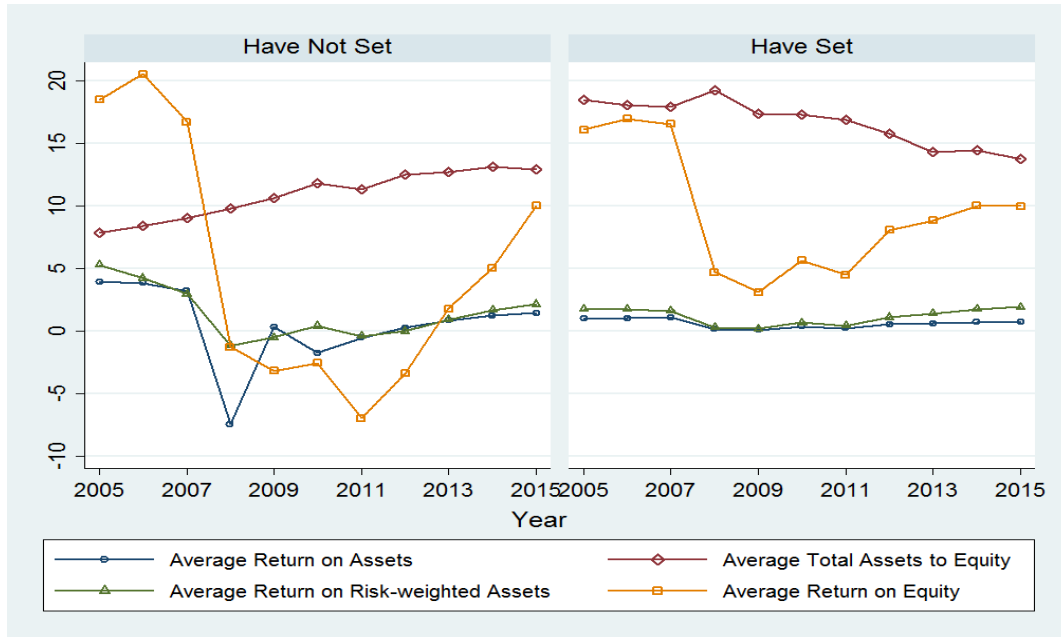

Figure 2 displays the time-series variation of the same variables for public financial institutions. Differently, average earning measures (ROA and RORWA) are similar for the group "have set" and "have not set" since 2009. However, a more pronounced pattern is that the group "have set" has a higher average leverage every year. Furthermore, they also have a higher average ROE since 2008 when this group generates relatively similar earnings as the group "have not set". It is more obvious that leverage drives up ROE for public institutions that have set ROE targets.

2.3 Differences within the different industry specializations

When we divide the sample into different industry specializations, the picture of the statistics over the whole sample period (Table A.1 in Appendix) is similar: Compared to the institutions that have not set any ROE target, the ones that have set ROE targets have, on average, higher ROA and ROE, but lower RORWA, have higher asset quality and liquidity coverage, but are less capitalized and have a higher leverage. Banks, which have set ROE targets, on average, payout more dividends than the control group, but other institutions payout less than the control group. Yet, an exception is that diversified financials, which have set ROE targets, earn lower average ROA than the control group. Diversified financials' management capability is lower (a higher cost-to-income ratio) and loan-to-deposit ratio is much higher than the control group, which might due to their different specializations.

In Denmark, since there are only three institutions in the treatment group that belong to savings banks and mortgage financials, or diversified financials, we only analyze banks. Table A.2 in Appendix shows the fundamentals of Danish banks. Differently, Danish banks, which have set ROE targets, have low earnings (ROA) and are less efficiently managed (higher cost-to-income ratio), but have a lower proportion of high-risk assets in their asset portfolio, than other Danish banks.

2.4 Time-series variation of banks' performances and leverages

Figure 3: The cross-sectional averages of the performances and leverages of banks that have set ROE targets vs those that have not
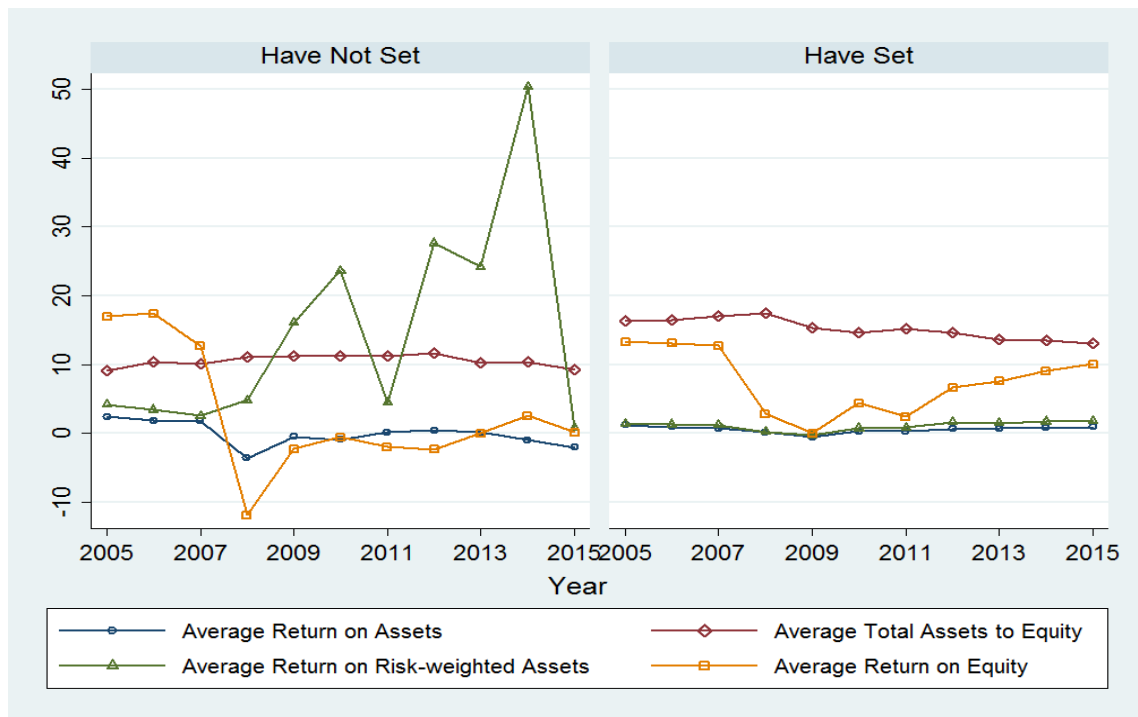
Since banks are slightly different, we focus on banks in this subsection. Figure 3 plots the time-series variation of banks' average performances and leverages. Similar to Figure 1 and 2, for banks that have set ROE targets, high leverage drives up ROE, especially since 2008. A distinct difference from Figure 1 and 2 is that banks, in the group "have set" have a much higher proportion of high-risk assets in their asset portfolio than other banks.

**Figure 4:** Scattered ROA and RORWA for individual banks in different years

Figure 4 scatters ROA, ROWRA, and leverage for individual banks within each group. Banks which have set ROE targets do leverage up, especially before the crisis when they also generate relatively less profits (ROA) than other banks. When the profitability is measured by return on risk-weighted assets, before the crisis, some of the banks that have not set ROE targets actually have much better performance, but not for the banks with ROE targets. However, the situation is different after the crisis that some banks with ROE targets do perform better, and have lower leverages than others. This reveals some risk reduction in banks with ROE targets after the crisis.

2.5 Differences within the Nordic region

Table A.3 in Appendix shows the average fundamentals of the financial institutions in each country. The overall picture for each country is similar with a few exceptional observations. First, Danish institutions which have set ROE targets have, a lower average ROA and management capability (higher cost-to-income ratio) but a higher average RORWA, and payout more dividends, than the control group. The institutions with ROE targets in Finland and Sweden have a lower average ROA than the corresponding control group. Second, Swedish institutions with ROE targets are very big in size. Third, differently, the institutions with ROE targets in Iceland are well capitalized but have a lower average liquidity coverage than the control group. However, we need to take into account all types of government interventions, including bank recapitalization, in many countries in late 2008 and early 2009.[8]

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[8] In the world, most central banks had been established at the turn of the twentieth century and gradually learned to manage economy's stability and develop a lender-of-last-resort function (Bordo, 2007). After the Depression, most of the developed countries established a financial safety net and explicit deposit insurance was in place in the beginning of the twenty-first century (Bordo, 2007; Demirgüç-Kunt, A., Karacaovali, B. and Laeven, L. A., 2005). In this analysis, we neglect the impact of deposit insurance.

Figure 5: Bank recapitalization (gross) as a % of GDP from 2007 to 2009 in selected countries
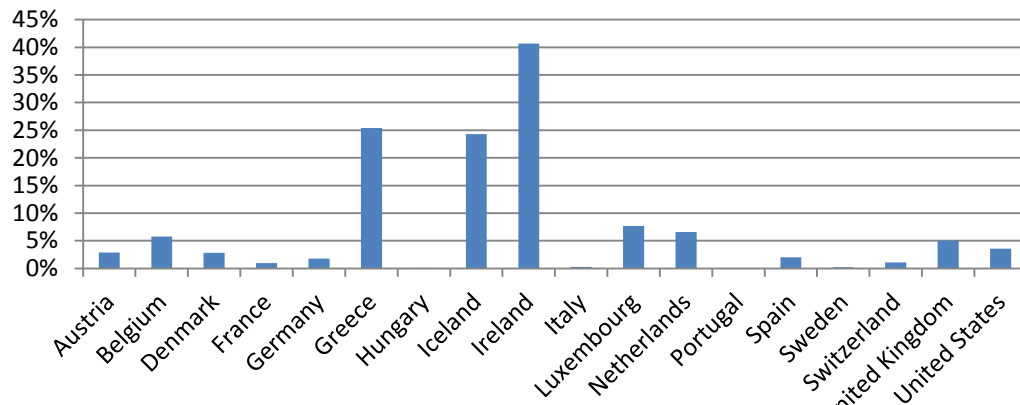
Source: the systemic banking crises database from Laeven L. and Valencia F. (2012).

Figure 5 displays the extent of bank recapitalization as a percentage of each country's GDP during the recent crisis based on the systemic banking crises database (Laeven L. and Valencia F., 2012). It is obvious that banks in Iceland receive a large recapitalization. Since the banks that have set ROE targets in Iceland are also large in size, they are more likely to receive large capital injections. From now on, we drop Iceland from the analysis.

Figure 6: The cross-sectional averages of the performances and leverages of banks that have set ROE targets vs those that have not in Denmark and Sweden
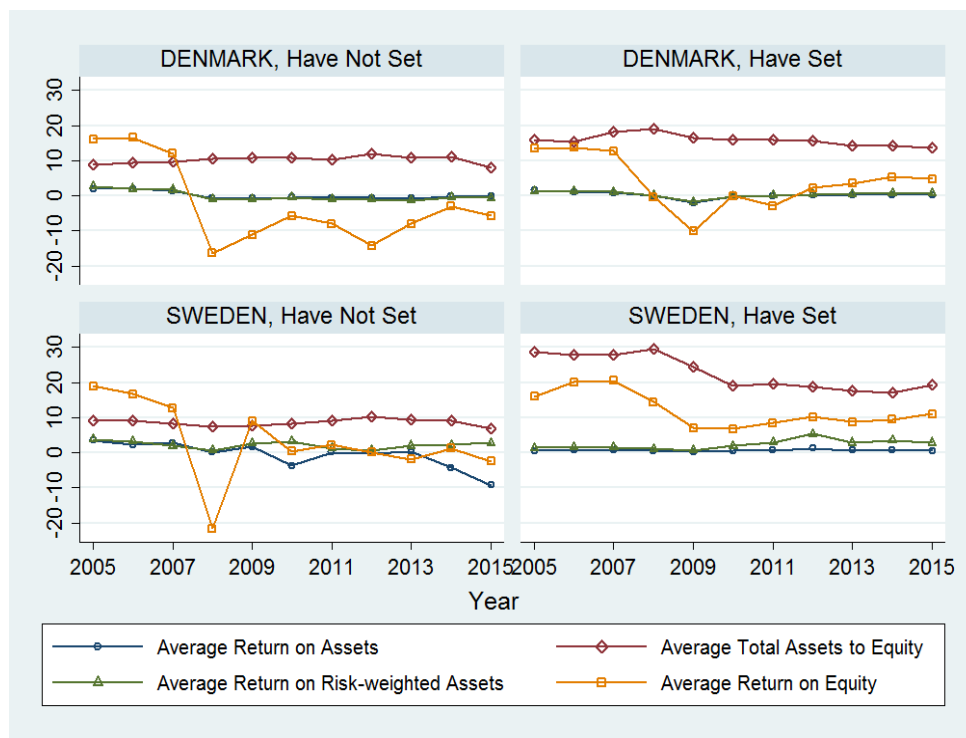
Figure 6 compares the banks in Denmark and Sweden. The overall picture is similar for Danish banks compared to Swedish banks. However, Swedish banks that have set ROE targets have much higher average ROEs and leverages than the corresponding control group.

3. How do financial institutions set ROE targets?

3.1 Different ways of publishing ROE targets

Some institutions set some targets and reveal the numbers of the targets in their financial reports or media, but others only reveal the existence of any targets.

Table 3: How often ROE targets are announced with certain numbers

	Banks	Savings banks and Mortgage financials	Diversified financials	Total
Panel A: Numbers of observation with certain numbers for ROE targets				
DENMARK	42	2	7	51
FINLAND	26	0	0	26
ICELAND	8	0	0	8
NORWAY	28	34	32	94
SWEDEN	19	24	11	54
Total	123	60	50	233
Panel B: Proportion in the number of institutions with ROE targets				
DENMARK	0.74	0.67	1	0.76
FINLAND	0.79			0.79
ICELAND	0.73			0.73
NORWAY	0.90	0.36	0.74	0.56
SWEDEN	0.61	0.86	0.58	0.69
Total	0.75	0.48	0.72	0.65

Note: There is some language barrier that limited our data collection in Finland and Iceland at this early stage of the research.

Table 3 lists the number of institutions which have announced the exact levels of their ROE targets and the proportion of these institutions in all the institutions which have announced that ROE targets are set. The majority of the institutions do announce the exact levels of their targets, especially of the banks.

Table 4: Fundamentals of institutions that announce certain numbers for ROE targets vs those that do not

		Announce certain numbers for ROE targets			Announce ROE targets without numbers		
	Variable	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Size	Total Assets (billions of dollars)	233	110.00	165.00	125	57.90	154.00
Earning and Management	Return on assets (ROA)	233	0.65	1.07	125	0.66	0.47
	Return on equity (ROE)	233	8.59	8.48	125	8.65	5.24
	Return on risk-weighted assets (RORWA)	225	1.42	1.96	121	1.23	0.75
	Cost-to-income ratio	230	62.00	44.52	122	55.51	17.06
Asset quality	Non-earning assets to total assets	233	5.30	5.10	123	3.92	2.96
	Loan loss provision to gross loans	228	0.41	1.08	115	0.36	0.69
	Total risk-weighted assets	225	0.43	0.60	121	0.23	0.59

	(billions of dollars)						
Capital adequacy	Total capital ratio	230	20.45	29.31	122	16.15	4.60
	Tier 1 capital ratio	219	18.92	30.29	120	14.76	4.61
	Equity-to-total assets	233	8.73	9.67	125	7.94	3.44
	Tobin's Q (market-to-book ratio)	97	1.05	0.51	36	0.88	0.51
Liquidity	Loan-to-deposit ratio	215	4748	30110	110	148	46
	Liquid assets to deposits and short-term funding	228	59.29	125.57	125	21.51	17.80
	Deposits and short-term funding to total liabilities	233	55.64	24.54	125	64.62	23.57
Dividend	Dividend payout ratio	64	41.91	26.09	31	48.70	67.55

Are there any differences between the institutions publishing the levels of ROE targets and those that only publish the existence of any ROE targets? Table 4 summarizes the fundamentals of the two groups of institutions. On average, the institutions that announce the exact numbers for their targets are larger in size, have better liquidity coverage, higher capital ratio, and lower leverage, and pay less dividends, although they generate the similar profitability as the institutions which do not reveal the exact numbers of the targets.

3.2 How are the actual numbers of ROE targets determined and achieved?

Table 5: The correlation of ROE targets with contemporaneous and one-year lagged fundamentals

		With contemporaneous variables		With lagged variables	
		All	Denmark	All	Denmark
	ROE targets			0.87 (0.00)	0.83 (0.00)
Size	Total assets (billions of dollars)	0.26 (0.00)	-0.11 (0.42)	0.24 (0.00)	-0.12 (0.42)
Earning and Management	Return on assets (ROA)	0.06 (0.36)	0.09 (0.53)	0.03 (0.62)	0.02 (0.90)
	Return on equity (ROE)	0.22 (0.00)	0.07 (0.61)	0.21 (0.00)	0.21 (0.15)
	Return on risk-weighted assets (RORWA)	0.01 (0.90)	-0.02 (0.87)	0.04 (0.52)	0.05 (0.72)
	Cost-to-income ratio	0.06 (0.40)	0.04 (0.81)	-0.04 (0.58)	-0.27 (0.08)
Asset quality	Non-earning assets to total assets	0.24 (0.00)	0.14 (0.33)	0.25 (0.00)	0.16 (0.28)
	Loan loss provision to gross loans	-0.14 (0.04)	-0.09 (0.55)	-0.26 (0.00)	-0.42 (0.00)
	Total risk-weighted assets (billions of dollars)	0.34 (0.00)	-0.01 (0.95)	0.32 (0.00)	-0.04 (0.79)
Capital adequacy	Total capital ratio	-0.11 (0.11)	0.04 (0.76)	-0.11 (0.11)	-0.05 (0.74)
	Tier 1 capital ratio	-0.12 (0.08)	-0.02 (0.87)	-0.11 (0.10)	-0.21 (0.17)
	Equity-to-total assets	-0.02 (0.76)	0.24 (0.09)	0.004 (0.95)	0.25 (0.09)
	Tobin's Q (market-to-book ratio)	0.33 (0.00)	-0.16 (0.42)	0.45 (0.00)	0.40 (0.04)
Liquidity	Loan-to-deposit ratio	-0.16 (0.02)	0.19 (0.19)	-0.17 (0.02)	0.13 (0.38)
	Liquid assets to deposits and short-term funding	0.02 (0.79)	0.08 (0.56)	0.005 (0.95)	-0.17 (0.25)
	Deposits and short-term funding to total liabilities	-0.09 (0.15)	-0.04 (0.81)	-0.06 (0.36)	0.04 (0.78)
Dividend	Dividend payout ratio	0.02 (0.88)	0.22 (0.47)	0.15 (0.25)	0.32 (0.33)

The correlations of ROE targets with one-year lagged fundamentals of the institutions in Table 5 show how the levels of targets are determined, and the correlations of ROE targets with the contemporaneous fundamentals tell how the targets are achieved. The number in each parenthesis is the *p*-value for the hypothesis that the corresponding correlation is not

significantly different from zero. Let's focus on the correlations that are significantly different from zero at 5% level. The results show that the ROE targets are set higher if the institution had a high ROE target, is larger in size, and has a higher ROE, a higher Tobin's Q, less loan loss provision, lower loan-to-deposit ratio, but more non-earning assets. This implies that institutions tend to follow the past targets, and set the targets high if they have less loan losses and the equity market performs better (Tobin's Q), but take more risk in the asset portfolio. Danish institutions set ROE targets high mostly when the past targets are high, loan losses are expected to be low, and the equity market performs better.

The correlations of ROE targets with the contemporaneous fundamentals show a similar picture, which also indicates that these correlations are most driven by the cross-sectional variation. The institutions that have set high ROE targets do have high performance regarding ROE, but not significantly high ROA or RORWA.

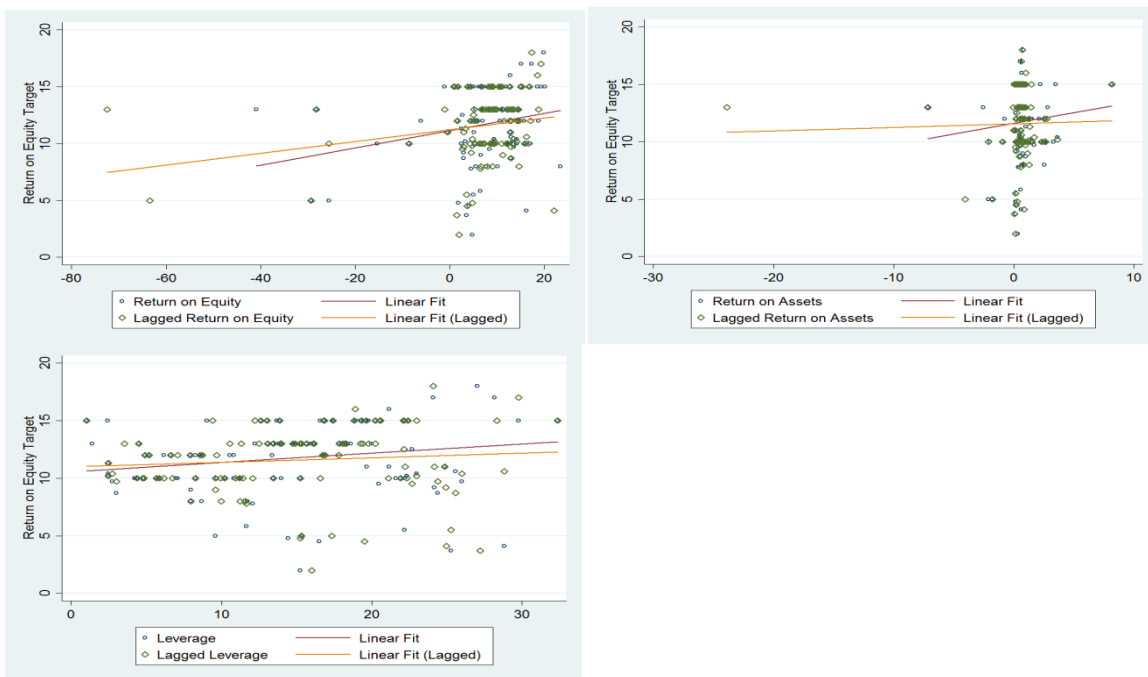**Figure 7:** The relationship of ROE target with ROE, ROA, and Leverage

Figure 7 displays the relationship of ROE targets with contemporaneous and one-year lagged ROEs, ROAs, and leverages using scattering and fitted lines. It is more obvious that ROE targets do reflect more of the variation of leverage rather than that of ROA.

Figure 8: Histogram of the differences of ROEs and ROE targets
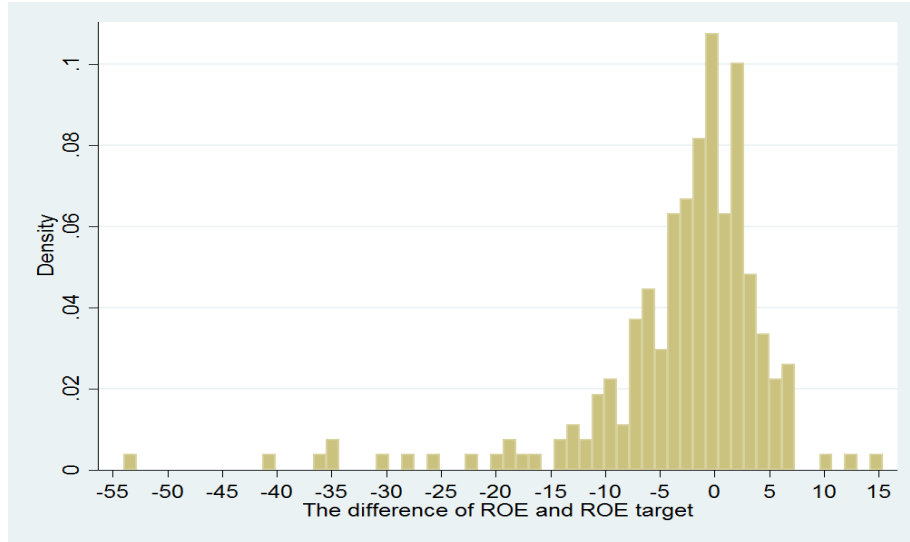
Figure 8 displays the differences of actual ROEs and ROE targets set in the previous year. A ROE target is met if the actual ROE is equal or higher than the ROE target. In our sample, 40.3% of the ROE targets are met.

Figure 9: Achieving ROE targets vs dismissing employees

Figure 9 shows the time-series variation of the cross-sectional averages of the distances between actual ROEs and ROE targets and that of the percentage changes of the numbers of employees.

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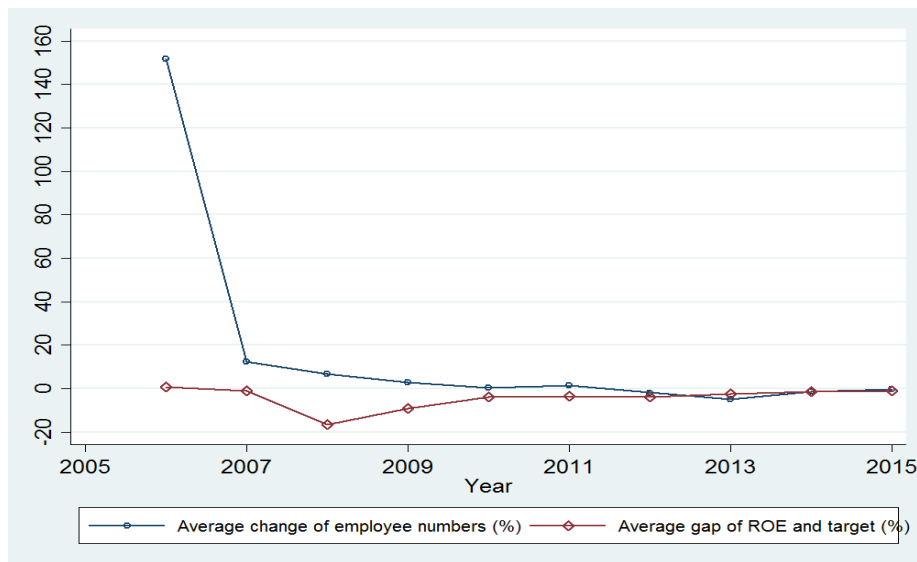The financial institutions do hire less or dismiss more employees during the downturn periods. It does not seem like cutting employment is a way to meet ROE targets.

3.3 What about the systematically important financial institutions (SIFIs) in Denmark?

In June 2014, the following financial institutions met the SIFI criteria in Denmark: Danske Bank, Nykredit Realkredit, Nordea Bank Danmark, Jyske Bank, Sydbank and DLR Kredit.[9] Except for DLR Kredit, all other SIFIs, which are all commercial banks, have set some ROE targets during our sample period. On average, less than a half of the sample period, ROE targets are published as some specific numbers. Among the banks, Nordea Bank Danmark sets targets much more frequently than others.

Figure 10: ROE targets of SIFIs in Denmark
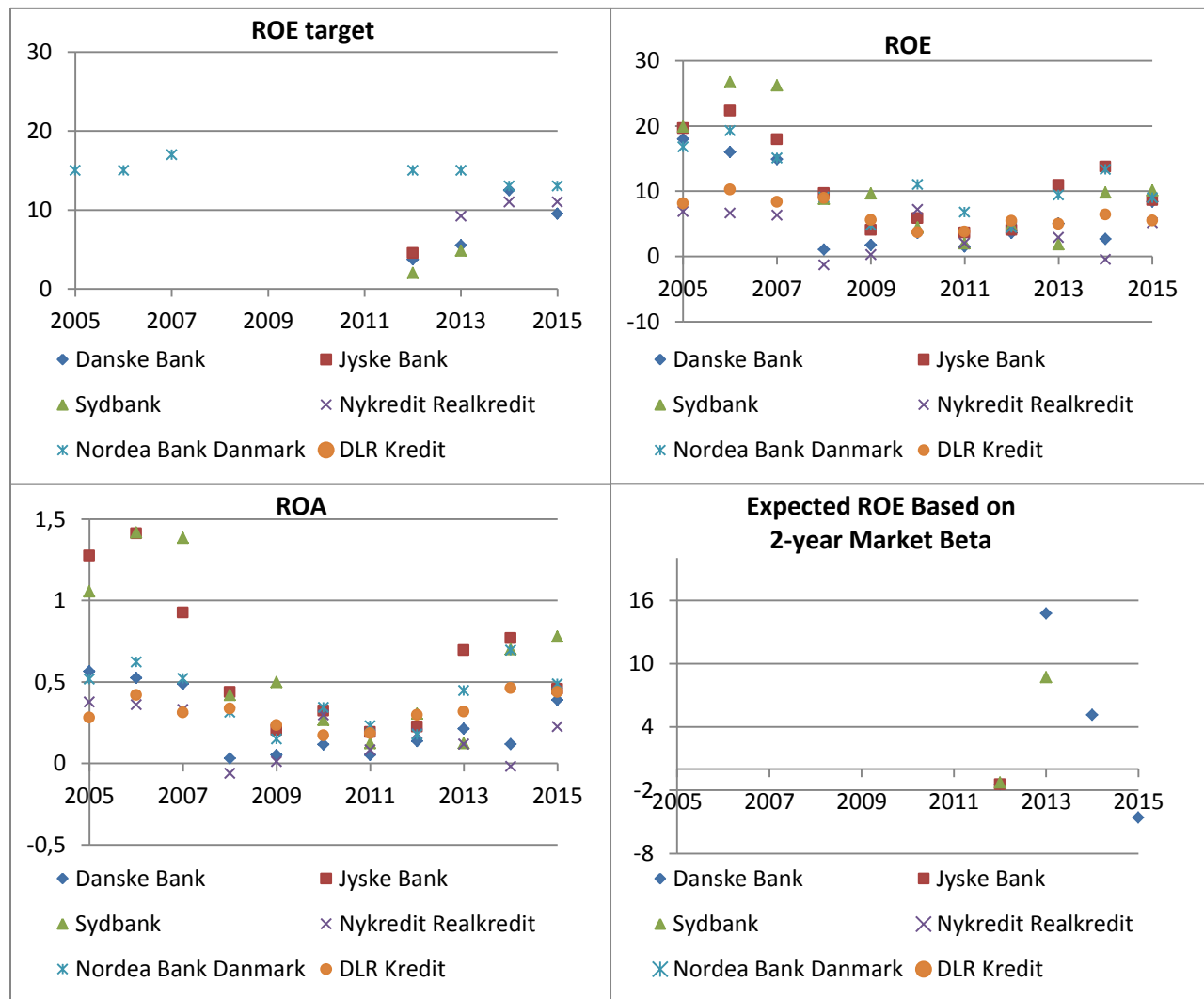
[9] See the web of Danmarks Nationalbank:
http://www.nationalbanken.dk/en/financialstability/danish_financial_sector/Pages/Default.aspx.

Figure 10 shows ROEs, ROAs, and target ROEs for the SIFIs in Denmark, and estimated expected ROEs based on 2-year market Beta[10] for public SIFIs. Except for Sydbank, most of time, banks' ROE targets are higher than their actual ROEs and estimated expected ROEs estimated based on the Capital Asset Pricing Model (Sharpe, 1964; Lintner, 1965). The ranking of the SIFIs is basically same no matter using ROE or ROA as the performance metric. Yet, based on ROA, Jyskebank and Sydbank do outperform other SIFIs before the crisis and since 2014.

Comparing ROE targets with one-year lagged ROA and ROE, we can observe that it seems that, to some extent, banks do adjust ROE targets according to the performance of the year when they set targets for the coming year. However, there is more than banks' performance that could explain how the targets are set. The ROEs set by public SIFIs do have a similar direction as that indicated by the equity market, although we have too few observations to conclude.

4. Nordic banks in the world

Are banks in the Nordics different from those in other countries? How are Nordic banks placed in the world? This section compares banks in the Nordics with banks in the United States, the United Kingdom, the Euro area, and the world.

We collected available data on bank asset and capital from 1998 to 2014 from the Global Financial Development Database from the World Bank, which will be the source of the country-

Figure 11: Bank capital to total assets (%)

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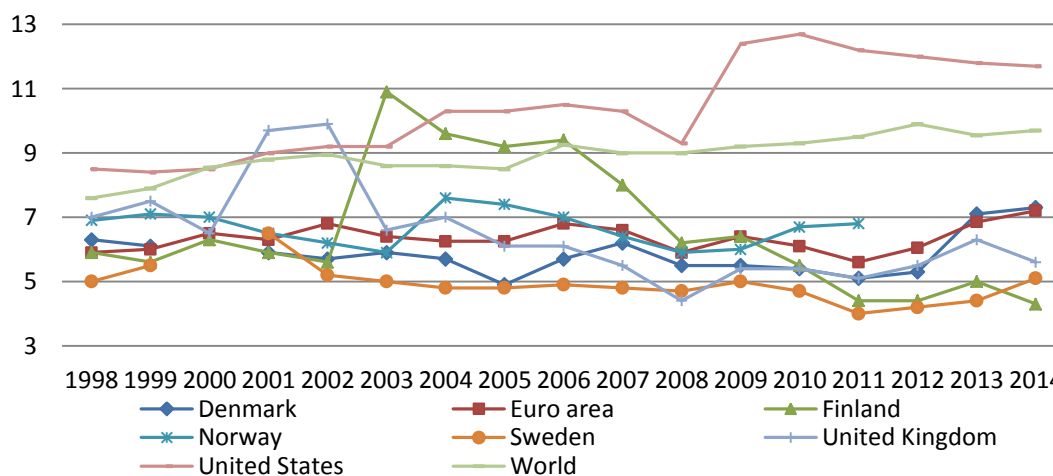
[10] 2-year Beta is collected from Capital IQ database, which is the slope from the 104 week regression line of percentage price change of the stock relative to the percentage price change of the benchmark, the MSCI EAFE (Europe, Australasia, Far East) index. The MSCI EAFE index is a free float-adjusted market capitalization index that is designed to measure the equity market performance of developed markets, excluding the US & Canada.

level data in this subsection, unless otherwise stated.

Figure 11 shows the capital ratios of banks in the United Kingdom, the United States, the Euro area, Nordic countries, and the world.

Compared to all banks in the world, most of the years, banks in U.S. hold more capital than those in other countries in the sample. Banks in the Europe in the sample hold relatively less capital. One notable observation is that Swedish banks hold fairly less capital during the whole period. A bright side of this figure is that the capital ratios of banks in the world have increased since the crisis and so have those of banks in the Euro area, UK, and the Nordics since 2011, especially the Danish banks.

Figure 12: Bank return on assets (%, after tax)
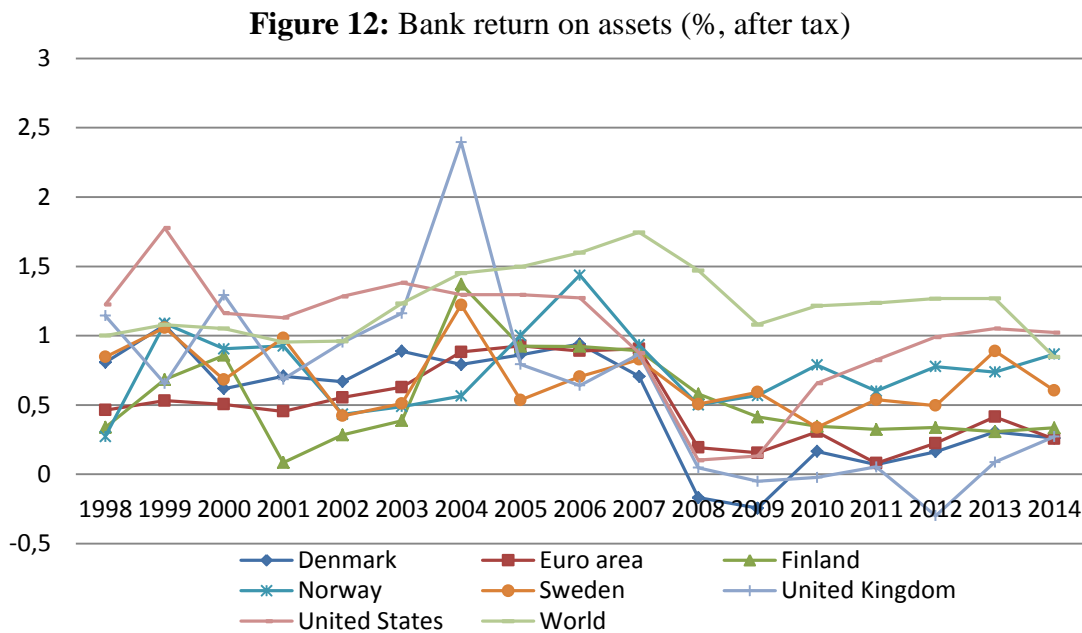
Figure 12 compares the profitability (after tax ROA) for the selected countries and regions. US banks perform better than other sample banks except for the crisis period. The performance of the banks in the Nordics is at a medium level in the Europe with a relative higher level for Norwegian banks.

Figure 13: Bank return on equity (%, after tax)
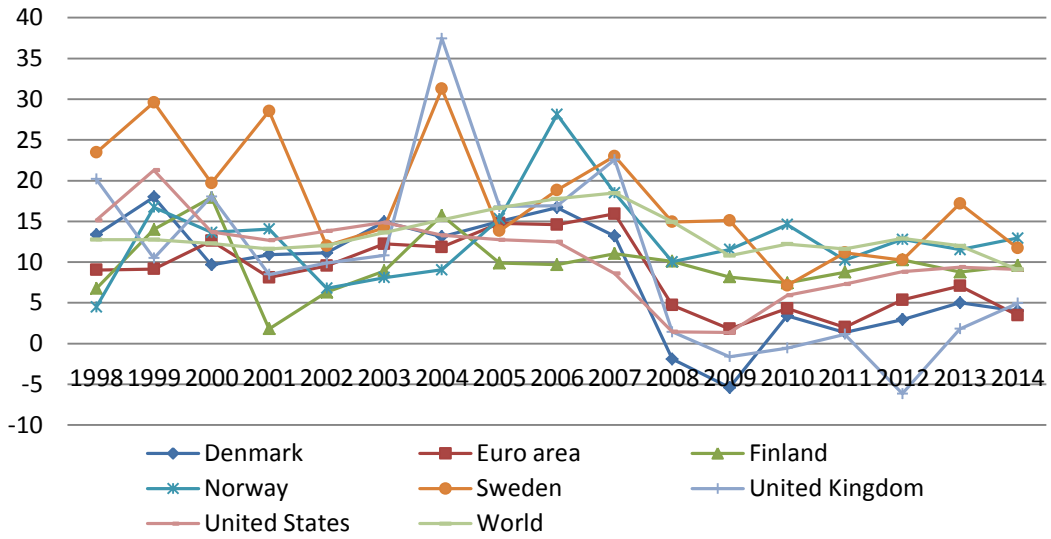
It is obvious that the variation of ROEs (Figure 13) is much higher than that of ROAs (Figure 12). Notice that ROE is equal to ROA times leverage—the ratio of total assets to total equity. This explains why Swedish banks have a high average ROE since the bank leverage is high (Figure 11). US banks have high earnings (Figure 12) but medium ROE due to low leverages (Figure 11).

Figure 14: Bank Z-score
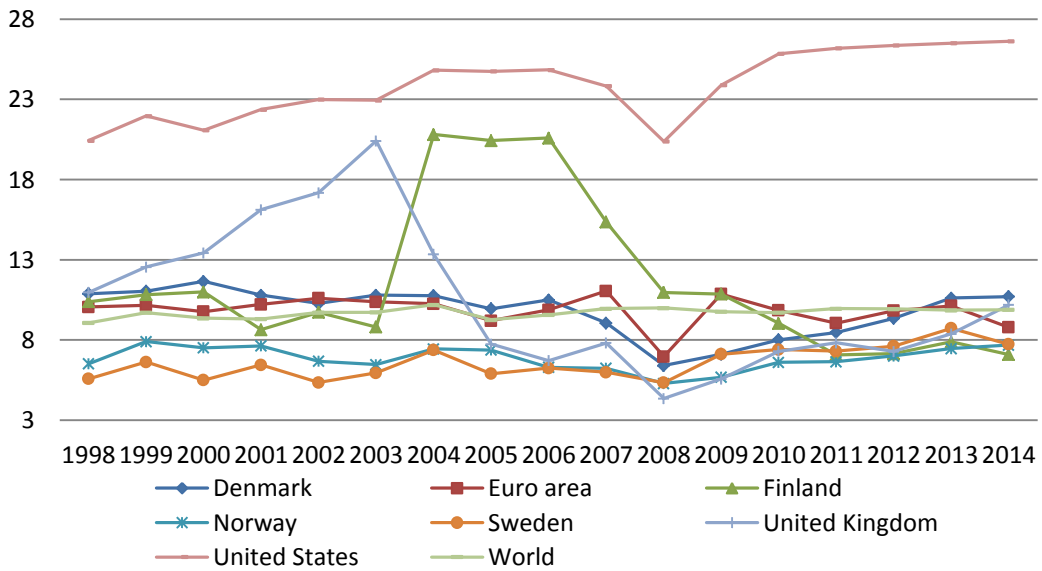
Another important aspect of assessing banks' risk is the level of their default risks. Figure 14 shows banks' Z-scores, which compare the buffer of a country's commercial banking system (capitalization and returns [ROA]) with the volatility of those returns. Higher Z-score indicates

higher distance to default. US banks are more solvent than other banks in the selected countries and regions. Norwegian and Swedish banks have relatively high default risks, which might be duet to their low levels of capital (Figure 11).

If we compare banks in Denmark and Sweden, we have the following relation (Table 6) for each year from 2007 to 2013.

Table 6: Comparing banks in Denmark versus those in Sweden

	Denmark	Sweden
ROE	low	high
ROA	low	high
Leverage	low	high
Loan quality	low	high
Proportion of high-risk assets	low	high
Default risk	low	high

Compared to Danish banks, Swedish banks, on average, have a higher proportion of high-risk assets within the asset portfolio, and a higher level of default risk, but a higher level of loan quality and earnings (ROA), and hence a higher ROE also due to a higher leverage.

5. Conclusion

Based on the unique hand-collected data on ROE targets set by the Nordic financial institutions, we investigate which financial institutions choose to set ROE targets and how they set the targets. We aim to provide in-depth analysis which contributes to the current debates on ROE targets with a specific focus on the Nordics.

The balance sheet profiles of the institutions show the differences of their performance and asset and funding risks. Consistent with the current debates, leverage is a concern for the financial institutions that set ROE targets, especially before the crisis. When we employ return on risk-weighted assets rather than ROA, the data does show that the financial institutions, which set ROE targets, allocate more funding into high-risk assets to generate higher earnings, especially for banks. This risk-taking on the assets is a concern from the macro-prudential perspective. However, these institutions, on average, have higher performance (ROA and mostly ROE) in generating earnings, better asset quality, and better liquidity coverage, compared to the institutions that do not set ROE targets. In addition, these institutions are generally large in size, and their risk-taking is relevant for the "too-big-to-fail" concern.

Among the Nordic countries, Swedish banks, which have set ROE targets, take more risks regarding their asset portfolio and leverage compared to banks, which have not set ROE targets. Moreover, on average, Swedish banks take more risks compared to other banks in the world. Yet, Swedish banks' earnings (ROA) are at the medium level in the world and their asset quality is high within the Nordics. High leverage also helps Swedish banks to achieve high ROE.

Compared to Swedish banks, Danish banks have low leverages and asset risks, but low earnings (ROA and ROE) and low loan quality, especially since the crisis. Danish institutions, which have set ROE targets, have a lower average ROA and management capability (higher cost-to-income ratio) and payout more dividends, but less proportion of high-risk assets in the asset portfolio, than those that have not set ROE targets.

Regarding how the Nordic financial institutions set ROE targets, most of them choose to publish the exact levels of the targets and 40.3% of the targets are met. Although there is no exact pattern of how the targets are set, they do, to some extent, reflect the institutions' earnings and asset qualities, and the equity market conditions.

Reference:

Haldane, A. (2009). Small lessons from a big crisis. Working paper and remarks at the Federal Reserve Bank of Chicago 45th Annual Conference. Bank of England.

Basel Committee on Banking Supervision (2010). Basel III: A global regulatory framework for more resilient banks and banking systems. Bank for International Settlements, Basel.

Bloomberg, Banks Reject Danish Negative-Rate Analysis Amid ROE Debate (published 24 June 2015), available at http://www.bloomberg.com/news/articles/2015-06-24/banks-reject-negative-rate-analysis-in-denmark-amid-roe-debate (last access: 24 August 2016)

Bloomberg Markets, European Banks Back Away From Targets Again Amid Brexit Squeeze (published 5 August 2016), available at http://www.bloomberg.com/news/articles/2016-08-05/european-banks-back-away-from-targets-again-amid-brexit-squeeze (last access: 24 August 2016)

Bordo, M. (2007). A Brief History of Central Banks, Policy Research Working Paper, Federal Reserve Bank of Cleveland

Demirgüç-Kunt, A., Karacaovali, B. and Laeven, L. A. (2005). Deposit Insurance around the World: A Comprehensive Database, Policy Research Working Paper #3628, Washington, DC: World Bank.

Financial Times, Banks Need to Look Past ROE on Profitability (published 7 November 2011), available at https://www.ft.com/content/abd5403e-0955-11e1-a20c-00144feabdc0 (last access: 26 August 2016).

Financial Times, Why Banks Come Back to Return on Equity (published 16 November 2015), available at https://www.ft.com/content/17954cde-8c46-11e5-8be4-3506bf20cc2b (last access: 24 August 2016)

Financial Times, Investment Banks' Return on Equity Declines (21 February 2016), available at https://www.ft.com/content/0c65e85a-d719-11e5-8887-98e7feb46f27 (last access: 24 August 2016)

Keely, M. C. (1990). Deposit insurance, risk, and market power in banking, *American Economic Review* 80, 1183-1200.

Laeven L. and Valencia F. (2012). Systemic Banking Crises Database: An Update. Working Paper No. 12/163, International Monetary Fund.

Lintner, J. (1965). The valuation of risk assets and the selection of risky investments in stock portfolios and capital budgets. *Review of Economics and Statistics*, 47, 13–37.

New York Times, Beware of Banks' Flawed Focus on Return on Equity (published 25 July 2011), available at http://dealbook.nytimes.com/2011/07/25/beware-of-banks-flawed-focus-on-return-on-equity/?_r=1 (last access: 24 August 2016)

Pennacchi, G. (2014). Banks, Taxes, and Nonbank Competition. Working paper, University of Illinois.

Reuters, Painful 2013 Leaves European Banks' Returns Well Below Target (published 17 April 2014), available at http://www.reuters.com/article/us-europe-banks-returns-idUSBREA3G0LD20140417 (last access: 24 August 2016)

Sharpe, W. F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *Journal of Finance*, 19, 425–442.

Appendix:

Table A.1: Fundamentals of financial institutions, which have set vs not set ROE targets, within different specializations

| | | Banks | | | | Savings banks and Mortgage financials | | | |
| | | Set | | Not set | | Set | | Not set | |
	Variable	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean
Size	Total Assets (billions of dollars)	295	82.00	868	8.10	275	16.30	2183	4.10
Earning and Management	Return on assets (ROA)	295	0.55	867	-0.03	275	0.69	2183	0.68
	Return on equity (ROE)	295	7.09	866	2.69	275	8.54	2183	5.86
	Return on risk-weighted assets (RORWA)	267	1.11	693	16.83	267	1.13	1,676	2.90
	Cost-to-income ratio	288	67.36	846	70.08	274	53.91	2,150	59.13
Asset quality	Non-earning assets to total assets	295	7.08	868	9.15	275	3.20	2181	3.27
	Loan loss provision to gross loans	282	0.68	797	2.43	267	0.27	2088	0.51
	Total risk-weighted assets (billions of dollars)	267	0.34	693	0.04	267	0.07	1676	0.02
Capital adequacy	Total capital ratio	287	19.45	747	19.72	272	16.27	1789	18.66
	Tier 1 capital ratio	262	17.91	671	17.55	245	14.74	1415	17.80
	Equity-to-total assets	295	9.54	867	12.53	275	8.33	2183	12.05
	Tobin's Q (market-to-book ratio)	114	1.09	278	1.23	52	0.75	40	0.49
Liquidity	Loan-to-deposit ratio	279	430	808	1008	257	2955	1,943	7509
	Liquid assets to deposits and short-term funding	292	37.58	836	31.74	274	23.55	2,142	20.81
	Deposits and short-term funding to total liabilities	294	68.29	844	85.40	275	64.02	2,156	82.49
Dividend	Dividend payout ratio	62	58.93	124	32.32	45	25.86	19	35.51

| | | Diversified financials | | | |
| | | Set | | Not set | |
	Variable	Obs	Mean	Obs	Mean
Size	Total Assets (billions of dollars)	100	133.00	570	10.10
Earning and Management	Return on assets (ROA)	99	0.61	570	0.83
	Return on equity (ROE)	99	9.46	570	8.00
	Return on risk-weighted assets (RORWA)	85	18.22	277	86.16
	Cost-to-income ratio	96	65.07	547	62.40
Asset quality	Non-earning assets to total assets	96	5.01	569	13.90
	Loan loss provision to gross loans	84	0.51	314	2.11
	Total risk-weighted assets (billions of dollars)	85	0.57	278	0.03
Capital adequacy	Total capital ratio	95	15.59	306	21.84
	Tier 1 capital ratio	84	14.77	250	19.33
	Equity-to-total assets	100	8.18	570	25.27
	Tobin's Q (market-to-book ratio)	43	0.07	68	0.55
Liquidity	Loan-to-deposit ratio	70	25126	244	1752
	Liquid assets to deposits and short-term funding	91	107.85	410	64.68
	Deposits and short-term	98	28.22	451	57.20

	funding to total liabilities				
Dividend	Dividend payout ratio	23	38.76	51	73.30

Table A.2: Fundamentals of Danish banks that have set vs not set ROE targets

		Set		Not set	
	Variable	Obs	Mean	Obs	Mean
Size	Total Assets (billions of dollars)	129	88.50	401	2.26
Earning and Management	Return on assets (ROA)	129	0.14	401	0.23
	Return on equity (ROE)	129	3.45	401	-1.73
	Return on risk-weighted assets (RORWA)	123	0.30	351	-0.06
	Cost-to-income ratio	125	77.49	395	70.13
Asset quality	Non-earning assets to total assets	129	6.62	401	8.30
	Loan loss provision to gross loans	128	1.09	386	1.73
	Total risk-weighted assets (billions of dollars)	123	0.29	351	0.02
Capital adequacy	Total capital ratio	127	16.57	392	18.90
	Tier 1 capital ratio	125	14.35	380	16.66
	Equity-to-total assets	129	9.02	401	12.57
	Tobin's Q (market-to-book ratio)	73	1.08	246	1.11
Liquidity	Loan-to-deposit ratio	128	753	390	1695
	Liquid assets to deposits and short-term funding	128	41.13	401	30.78
	Deposits and short-term funding to total liabilities	129	74.03	401	88.82
Dividend	Dividend payout ratio	34	55.94	108	29.51

Table A.3: Fundamentals of financial institutions that have set vs not set ROE targets in each country

		DENMARK				FINLAND			
	country	Set		Not set		Set		Not set	
	Variable	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean
Size	Total Assets (billions of dollars)	159	72.25	953	8.54	51	46.60	289	18.20
Earning and Management	Return on assets (ROA)	159	0.22	953	0.49	51	0.69	289	0.95
	Return on equity (ROE)	159	3.40	953	0.29	51	9.54	289	6.26
	Return on risk-weighted assets (RORWA)	153	0.38	759	0.18	36	1.42	215	38.18
	Cost-to-income ratio	155	74.69	935	67.78	51	70.64	285	67.32
Asset quality	Non-earning assets to total assets	159	6.74	953	8.21	51	13.89	289	5.12
	Loan loss provision to gross loans	158	1.32	867	1.60	46	0.17	210	0.43
	Total risk-weighted assets (billions of dollars)	153	0.24	759	0.03	36	0.27	215	0.07
Capital adequacy	Total capital ratio	157	17.40	852	19.10	47	14.20	228	22.96
	Tier 1 capital ratio	153	15.50	828	17.37	36	11.84	203	21.43
	Equity-to-total assets	159	9.84	953	15.04	51	7.10	289	19.58
	Tobin's Q (market-to-book ratio)	95	1.03	254	1.11	21	0.85	36	1.04
Liquidity	Loan-to-deposit ratio	158	630	812	1026	51	143	205	174
	Liquid assets to deposits and short-term funding	158	43.94	902	39.08	51	55.77	256	24.12

		Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean
	Deposits and short-term funding to total liabilities	159	73.59	913	83.82	51	59.03	258	73.66
Dividend	Dividend payout ratio	38	54.54	108	29.51	9	71.57	27	89.43

		ICELAND				**NORWAY**			
		Set		Not set		Set		Not set	
	Variable	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean
Size	Total Assets (billions of dollars)	25	8.14	148	3.05	319	27.00	1,287	2.65
Earning and Management	Return on assets	25	2.12	148	-1.01	318	0.75	1,286	0.47
	Return on equity	25	13.70	148	1.19	318	9.46	1,285	7.63
	Return on risk-weighted assets (RORWA)	24	2.72	49	3.36	302	5.95	1,120	24.84
	Cost-to-income ratio	24	44.92	137	68.34	312	57.56	1,265	57.30
Asset quality	Non-earning assets to total assets	25	8.26	148	18.97	315	3.20	1,284	4.74
	Loan loss provision to gross loans	25	1.42	130	10.75	290	0.16	1,144	0.26
	Total risk-weighted assets (billions of dollars)	24	0.07	49	0.05	302	0.15	1,121	0.01
Capital adequacy	Total capital ratio	25	21.96	78	21.75	309	15.22	1,167	18.70
	Tier 1 capital ratio	24	20.46	30	15.11	271	13.98	863	17.08
	Equity-to-total assets	25	16.33	148	8.37	319	9.04	1,287	12.48
	Tobin's Q (market-to-book ratio)	0		13	0.26	51	0.68	49	0.85
Liquidity	Loan-to-deposit ratio	25	140	81	230	273	170	1074	13725
	Liquid assets to deposits and short-term funding	25	36.67	121	94.31	311	27.10	1,202	20.85
	Deposits and short-term funding to total liabilities	25	71.32	130	61.15	316	62.13	1,237	74.24
Dividend	Dividend payout ratio	0		10	20.21	46	23.09	25	39.94

		SWEDEN			
		Set		Not set	
	Variable	Obs	Mean	Obs	Mean
Size	Total Assets (billions of dollars)	116	166.00	944	4.75
Earning and Management	Return on assets	116	0.43	944	0.77
	Return on equity	116	8.57	944	8.08
	Return on risk-weighted assets (RORWA)	104	1.69	503	8.06
	Cost-to-income ratio	116	53.48	921	60.95
Asset quality	Non-earning assets to total assets	116	3.90	944	5.06
	Loan loss provision to gross loans	114	0.08	848	0.59
	Total risk-weighted assets (billions of dollars)	104	0.62	503	0.03
Capital adequacy	Total capital ratio	116	24.45	517	18.92
	Tier 1 capital ratio	107	23.07	412	19.10
	Equity-to-total assets	116	6.08	943	15.13
	Tobin's Q (market-to-book ratio)	42	1.39	34	4.66
Liquidity	Loan-to-deposit ratio	99	25066	823	246

	Liquid assets to deposits and short-term funding	112	72.37	907	21.77
	Deposits and short-term funding to total liabilities	116	37.27	913	88.07
Dividend	Dividend payout ratio	37	52.16	24	67.42