Returns and Risks in Scandinavian Banks*

by

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Introduction

In the early 1990s it became very clear to the vast majority of Scandinavian bank managers, shareholders and other stakeholders that banking was by no means a business freed from risks. As in other industries there exists a trade-off between returns and risks in banking too. And after the deregulations of the financial markets in the 1980s, most of the banks had taken on considerable risks in order to earn an adequate return in the new competitive environment. Unfortunately, the management's awareness of the magnitude of the risk-taking appears to have been lacking in many banks. Nor did they seem to have obtained satisfactory knowledge and understanding of how to price risks appropriately in the initial phase of the deregulation. The negative outcome in the form of the extensive banking crises in 1991-1993 was therefore almost inevitable. Banks in especially Norway and Sweden suffered severely from substantial credit losses and the government in the two countries were more or less obliged to intervene by issuing general guarantees and even by bailing out some of the banks (see Lindblom, 1994).

The banking crises led to a restructuring of the banking industry in Scandinavia, which to a great extent was visualised by intensified mergers and acquisitions (M&As) activities in each country. In Norway, for instance, more than fifty per cent of the commercial banks became wholly or partly nationalised (see e.g. The Economist, 1995). At the same time the door was opened up for new entrants that were able to benefit from the declining customer trust in incumbent banks (see Lindblom & Andersson, 1997). In the retail markets these entrants were often utilising modern and efficient distribution forms that were emerging from the rapid progress in information technology. With the new IT-solutions it was possible for them to targeting specific customer segments with a narrow range of banking products and financial services. Of course, the new technique was also

available to the remaining and recovering traditional banks, but they had to use it together with their existing infrastructure consisting of an expensive and often burdensome domestic branch network. The industry had become over-branched (c.f. The Banker, 1996).

During the second part of the 1990s bank competition in Scandinavia was further strengthened due to increasing internationalisation and integration of the European financial markets. The development within the EU, especially concerning the ongoing deregulation processes and the single currency project (EMU), considerably changed the environmental conditions for the banks and put additional pressure on them to continuously improve their competitiveness (c.f The Economist, 1998). The Scandinavian banks are small in comparison to the continental banks and in the end of the 1990s the region experienced a new era of bank consolidation (Gardener & Lindblom, 1998). Especially in Sweden several domestically large mergers took place between banks, but also between banks and other financial institutions. At this time a new kind of M&As was also initiated – banks were merging across country borders (Vander Vennet, 1997).

According to Nellis *et al.* (2000) cross-border bank mergers are a phenomenon mainly in regions with cultural links and still only a few regions in the EU have yet experienced such merger activities. However, in Scandinavia (including Finland), the bank consolidation process was now reaching a pan-Nordic level and many Scandinavian banks were acquiring or merging either with competing banking firms or with other financial institutions in neighbouring countries (Lindsten, 2000).[1] The merger between the Swedish Nordbanken and the Finnish Merita bank in 1997 was one of the first large cross-border bank mergers in this region and perhaps the most well known one.[2] It has been followed by several other cross-border bank mergers, like for instance by the merger between Den Danske Bank in Denmark and Östgöta Enskilda Bank in Sweden. Recently, MeritaNordbanken or Nordea (which is its present name) was fulfilling its strategy to become a pan-Nordic bank by acquiring both the Norwegian Kreditkassen and the Danish Unidanmark (Svedbom, 2001).

In the financial literature bank M&As are mostly contemplated with scepticism what concerns the gains in terms of economic value added or increased shareholder value (see e.g. Berger *et al.*, 1987, Ferrier & Lovell, 1990, Houston & Ryngaert, 1994, Berger *et al.*, 1999 and Milbourn *et al.*, 1999). Although some academic writers (e.g. McCormick *et al*., 1995, and Berger & Mester,

[1] SEB is so far the only Swedish bank that has expanded outside the Nordic market by buying the German BFG.
[2] For a comprehensive analysis of the Merita-Nordbanken cross-border bank merger in the context of a Balanced Scorecard approach, see Lindblom & von Koch (2001).

1997) have managed to distinguish a certain potential for cost efficiency improvements in studies of recent bank M&As, these improvements are far from easy to accomplish in practice (c.f. Rhoades, 1998). A bank merger is associated with a number of organisational problems leading to increasing transaction costs. The management of the new bank has to operate and control a larger organisation after integrating the administrative systems of the former banks as well as their corporate cultures.

For the banking industry in Scandinavia the ongoing consolidation has certainly amplified the already high degree of concentration in each country (c.f. Conrad & Fitzpatrick, 1997). However, the competition within the industry had probably intensified anyway due to the new technologies, the lessened regulatory constraints and the far-reaching international integration of the financial markets (c.f. Boot, 1999). Nevertheless during the second part of the 1990s the banks have managed very well in terms of financial performance. The question is whether this is also true in a risk perspective.

Purpose and data

This working-paper presents an empirical study within a research project that aims at exploring the financial performance of Scandinavian commercial and savings banks during the second half of the 1990s. The main purpose is to examine and demonstrate how the banks' returns can be analysed from a risk perspective. The emphasis is put primarily on financial risks, since these risks have been more apparent and important for the financial performance of traditional banks. However, in the project special attention is also paid to explore whether the over-all performance of the banks has become more dependent on other non-financial risks.

The analysis is based on accounting data from the banks' annual income statements and balance sheets. This means that the analysis is focusing on the past financial performance of the banks measured in book values. In that respect it the results of the analysis are only indicative. The data has been obtained from the database Bankscope and from the independent savings banks' professional and industrial organisation in Norway and Sweden, respectively. With the exception of the independent savings banks in Sweden, accounting data has been gathered for a five-year period (1995 – 1999). In Table 1 the number of commercial banks and independent savings banks in each of the three Scandinavian countries is shown for every year in this period.

Table 1 Number of banks

Country	Commercial banks					Savings banks				
	1995	*1996*	*1997*	*1998*	*1999*	*1995*	*1996*	*1997*	*1998*	*1999*
Denmark	*47*	*48*	*50*	*50*	*48*	*35*	*36*	*36*	*39*	*35*
Norway	*8*	*8*	*9*	*9*	*8*	*133*	*133*	*133*	*133*	*130*
Sweden	*7*	*7*	*5*	*6*	*5*	*88*	*88*	*88*	*88*	*86*

It is evident from Table 1 that the number of banks varies quite noticeably between the three countries. This implies that the size of the banks may differ rather substantially. Table 2 verifies that this was also the case.

Table 2 The size of the banks in terms of average assets in m$ (1995-99)

Country	Commercial banks				Savings banks			
	Average	*Max*	*Min*	*Std dev*	*Average*	*Max*	*Min*	*Std dev*
Denmark	3,600	83,000	50	13,200	300	3,600	3	650
Norway	5,600	31,600	100	9,800	350	15,000	2	1,400
Sweden	29,300	98,300	400	38,500	100	1,000	1	150

Table 2 shows that the largest as well as the smallest banks in terms of average assets are located in Sweden. The Swedish commercial banks are dominant amongst the commercial banks, whereas the Swedish independent savings banks are only about one third of the size of their peers.

Analysis

An underlying assumption for the analysis has been that the overall objective of a banking firm is to create shareholder value (c.f. Barfield 1998) and that this is reflected by the bank's annual return on capital or equity (ROE). Even though this may be an arguable assumption in the case of savings banks, having no shareholders, ROE has been used as the overall accounting performance measure also for those banks. The coming analysis is conducted on a before tax basis. This means that ROE is defined as the ratio of income before taxes and equity capital. The main reason for choosing to base the analysis on before tax measures is that income taxes differ between the countries both what regards marginal tax levels and tax rules.

Table 3 presents the average ROE before tax for each bank category and market between 1995-1999.

Table 3 Average ROE of the banks (1995-99)

Country	Commercial banks				Savings banks			
	Average	*Max*	*Min*	*Std dev*	*Average*	*Max*	*Min*	*Std dev*
Denmark	13.9%	26.8%	2.7%	5.3%	13.6%	20.4%	6.3%	3.5%
Norway	15.1%	22.9%	0.8%	6.6%	12.3%	33.3%	2.4%	3.7%
Sweden	20.8%	36.0%	3.8%	9.3%	13.7%*	25.9%*	-1.1%*	4.7%*

** Average ROE for 1997-1999*

Apart from the Swedish commercial banks, the average returns on equity appear to be similar in the different banking groups. The large Swedish commercial banks seem to have been far more successful than other banks – at least in terms of average and maximum average returns. This implies economies of scale in the industry and that the ongoing bank consolidation may be rationale. However, it is also evident from Table 3 that the volatility in terms of standard deviation is higher for the Swedish commercial banking group (see also Table A1 in the Appendix). This implies that larger banks take on more risks than do smaller ones. Do the risks increase by the banks' asset size?

It should be noted that the average returns for the Swedish savings banks are based on a shorter time period than five years, i.e. only three years (1997-1999). A comparison with the other banking groups average returns for each year shows that the banks' average ROE was lower during 1997-1999 (see Table A1 in the Appendix). Despite being small in size the independent Swedish savings banks were managing very well in comparison to the banking groups in Denmark and Norway. This implies that the Swedish savings banks' average ROE is likely to have been above 14% between 1995-1999.

The fact that the obtaining of economic value added for a bank's stakeholders is a trade-off between the bank's return and its risk-taking requires a more thorough analysis of how the banks have achieved their ROEs. In the analysis ROE has been defined as the ratio of income before taxes and equity capital, where the income before taxes is the difference between operating income (interest income + other income – non-interest expenses) and interest expenses. Hence, ROE may be seen as the difference between the ratio of operating income (OI) and equity (E) and the ratio of interest expenses (IE) and equity. Considering that the level of operating income is very dependent on the size and quality of the bank's assets (A) and that interest expenses are directly linked to its total debts (D), the relationship in Figure 1 holds.

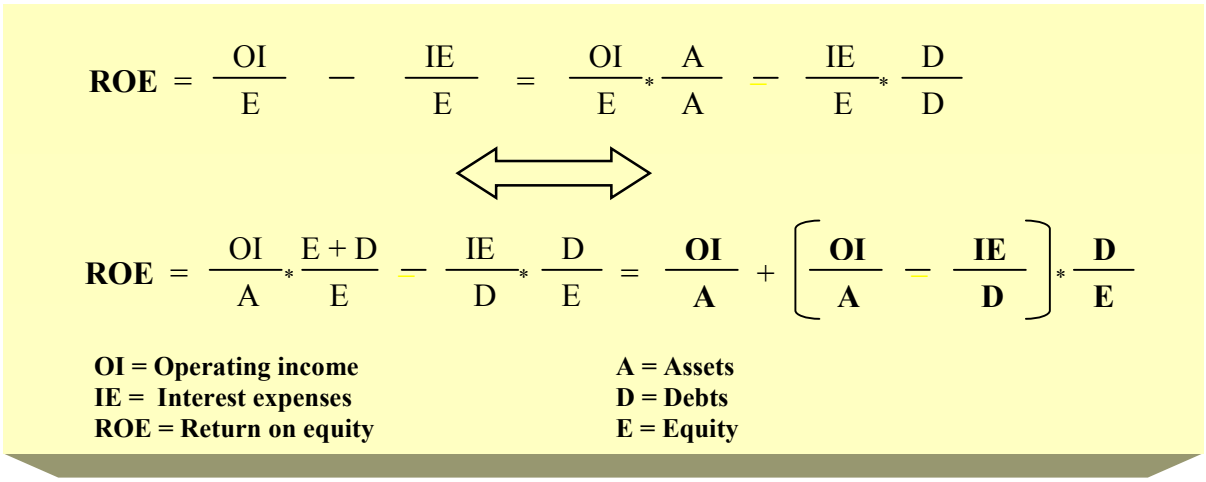

Figure 1 An analysis of the components of ROE

Figure 1 illustrates how a bank's ROE may be broken down into its operating income on assets (OI/A) and the margin between this ratio and its average interest expenses (IE/D or k_d) times its debt-equity ratio (D/E). The bank's operating income on assets may be defined as its return on invested funds (ROIF), whereas the product of the leverage spread (ROIF – k_d) and the debt-equity ratio shows the bank's return on financial leverage (ROFL).[3] Hence, ROE may be seen as the sum of the returns on a bank's asset management and its liability management, i.e. the sum of the two components: ROIF and ROFL. From a risk perspective ROIF may therefore be related to the bank's operative risks as well as liquidity and credit risks, whereas ROFL may be used to analyse its interest rate risk and capital risk. In Figure 2 these relationships are illustrated for the bank's financial risk-taking.

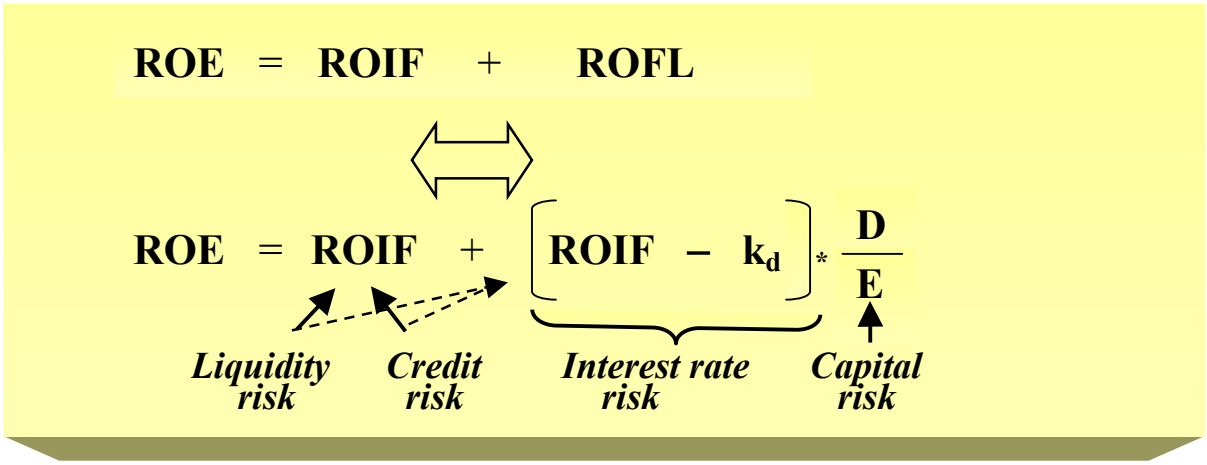

Figure 2 The bank's financial risks in relation to ROIF and ROFL

[3] This alternative way of breaking down ROE was introduced by Alberts (1989) on the international arena. However, already ten years before that Werding (1979) wrote a Swedish thesis based on these key ratios.

In Table 4 the average ROE (between 1995-1999) of the different banking groups has been broken down into the banks' average returns on asset and liability management, respectively.

Table 4 Average ROIF and ROFL of the banks (1995-99)

Country	Commercial banks				Savings banks			
	ROIF	*Std dev*	*ROFL*	*Std dev*	*ROIF*	*Std dev*	*ROFL*	*Std dev*
Denmark	4.2%	0.7%	9.7%	5.0%	4.5%	0.7%	9.1%	2.9%
Norway	5.0%	1.0%	10.1%	5.9%	4.9%	0.7%	7.3%	3.3%
Sweden	5.4%	2.1%	15.4%	8.5%	4.2%*	0.8%*	9.4%*	4.0%*

** Averages for 1997-1999*

It is obvious from Table 4 that the main difference between the banking groups regarding obtained ROEs is explained by different returns on financial leverage. The average ROIF of the banks lies very close to each other, whereas the average ROFL in the Swedish commercial banks is between 5-8 percentage units above the corresponding returns of the other groups. In combination with a higher volatility (in terms of standard deviation), this implies a greater risk-taking in Swedish commercial banks what regards interest rate risks and capital risks. However, this interpretation is neither verified nor completely rejected by the measures of the banks' liability management risks presented in Table 5.

Table 5 The banks' liability management risks (1995-99)

Country	Commercial banks				Savings banks			
	Interest rate risk		*Capital risk*		*Interest rate risk*		*Capital risk*	
	Net margin	*Std dev*	*Tier I +II*	*Std dev*	*Net margin*	*Std dev*	*Tier I +II*	*Std dev*
Denmark	4.4%	2.0%	17.9%	9.9%	5.3%	1.0%	19.3%	5.1%
Norway	2.4%	0.7%	12.1%	3.2%	3.2%	0.5%	19,5%	6.8%
Sweden	2.4%	1.5%	13.7%	3.1%	4.4%*	1.0%*	24.5%*	7.3%*

** Averages for 1997-1999*

Due to incomplete data concerning interest-sensitive assets and liabilities of the banks, the net interest margin (defined as the differential or spread between interest revenue on earning assets and interest expenses on interest-bearing funding or borrowing) has been used in Table 5. This measure appears to be a reasonable approximate of the interest rate risk in the banks, albeit not a perfect substitute.[4] Even though the net interest margin was comparatively low on an average basis – indicating a higher interest rate risk – the Swedish commercial banks were only marginally worse than the Norwegian commercial banks.

[4] A statistical analysis shows that the correlation between the ratio of interest sensitive assets and liabilities and the net interest margin for Danish commercial banks (the only banking group with data available) was negative each year and varied between –0.43 and –0.60.

Regarding the capital risk-taking (measured as the risk-adjusted capital requirements ratio adopted by the Bank for International Settlement (BIS) in 1988), they were even less risky than the commercial banks in Norway. It deserves to be noted that the management in savings banks in general and in the Swedish ones in particular, seems to have adopted a comparatively more risk averse strategy than the management in commercial banks.

In an attempt to explain the banks' different return on financial leverage, Table 6 presents the relationship in terms of correlation between the banks' ROFL and the two liability management risk measures. In order to find out if there exist any lagging effect between ROFL and the banks' capital risk-taking, the correlation between the ROFL obtained each year and the capital risk the previous year (t – 1) has also been calculated. According to these calculations the lagging effect was only marginal if existing at all.

Table 6 Correlation between ROFL and the liability management risks (1995-99)

Country	**Commercial banks**			**Savings banks**		
	Interest rate risk	***Capital risk Tier I+II***	***t – 1***	***Interest rate risk***	***Capital risk Tier I+II***	***t – 1***
Denmark	0.31	-0.17	-0.14	0,34	0.08	-0,06
Norway	0.38	-0.29	-0.30	0.32	-0.10	-0.14*
Sweden	0.31	-0.13	-0.10	0.43	0.21**	0.11***

* *Averages for 1996-1999*
** *Averages for 1997-1999*
*** *Averages for 1998-1999*

From Table 6 it is clarified that the markedly above average return on financial leverage of the Swedish commercial banks cannot be explained by a higher correlation with the average interest rate risk measured as net interest margin or the average capital risk. The ROFL of other banking groups appears to be at least as dependent of these risks. However, the picture alters when the correlation analysis is made on an annual basis instead (see Table A2 and Table A3 in the Appendix). The sign of the coefficient of correlation changes between different years for the Swedish commercial banks both regarding ROFL and the net interest margin and regarding ROFL and the capital risk-taking. This kind of fluctuation lends support to the interpretation that the financial risk-taking has been higher in these banks. Implicitly, it also seems to explain the higher contribution from ROFL in these banks.

As was illustrated in Figure 1 a bank's return on financial leverage may be broken down into two parts: the leverage spread (ROIF – k_d) and the debt-equity ratio. Table 7 shows the average distribution between these components for the different banking groups.

Table 7 Average leverage spread and debt-equity ratio of the banks (1995-99)

Country	Commercial banks				Savings banks			
	Lev spread	*Std dev*	*D/E*	*Std dev*	*Lev spread*	*Std dev*	*D/E*	*Std dev*
Denmark	1.2%	0.1%	9.3	4.3	2.5%	0.3%	6.4	2.1
Norway	0.7%	0.2%	13.9	2.7	1.1%	0.1%	7.5	2.1
Sweden	0.7%	0.2%	20.5	5.7	1.7%*	0.4%*	6.2*	2.2*

** Averages for 1997-1999*

It is evident from Table 7 that the Swedish commercial banks take on considerably higher capital risks than do the other banking groups. The banks seem to try to compensate a low leverage spread by a higher gearing or leverage multiplier factor. In an expanding and growing economy this will of course contribute to higher returns on the banks' financial leverage and, thus, add to the overall economic value in terms of ROE. However, in periods of stagnation or, even worse, recession, the multiplier may work in the opposite direction, i.e. in the case the leverage spread then turns negative. Hence, it is of vital importance for the stakeholders of the banks that the difference between ROIF and k_d is fairly robust and remains positive also in bad times. This justifies a further and more in-depth analysis of the banks' returns on invested funds.

In Table 4 only minor differences were detected what regards the average ROIF obtained by the banks. When the banks' returns are analysed more in detail it becomes obvious that the management of the banking groups actually differ in many respects in their efforts to earn an acceptable return and thereby creating economic added value for stakeholders. One important difference between the banks concerns the asset management risks they take on. This is demonstrated in Table 8.

Table 8 The banks' average credit and liquidity risks (1995-99)

Country	Commercial banks				Savings banks			
	Credit risk		*Liquidity risk*		*Credit risk*		*Liquidity risk*	
	Losses/loans	*Loans/EA*	*Liq assets*	*Dep/A*	*Losses/loans*	*Loans/EA*	*Liq assets*	*Dep/A*
Denmark	1.0% (0.8%)	57.0%	25.9% (12.5%)	41.3%	1.0% (0.6%)	57.2%	21.1% (15.7%)	46.0%
Norway	0.0% (0.6%)	83.4%	9.4% (7.0%)	38.1%	0.2% (0.2%)	87.0%	13.1% (8.5%)	77.7%
Sweden	0.5% (0.5%)	63.0%	22.0% (14.7%)	52.1%	3.3%* (6.1%)	72.3%*	17.4%* (11.1%)	79.9%*

** Averages for 1997-1999*
The percentage measures in brackets show the volatility in terms of standard deviation

Table 8 presents two accounting based measures of credit risk and liquidity risk, respectively. For each of these asset management risks the first measure may be regarded as a confirming measure of the current (or already realised) state of this

risk, whereas the second measure is of a more indicative nature showing the exposure of the bank to the specific asset management risk. Thus, the ratio of losses and loans refers to the relation between the banks' stated credit losses on their gross lending[5], whereas the other credit risk measure – Loans/EA – shows the share of lending in relation to earning assets.[6] Accordingly, the current liquidity risk is measured as the ratio of liquidity assets to short term funding (including deposits)[7], whereas deposits over total assets may be regarded as an indicative liquidity risk measure. With the exception of the ratio of liquidity assets to short term funding, the higher the value of the risk measure the higher the asset management risk.

The high average credit losses of the Swedish savings banks together with the high volatility in terms of standard deviation indicate a relatively riskier loan portfolio, which may be related to the small size of these banks. The very low credit losses of the Norwegian banks in particular are most likely to a great extent explained by recoveries from previous loan losses in the early 1990s. Regarding liquidity risks the information in the table is more ambiguous. On the one hand the low values of the Norwegian banks indicate a high liquidity risk. On the other hand the volatility in terms of standard deviation is much lower for these banks.

In Table 9 the correlation between the banks' returns on invested funds and the different asset management risks has been calculated on a five-year basis.

Table 9 Correlation between average ROIF and asset management risks (1995-99)

Country	**Commercial banks**				**Savings banks**			
	Credit risk		***Liquidity risk***		***Credit risk***		***Liquidity risk***	
	Losses/loans	***Loans/EA***	***Liq assets***	***Dep/A***	***Losses/loans***	***Loans/EA***	***Liq assets***	***Dep/A***
Denmark	*0.06*	*0.02*	*0.08*	*-0.11*	*0,32*	*-0.21*	*-0.17*	*-0.14*
Norway	*0.30*	*0.38*	*-0.17*	*-0.52*	*-0.08*	*-0.18*	*-0.04*	*-0.13*
Sweden	*0.51*	*0.74*	*-0.61*	*-0.39*	*-0.08**	*0.18**	*-0.16**	*-0.35**

** Averages for 1997-1999*

Table 9 shows that the relationship between the Swedish commercial banks' returns on invested funds and the different asset management risks is relatively stronger than the corresponding correlations for the other banking groups. This implies that the ROIF of the Swedish commercial banks to a greater extent have

[5] Due to incomplete data provision for loan losses has been used as an estimate of actual credit losses. This estimate appears to be fairly reasonable on an average basis, but for a shorter time period and particularly only a year the use of it may be arguable since it may include recoveries from past loan loss reservations.

[6] Non-performing loans over earning assets would have been a more appropriate and eligible measure, but such data were not available for all banking groups.

[7] Total assets have been used as a denominator for the Swedish and the Norwegian savings banks leading to a minor overestimation of their average risk-taking in terms of liquidity risk.

been relying on a higher risk-taking in terms credit and liquidity risks. This observation is supported by the correlation analyses year by year shown in Table A4 and Table A5 (see Appendix). In comparison to the other groups the relationship between the Swedish commercial banks' return on invested funds and their liquidity risk-taking is particularly important. However, the tables also indicate that the ROIF of the other banks, and particularly the Norwegian commercial banks, have been closely dependent on rather high asset management risks as well. In this respect the Swedish savings banks do not distinguish themselves as being more risky than other banks.

In order to demonstrate how vulnerable banks may be to liquidity and credit risks, the return on invested funds will be analysed one step further. As is illustrated in Figure 3, ROIF may be decomposed into the product of a bank's return on earning assets (ROEA) and an earning power factor (EP = EA/A).

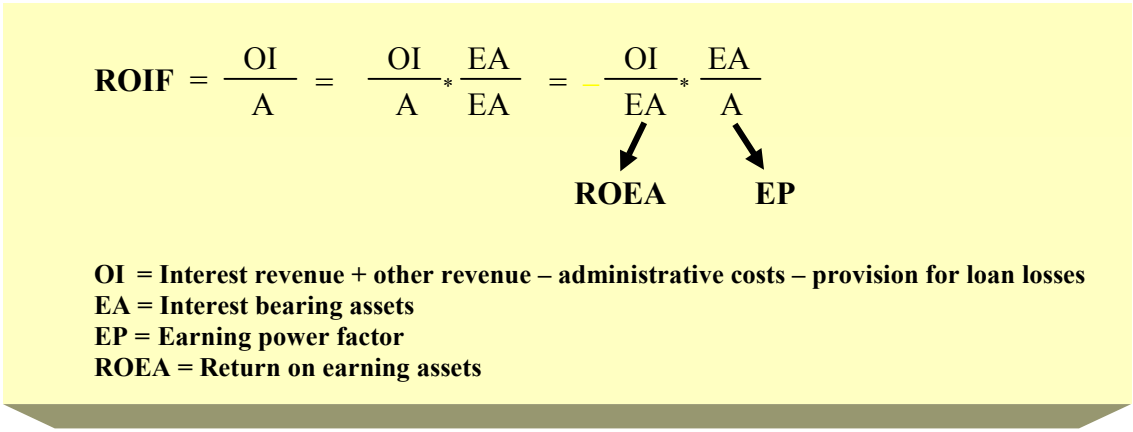

Figure 3 The components of the return on invested funds (ROIF)

Table 10 presents the average return on earning assets as well as the earning power of each banking group.

Table 10 Average ROEA and EP of the banks (1995-99)

Country	**Commercial banks**				**Savings banks**			
	ROEA	***Std dev***	***EP***	***Std dev***	***ROEA***	***Std dev***	***EP***	***Std dev***
Denmark	4.6%	0.7%	0.93	2,7%	4.9%	0.8%	0.93	3.0%
Norway	5.3%	1.1%	0.95	2.0%	5.2%	0.6%	0.96	2.1%
Sweden	5.9 %	2.2%	0.92	4.7%	4.9%*	1.1%*	0.88*	5.6%*

** Averages for 1997-1999*

Although the average earning power factors in Table 10 may look similar for all the banks, it is worth noting that also small differences can have a significant impact on their returns and risks. The combination of high earning power factors

and relatively high returns on earning assets of the Norwegian banks may be explained by their seemingly higher credit risk-taking in terms of a larger lending share of earning assets (see Table 8).

In Table 11 ROIF has been further decomposed in order to make a comparison of the banks' earning asset yields and cost efficiency. As was defined in Figure 3 the return on earning assets consists of interest revenue, non-interest revenue and operating expenses (including credit losses). The ratio of the interest revenue and earning assets shows the contribution from interest revenue to the banks' ROEA and may consequently be denoted $Yield_{ea}$. A measure of the cost efficiency of the banks may then be expressed as the ratio of operating expenses and earning assets (OE_{ea}).

Table 11 Average yield and operating expenses on earning assets (1995-99)

Country	**Commercial banks**				**Savings banks**			
	Yield(ea)	***Std dev***	***OE(ea)***	***Std dev***	***Yield(ea)***	***Std dev***	***OE(ea)***	***Std dev***
Denmark	7.6%	1.6%	4.5%	2.0%	8.4%	0.8%	4.7%	0.9%
Norway	6.9%	0.8%	2.6%	0.9%	7.2%	0.4%	2.7%	0.8%
Sweden	7.6 %	2.2%	3.3%	1.8%	6.9%*	0.8%*	4.0%*	1.2%*

** Averages for 1997-1999*

Table 11 indicates that the Norwegian banks were the most cost efficient banks in terms of average operating expenses over earning assets between 1995 and 1999. The banking groups in Denmark are apparently the least cost efficient ones, but this is something that they seem to compensate for by relatively high yields on earning assets. Contrary to the Swedish savings banks this was the case for the Danish savings banks in particular. However, the comparatively low yield for the independent savings banks in Sweden might be explained by the fact that the market interest rates were somewhat higher in the mid of 1990s.

The contents of Table 10 and Table 11 may give the impression that the banks' returns on invested funds are quite robust and safe. The components of ROIF look reasonably stable for the different banking groups. In some cases, though, the volatility is noticeable in terms of a relatively high standard deviation. Even though the impact of this greater volatility (or asset management risk) is unlikely to totally erase ROIF, it can nevertheless lead to a negative return on equity. A decrease in a bank's return on invested funds will have an immediate effect on its return on financial leverage. This is illustrated in Figure 4.

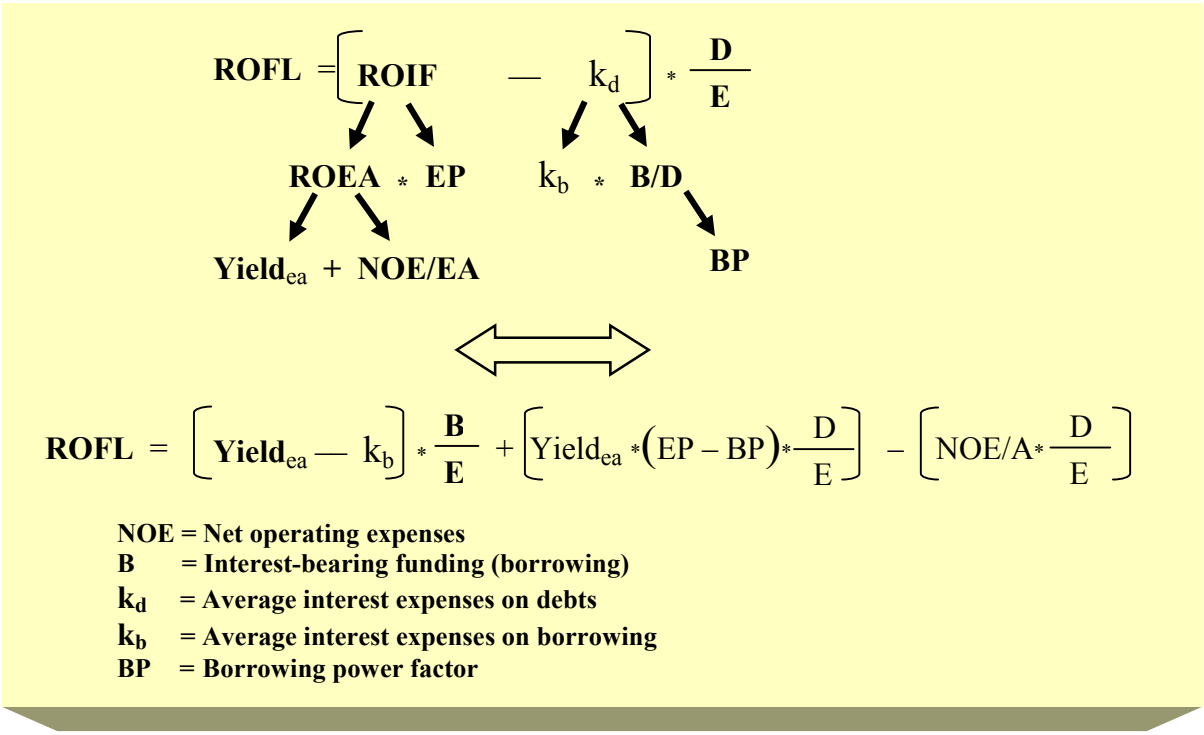

Figure 4 A decomposition of ROFL

As ROIF may be decomposed into the product of ROEA and an earning power factor, the average interest expenses (k_d) may divided into the product of interest expenses on interest-bearing funding or borrowing (k_b) and a borrowing-debt ratio (B/D). Just as the ratio of earning assets to assets is defined as the earning power factor, the ratio of interest-bearing funding to total debts can be regarded as the borrowing power factor (BP). The further composition of ROEA into the sum of earning asset yield and the net operating expenses (operating expenses – non-interest revenue) over earning assets, gives that ROFL comprises three components: the product of net interest income or the interest rate differential ($Yield_{ea} – k_b$) and a borrowing-equity ratio (B/E), a residual yield component that in principle is negative and a residual cost efficiency component that may in fact be quite substantial.[8] In this context the first component is the most relevant one. It may be referred to as the return on interest rate differential or interest-spread leverage (RISL).

The banks' RISL is presented in Table 12.

[8] The residual component is almost always negative. The earning power factor will in most cases be lower than the borrowing power factor, since banks are not allowed to invest all their funds in interest-bearing assets. In the case EP = BP, i.e. the earning assets is equal to total assets at the same time as the interest-bearing borrowings are equal to total debts, there will of course not exist any residual yield component.

Table 12 Average return on the interest-spread leverage (1995-99)

Country	Commercial banks		Savings banks	
	RISL	*Std dev*	*ISL*	*Std dev*
Denmark	34.4%	15.4%	31.3%	8.2%
Norway	32.0%	12.0%	23.6%	7.4%
Sweden	42.9%	24.3%	25.5%*	8.2%*

** Averages for 1997-1999*

From Table 12 it is possible to make a clear distinction between commercial banks and savings banks in Scandinavia during the second part of the 1990s. The commercial banks have relied more heavily on the return on interest-spread leverage than did the savings banks. The much higher volatility in the returns implies that they were considerably more exposed to financial risks. The Swedish commercial banks appear to be particularly risk exposed. This becomes even more evident when also considering their relatively low average net interest margin between 1995-1999 (se Table 5). This margin or interest-spread of only 2.4% is thus multiplied with a borrowing-equity leverage multiplier of almost 18 times (42.9% / 2.4%). In a weakening economy this might very quickly turn the banks' high returns on equity into low returns. In this respect the savings banks in each of the three countries look more confident.

Conclusions

After the deregulations of the financial markets in the 1980s many Scandinavian banks took on considerable financial risks in order to obtain economic value added for stakeholders. For several of the banks this turned out to be a fatal strategy that resulted in substantial credit losses and diminishing economic values. The natural market response was an intensified merger and acquisition activity within the banking industry. The progress in IT-technology and the on-going integration process within the EU has lead to a further and extended consolidation of the industry during the end of the 1990s. Banks are now merging across borders in the search for scale economy from having a larger home market.

In this paper the returns of commercial banks and savings banks in Denmark, Norway and Sweden have been analysed from a risk perspective on the basis of available accounting data concerning the second half of the 1990s. The analysis is still preliminary and the findings as well as the conclusions may, thus, be premature to a certain extent.

An important aim of the paper has also been to demonstrate how a bank's financial performance may be analysed in the framework of key ratios based on

accounting data. It has been shown how the return on equity (ROE) may be broken down into two components. The first component, ROIF, is mainly related to the bank's asset management, whereas the second one, ROFL, provides information about the state of its liability management. Furthermore, it has been demonstrated how these components or key ratios may be further decomposed into additional subcomponents providing even more detailed information about the bank's earning capacity and financial risk exposure.

Based on the (preliminary) results of the study, we may conclude that the commercial banks in general and the Swedish ones in particular have been more profitable than the other banks in terms of ROE. Considering the difference in size of the banking groups, these findings lend support to the rationale of the merger or growth strategy applied by many banks. The commercial banks and, then again, especially the Swedish commercial banks, were substantially larger than the savings banks on an average asset basis. However, at the same time the commercial banks seem to have been more risky in terms of liability risks than the savings banks during the period studied. The more detailed decomposition analysis shows that the major part of the superior ROE of the commercial banks may be explained by a comparatively much higher ROFL. The banks' ROIF did only differ marginally between the banking groups. The analysis shows that the ROEs of the commercial banks were relying heavily on the volatile returns on interest-spread leverage (RISL).

The commercial banks had thus to a larger degree been utilising the leverage multiplier effect by taking on higher capital risks. Having in mind that the environmental conditions during second half of the 1990s were fairly stable with a growing economy, in retrospective the comparatively higher risk exposure of the commercial banks may be regarded as quite reasonable anyhow. In the case the overall economic conditions change, they must however adjust their risk-taking strategy. The question is what propensity they have to quickly make the necessary adjustments?

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Appendix

Table A1 The banks' ROE for each year during 1995-1999

Country	Commercial banks					Savings banks				
	1995	*1996*	*1997*	*1998*	*1999*	*1995*	*1996*	*1997*	*1998*	*1999*
Denmark	*18.6%*	*16.4%*	*12.2%*	*12.7%*	*10.3%*	*23.0%*	*18.9%*	*10.9%*	*10.9%*	*6.3%*
Norway	*19.8%*	*15.0%*	*17.0%*	*10.1%*	*18.2%*	*14.0%*	*12.8%*	*12.0%*	*9.5%*	*14.8%*
Sweden	*26.7%*	*30.7%*	*20.7%*	*16.9%*	*15.9%*	*n.a.*	*n.a.*	*19.2%*	*12.2%*	*9.4%*

Table A2 The correlation between the banks' ROFL and net interest margin

Country	Commercial banks					Savings banks				
	1995	*1996*	*1997*	*1998*	*1999*	*1995*	*1996*	*1997*	*1998*	*1999*
Denmark	*0.28*	*0.33*	*0.25*	*0.32*	*0.30*	*0.28*	*0.43*	*0.03*	*0.10*	*0.20*
Norway	*-0.15*	*0.46*	*0.40*	*0.34*	*0.73*	*0.31*	*0.42*	*0.26*	*0.23*	*0.05*
Sweden	*0.42*	*0.15*	*-0.01*	*-0.06*	*-0.38*	*n.a.*	*n.a.*	*0.28*	*0.09*	*0.19*

Table A3 The correlation between the banks' ROFL and capital risk-taking

Country	Commercial banks					Savings banks				
	1995	*1996*	*1997*	*1998*	*1999*	*1995*	*1996*	*1997*	*1998*	*1999*
Denmark	*0.11*	*-0.22*	*-0.25*	*-0.36*	*-0.50*	*0.22*	*0.10*	*-0.38*	*-0.34*	*0.07*
Norway	*-0.39*	*-0.16*	*-0.95*	*-0.82*	*-0.54*	*-0.18*	*0.00*	*-0.08*	*-0.24*	*-0.46*
Sweden	*-0.21*	*-0.38*	*0.42*	*-0.71*	*-0.09*	*n.a.*	*n.a.*	*0.08*	*0.13*	*-0.02*

Table A4 The correlation between the banks' ROIF and credit risk-taking

Country	Commercial banks					Savings banks				
	1995	*1996*	*1997*	*1998*	*1999*	*1995*	*1996*	*1997*	*1998*	*1999*
Denmark	-0.28	-0.37	-0.33	-0.09	-0.08	0.13	-0.16	0.32	0.39	0.04
Norway	-0.42	-0.57	0.76	0.56	0.70	-0.29	-0.27	-0.14	-0.34	-0.15
Sweden	0.27	0.43	0.14	-0.25	-0.40	n.a.	n.a.	-0.12	-0.31	-0.26

Table A5 The correlation between the banks' ROIF and liquidity risk-taking

Country	Commercial banks					Savings banks				
	1995	*1996*	*1997*	*1998*	*1999*	*1995*	*1996*	*1997*	*1998*	*1999*
Denmark	0.18	-0.13	0.36	0.27	0.03	-0.26	-0.15	0.10	-0.10	0.01
Norway	-0.50	0.03	-0.30	-0.27	0.17	0.02	0.09	-0.04	-0.32	-0.13
Sweden	n.a.	-0.58	-0.92	-0.56	-0.91	n.a.	n.a.	-0.28	-0.12	-0.21