

# Capital Structure Policy Decisions in Nordic Listed Firms

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## Abstract

*In this paper we report the results from a survey among all publicly listed Nordic firms on their policy decisions concerning their capital structure. We find that more than 60 percent of the companies have a rather or relatively flexible debt target, whether a strict target or no target, and find support for both firm characteristics as well as behavioral variables. We also study the link between capital structure policy and dividend policy, and find that dividend-paying firms as well as firms which state that they have a definite dividend policy are more likely to also have a stricter debt target. These results indicate that more research should be done on the joint setting of capital structure and dividend policies.*

**Keywords:** corporate finance, capital structure, debt target, dividend policy, Nordic, Nasdaq OMX

**JEL Classification:** G31, M21, O16

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## 1. Introduction

A dominating strand in research concerning corporate capital structures has been the study of the determinants of an implicit optimal capital structure, and the speed of the adjustment towards such a target (see, e.g., Frank and Goyal (2009), Faulkender et al. (2012), and McMillan and Camara (2012)). As such, many of the empirical studies have been aimed at providing support for a particular theory of capital structure; such as the trade-off theory with taxation and bankruptcy costs, or the pecking-order theory. The results indicate that companies seem to aim towards some target, but are slow to change their capital structure for various reasons. Frank and Goyal (2009) identify six core factors which seem to get consistent signs and significance in explaining the variation in market-based leverage ratios<sup>1</sup>.

More recently, the existence of a target leverage ratio has been questioned in studies providing support for a path dependent capital structure, generated e.g. as the cumulative outcome of past attempts to time the equity market (e.g. Baker and Wurgler (2002), Welch (2004), and Hennessy and Whited (2005)). A few papers have also looked at behavioral determinants of leverage decisions (Barros and Silveira (2007), Frank and Goyal (2007)). However, there are only few papers (e.g., Graham and Harvey (2001)) that ask the company directly whether or not they have a target capital structure, and how strict it is.

In this study, we utilize a comprehensive survey of Nordic firms to study factors affecting capital structure decisions, and contribute by studying the determinants for the strictness of a capital structure target. We also contribute by analyzing how managerial factors may affect the firm's policy choices. We study both the role of the Chairman's age on the strictness of the capital structure target, as well as the link between a defined dividend policy and the strictness of the capital structure target. Such a link may e.g. be seen as an example of "managerial fixed effects" if more control ori-

ented managers tend to introduce more formal policies for both of them. Finally, we investigate determinants of more complex financial policies: the choice between short and long term debt, issuing seasoned equity and convertible debt. Our results are based on a survey conducted among the Chairmen (CMs) and the financial managers (CFOs) of the companies listed on the Nordic stock exchanges. The results are combined with financial data on the actual characteristics and performance of the firms, and behavioral data on the respondent (age).

We find that more than 60 percent of the companies have a relatively flexible debt target, whereas a strict target or no target at all is approximately equally common among the rest of the companies. When studying the determinants of the strictness of the capital structure target, we find support for both firm characteristics such as profitability and solidity, but also for variables of a more behavioral nature: the Chairman's age, and firm age. We also find support for the joint setting of capital structure and dividend policies in line with Faulkender, Milbourn and Thakor (2006). A stricter capital structure policy is more likely in dividend paying firms as well as in firms which according to the questionnaire responses have formulated a definite dividend policy.

In addition, we study the self-proclaimed importance of alternative explanations for the respondents' choice for the appropriate level of debt as well as the choice between long-term and short-term debt, convertible debt vs. straight debt and the decision to issue new equity. Our results show in line with Graham and Harvey (2001) that long-term debt is used over short-term debt mostly as a hedge against the possibility of facing insufficient funds. In contrast to Graham and Harvey (2001) US findings, however, debt rating considerations clearly plays a less important role for Nordic firms. We conjecture that this result simply reflects the more predominant use of non-rated debt financing such as bank debt.

<sup>1</sup> The six factors are median industry leverage, market-to-book assets ratio, *asset tangibility*, *profits*, *log of assets* (firm size) and *expected inflation*.

We document relatively high willingness to issue equity (35.5%) or convertible debt (20.8%). Consistent with Graham and Harvey (2001) firms carefully consider earnings per share dilution. Access to alternative sources of funds before undertaking a stock issue was found to be relatively more important than in the Graham and Harvey (2001) sample. Taxation or industry level debt-ratio benchmarking were not found to drive leverage choices. Interestingly, convertibles were seen as a source of cheaper debt (compared to straight debt) and as causing less earnings dilution than seasoned equity offerings.

The remainder of this paper proceeds as follows. The testable hypotheses are developed in the second section. The sample and survey method are discussed in section three. In section four we present the results together with discussion of their implications. The final section offers conclusions and some suggestions for further research.

## 2. Literature review and hypothesis development

Early research on optimal capital structure focused on the development of a model for optimal leverage. More recent research has studied the choice of the target, whether firms adjust towards this optimum and what is the speed of adjustment. Results have shown that the costs of leverage and adjustment play a major role in setting the target leverage as well as the speed of adjustment towards this target (Faulkender et al. (2012)). Berk, Stanton and Zechner (2010) suggest that the debt target is related e.g. to management compensation. Other studies have found that the leverage level is associated with firm's size and profitability, corporate tax rate, agency costs, expected inflation, and the tangibility of firm's assets (see, e.g., Rajan and Zingales (1995), Frank and Goyal (2009)). In addition, the timing of the market affects the decisions (see Baker and Wurgler (2002), Hennessy and Whited (2005)), even to the extent that one can question the existence of an actual target capital structure. On the other

hand, Kayhan and Titman (2007) not only report evidence on links between the capital structure and external capital raised, but also find that over long horizons, such effects are partially reversed, and capital structures tend to move towards target debt ratios consistent with the tradeoff theories of capital structure.

Despite the focus on the question of the existence of a target debt ratio, relatively few studies have looked at the strictness of such a ratio. Graham and Harvey (2001) is one the exceptions. They report that 19% of their respondents (CFOs) declined following a target debt ratio, 37% indicated having a flexible target, 34% a somewhat stricter target, while the remaining 10% committed to a strict target debt ratio. Large firms were more likely to have target debt ratios, while targets were stricter among investment-grade and regulated firms. In this paper, we contribute to the general question concerning the existence of a target capital structure by reporting survey results for Nordic listed firms concerning the strictness of their target leverage ratio.

We will also contribute by studying the determinants of a target capital structure. We are especially interested in two sub-questions concerning such determinants: the question of managerial effects, and the links to a defined dividend policy.

Our first sub-question relates to the interesting line of studies looking at managerial effects on leverage decisions. Frank and Goyal (2007) study the effect of top managers on corporate financial decisions. They find that differences among CEOs account for a great deal of variation in leverage among firms, as exemplified by a strong fixed effect associated with the CEO in a leverage regression. They also find that CEO incentives are associated with leverage adjustment speeds, and that when a CEO leaves, leverage typically drops. Also some CEO characteristics seem to be associated with leverage. Most notable is the negative relationship between CEO tenure and leverage. Although some such characteristics are significant, the authors note that they do not account for all that much of the variation in the data. The CFO also seems to be playing an important role.

Also Barros and Silveira (2007) provide evidence of managerial fixed effects on corporate policies in Brazil, especially on the link between manager changes and variations in capital structures. On the other hand, Graham and Harvey (2001) found that targets were considered as important when the CEO had a short tenure or was young.

A lower leverage ratio in firms with an older manager would be in line with “behavioral consistency theory”<sup>2</sup>, which suggests that an individual behaves in a consistent manner across different comparable situations. Cronqvist, Makhija, and Yonker (2012) find support for the behavioral consistency in the form of a match between the personal leverage choices of CEOs, and their firms. If managers become more risk averse with age, as suggested e.g. by the results of Morin and Suarez (1983), and if they can influence the leverage decisions of the firm, a negative relationship between manager age and leverage level might be expected. Managerial risk aversion is also likely to play a role if costs associated with readjustments of optimal leverage ratio disproportionately affect managers personally, as is often the case in large scale cost cutting programs involving layoffs and asset sales or liquidations. Risk averse managers are therefore also more likely to minimize disutility arising from painful down-sizing by controlling excessive leverage ex ante by the means of a stricter capital structure target, since the alternative (a flexible debt policy) would require a willingness to allow significant increases in the debt ratio in times of financial distress. Such temporarily high leverage ratios may cause disutility especially for older CEOs as the high leverage state may persist over their remaining tenure. Thus, we hypothesize that older CEOs, due to a higher risk aversion, prefer strict low-debt ratio policies to flexible low-debt policies since they minimize the (personal) total costs of financial distress for the managers. Debt policy strictness does require operative efficiency and careful liquidity maintenance but these costs appear in small doses over time rather than full scale layoffs and restructuring decision. The strict

low-debt ratio policy thus minimizes costs in both dimensions for the seasoned manager. For these reasons, in gauging the determinants for debt policy strictness, it is important to separate out the effect of the level of leverage, which we do.

Our data includes questionnaire results concerning the firm’s policy, answered by the Chairman of the board. A positive association between strictness of debt policy and age of the board Chairman is therefore consistent with a managerial risk aversion effect. Our first specific hypothesis of interest is thus:

H1: Companies with an older Chairman of the board are more likely to have a stricter target capital structure.

Our second sub-question deals with the combined existence of a dividend and a capital structure policy. To our knowledge, there are few studies looking at such links. Faulkender, Milbourn, and Thakor (2006) present an integrated theory for the capital structure and dividend policy choices, where they find both of these determined as implicit governance mechanisms. They also generate testable predictions from the theory and test them, obtaining strong support for the integrated approach i.e. that the two policies are jointly determined. However, between firms, different combinations of capital structure and dividend targets may be optimal.

We argue in the spirit of Faulkender, Milbourn, and Thakor (2006) that shareholders want to minimize total agency costs through carefully coordinated dividend and debt policies. Commitment to an explicit (minimum) dividend payout policy helps reduce managerial agency costs by constraining the amount of free cash flow at the discretion of managers. Adopting a higher target debt ratio (above the level dictated by trade-off-theory) has a similar effect. On the other hand, setting the target debt ratio too high increases costs of debt due to increased expected bankruptcy costs. However, a higher target debt ratio increases agency costs of debt due to increased expected bankruptcy costs. Creditors typically

<sup>2</sup> See e.g. Allport (1966), Epstein (1979), and Funder and Colvin (1991).

protect themselves by imposing solidity requirements e.g. through EBITDA-to-debt-ratio and dividend payout controls, constraining the firms' use of dividend policy to reduce managerial agency costs. Hence, firms committed to a strict debt policy may face difficulties in complying with a minimum target dividend. Would it then not be optimal for firms to choose a flexible debt policy? Not necessarily, because a strict target leverage policy signals lower agency costs of debt through the firm's commitment to cutting costs / selling assets upon income shocks in order to restore the chosen leverage ratio. A joint optimization of dividend and debt policies may thus be required in order to minimize total agency costs. We expect a positive relation between the existence of a firm's dividend policy and the strictness of its debt policy.

H2: Companies with a defined dividend policy are more likely to have a stricter debt-to-equity / capital structure target.

### 3. Data

#### 3.1 The survey data

This paper is based on the data collected as part of a research project in which a broad questionnaire was directed to Chairmen of the Board, Chief Executive Officers (CEOs) as well as Chief Financial Officers (CFOs) of all publicly listed firms in the Nordic countries (i.e., Denmark, Finland, Iceland, Norway, and Sweden). Different questionnaires were sent to the three respondent groups, although the questionnaires shared some common questions. Here we utilize the responses concerning the capital structure; such questions were only posed to the Chairmen (concerning firm policies) and the CFOs (concerning practical implementation).<sup>3</sup> The reason for the choice of Chairman as the respondent on policy questions (as opposed to the CEO) is that the overall policy

choices are typically made in the firm's Board of Directors. It is the firm's Board which suggests the dividend to the Annual Shareholders Meeting, and also sets the main KPIs (Key Performance Indicators) for the management, among which a leverage target may well be included. We feel that the Chairman is therefore the best person to answer questions concerning whether the firm has or has not a strict target capital structure. Since it above all is the CFO who implements the capital structure decisions, the questions of a more practical nature (such as which factors affect capital issuance decisions) were directed to the CFO. Appendix 1 of this paper lists the questions from the questionnaire which are analyzed in this study, and to whom they were directed to.

The survey was conducted in two stages. In the first stage, after the questionnaire design had been completed<sup>4</sup>, the questionnaire was sent to the respondents in the Nordic firms listed on the exchanges operated by the OMX (now NASDAQ OMX), i.e. in Denmark, Finland, Iceland, and Sweden. This took place in early December 2007. In the second stage, in May 2008, the questionnaire was also sent to the respondents in the firms listed at the Oslo Børs in Norway. The questionnaire was sent as a letter directed to a named respondent. The names and addresses of the respondents (i.e. the Chairmen of the Board and the CFOs) were hand-collected into a database. As a result, the questionnaire was sent to 780 Chairmen and 711 CFOs. The number of CFOs was smaller as some of the firms were lacking a specific CFO.

The respondents were promised total anonymity i.e. the responses and the respondent's identity is only available to the researchers and the results are reported only as a group. Table 1 reports the response rates across countries and respondent groups. The overall response rate among the Chairmen and CFOs was 21.1%, ranging from 11.2%

<sup>3</sup> For additional information about the survey, see Brunzell, Liljebloom, and Vaihekoski (2013), who study the responses regarding the investment evaluation methods.

<sup>4</sup> As a natural part of the questionnaire design process, it was pilot-tested on subsets of executives and board members and like both in Sweden and in Finland.

TABLE 1. Descriptive statistics for the response rates

Descriptive statistics are reported for the responses received from Chairmen (CM) and Chief Financial Officers (CFOs) for our survey sent to all companies listed at the Nordic Stock Exchanges at the end of 2007 (except for Norway) and in May 2008 (Norway). A total of 780 companies were included and 1491 surveys sent (780 to CM and 711 to CFOs).

	CM	CFO	SUM
<b>Panel A: Number of responses</b>			
Denmark	36	32	68
Finland	18	24	42
Iceland	4	6	10
Norway	20	24	44
Sweden	80	71	151
TOTAL	158	157	315
<b>Panel B: Response rates (%)</b>			
Denmark	19.1 %	25.0 %	21.5 %
Finland	13.8 %	18.8 %	16.2 %
Iceland	18.2 %	33.3 %	25.0 %
Norway	10.6 %	12.9 %	11.2 %
Sweden	31.7 %	28.3 %	30.0 %
ALL	20.3 %	22.1 %	21.1 %

for Norway to 30.0% for Sweden.<sup>5</sup> The CFOs were in relative terms more active respondents (22.1% vs 20.3%), but due to the differences in population sizes, the overall number of responses was almost the same for both categories of respondents (158 for the Chairmen, 157 for the CFOs).

### 3.2 Background data

The responses were matched with background information on firm financials. The financial data is collected from three sources. Our primary source is the Amadeus database which is augmented with additional items from Datastream, when the information was not available in Amadeus. Finally, annual reports downloaded from the web have provided an additional data source in cases where information has not been available in other databases. The financials are from the last reporting year

completed prior to the questionnaire was sent out, i.e. they are mainly from the year-end 2006 for Denmark, Finland, Iceland, and Sweden, and from 2007 for Norway. Year-end exchange rates have been used to convert all financial items to the same currency, euro. Financial data was collected not only for responding firms, but also for the whole market, to facilitate relating our sample to the whole population of the survey. Table 2 Panel A reports descriptive statistics for firms from which either the Chairman or the CFO or both answered and for the whole population. Statistics are provided separately for financial and non-financial firms.<sup>6</sup>

Table 2 Panel A shows that our firms are marginally larger than the population of firms to which the questionnaire was sent. This holds both for the non-financial firms (223 in our sample) as well as for the financial firms (48 firms in the sam-

<sup>5</sup> The response rate is fairly typical to this kind of surveys. For example, Graham et al. (2013) had response rates equaling approximately six and eleven per cent in their survey among CEOs and CFOs, respectively.

<sup>6</sup> The value of solidity is not reported for the financial firms due to the cross-sectional differences in how it is reported for different firms.

ple) for all size related variables. Our non-financial firms are also less profitable (lower Return on Assets i.e. ROA), whereas our sample of financials are marginally more profitable. The differences are, however, fairly small and not statistically significant. We therefore conclude that our sample represents the total population quite well and that the results are not biased.

## 4. Results

### 4.1 The determinants of the strictness of the capital structure target

We asked the Chairmen (CM) whether the company has a target range for the debt (to equity) ratio. Four alternatives were given: ‘no target range’, ‘flexible target range’, ‘somewhat tight

TABLE 2. Descriptive statistics for responding firms and the target population  
 Panel A lists descriptive statistics for the listed firms in Denmark, Finland, Iceland, Norway and Sweden that were targeted in the survey (the “Population”, 780 firms), as well as for the responding firms (the “Sample”, 271 firms) from which we received a filled-in questionnaire from either the Chairman (CM) or the CFO or both. The firms are divided into Financials (banks, investment and insurance companies) and Non-financials based on the sector codes used by the OMX exchanges and Oslo Børs. We report averages, medians, standard deviations, and the number of firms for which the financial information item has been obtained (“Obs”) for the following variables: Turnover (in 1000s of euros), number of employees, total assets (in 1000s of euros), return on total assets (ROA, defined as Net Profit to Total Assets), and solidity (Equity to Total Assets). Panel B lists descriptive statistics for additional non-survey based variables for the CM sample, utilized as such or in logarithmic form later in Table 4: Market-to-book (market value of equity over book value), Past\_12m\_sales\_growth (percentage change in annual sales), firm age, CM\_age, and Div\_pay (a dummy for dividend paying firms). The financial data applies to the last available reporting year prior to the date that the questionnaire was sent out (typically 2007 for Norway and 2006 for the others). The data was collected from Amadeus, Datastream, and companies’ annual reports and converted to Euros.

PANEL A.		NON-FINANCIALS		FINANCIALS	
		SAMPLE	POPULATION	SAMPLE	POPULATION
<b>Firms</b>		<b>223</b>	<b>615</b>	<b>48</b>	<b>165</b>
Turnover, 1000 EUR	Mean	1 465 672	1 058 814	738 748	543 775
	Median	106 970	101 826	56 188	53 981
	St. dev.	5 177 398	3 939 259	2 100 735	2 039 941
	Obs	222	604	48	142
Number of employees	Mean	5 124	4 405	1 656	1 520
	Median	439	396	190	135
	St. dev.	18 341	22 460	4 849	4 679
	Obs	222	569	48	139
Total assets, 1000 EUR	Mean	1 470 660	1 049 915	15 925 718	12 379 270
	Median	124 374	102 364	688 923	570 934
	St. dev.	5 007 730	3 696 905	56 367 197	53 042 764
	Obs	222	615	48	165
ROA, percent	Mean	3.48	4.22	5.99	5.95
	Median	6.99	6.40	3.06	2.40
	St. dev.	18.67	16.28	7.67	9.64
	Obs	221	613	48	162
Solidity, percent	Mean	47.12	49.07		
	Median	44.67	45.58		
	St. dev.	20.36	20.11		
	Obs	220	610		

  

PANEL B.	MARKET-TO-BOOK	PAST_12M_SALES_GROWTH	FIRM_AGE	CM_AGE	DIV_PAY
Mean	4.0307	0.3322	32.34	58.88	0.7594
Median	2.4250	0.1447	20.00	61.00	1.0000
St.dev.	6.6770	1.1317	29.77	7.84	0.4287
Obs	152	152	158	154	158

target range', and 'strict target range'. The results are reported in Panel A of Table 3.

Out of the 158 responses from the CMs, thirteen did not answer this question. Out of the 145 answers, 28 (19.3%) companies indicated that they

do not have a target debt ratio. Most of the companies (80.7%) have a target range for their debt ratio, where 39 (26.9%) have a flexible target ratio, 49 (33.8%) have rather flexible target ratio, and 29 (20.0%) have a strict target debt ratio. Analyzing

TABLE 3. Target range for debt ratio

Chairmen were first asked whether the company has a target range for the debt ratio. Four alternatives were given (no target, flexible target, somewhat flexible target, strict target). Then they were asked to indicate the degree to which the given factors contribute to the debt target. CFOs were also asked the same question. Answers were given on a scale from 1 (not important) to 5 (very important). Panel A reports the results about the existence of the policy. Panels B and C report the respondents' opinions on the given set of factors influencing the debt level. Results are given first for the Chairmen, then for the CFOs. N and Nempty are the total number of respondents with non-empty or empty reply, respectively.

		N	NO TARGET	FLEXIBLE	MEDIUM	STRICT
<b>PANEL A: TARGET RANGE FOR DEBT RATIO</b>						
All	N (empty)	145 (13)	28	39	49	29
	% of all		19.3%	26.9%	33.8%	20.0%
Denmark		32	28.1 %	25.0 %	28.1 %	18.8 %
Finland		18	5.6 %	27.8 %	38.9 %	27.8 %
Iceland		4	0.0 %	0.0 %	75.0 %	25.0 %
Norway		18	16.7 %	44.4 %	22.2 %	16.7 %
Sweden		73	20.5 %	24.7 %	35.6 %	19.2 %
<b>PANEL B: FACTORS, CM</b>		N	MEAN	MEDIAN	STD. DEV.	N <sub>EMPTY</sub>
Financial flexibility		150	4.39	4	0.55	8
Financing operations		144	4.08	4	0.99	14
Volatility of earnings/cash flows		139	3.49	4	1.09	19
Credit rating		139	3.27	4	1.24	19
Costs and fees of issuing debt		133	2.75	3	1.10	25
Tax advantage (interest)		139	2.72	3	1.12	19
Costs of distress/bankruptcy		130	2.67	2	1.43	28
Debt level of competitors		137	2.30	2	1.06	21
Personal tax on interest		131	2.18	2	1.04	27
Debt high enough to avoid being a takeover target		134	2.01	2	1.05	24
<b>PANEL C: FACTORS, CFO</b>		N	MEAN	MEDIAN	STD. DEV.	N <sub>EMPTY</sub>
Financial flexibility		141	4.22	4	0.71	16
Financing operations		143	3.87	4	1.04	14
Volatility of earnings/cash flows		137	3.39	4	1.13	20
Stock valuation		135	2.84	3	1.13	22
Costs and fees of issuing debt		132	2.70	3	1.10	25
Credit rating		129	2.61	3	1.29	28
Tax advantage (interest)		132	2.47	2	1.12	25
Costs of distress/bankruptcy		132	2.33	2	1.22	25
Debt level of competitors		133	2.26	2	1.02	24
Debt high enough to avoid being a takeover target		130	1.77	2	0.89	27
Personal tax on interest		129	1.67	1	0.84	28

the results country-by-country reveals no major differences between different nations, perhaps with the exception that Finnish and Icelandic companies being more likely to lean toward stricter target range in their capital structure. The results are rather similar to what Graham and Harvey (2001) found. In their sample of US firms, 19% of the firms did not have a target debt ratio, whereas 81% do. However, they found that only 10% (vs. our 20.0%) of the firms have a very strict target, and 37% had flexible and 34% rather flexible target (range).

In order to test for the determinants for the strictness of the target capital structure, and to test our two specific hypothesis, we estimate an ordered probit model where the dependent variable, *Strict\_cap\_struct*, gets a value from one to four depending on the strictness of the target range for the debt levels. As explanatory variables in the base-case, we include financial control variables also familiar from prior studies of the determinants for leverage levels (Rajan and Zingales (1995), Baker and Wurgler (2002)).

First, we include profitability, size and solidity. Profitability is measured as the return on total assets, *ROA*. More profitable firms have higher degrees of freedom for the choice between how much to leave in the firm (how much to invest) and how much to pay out, and may also have higher agency costs due to higher free cash flows. They may therefore need to solve the agency problem by more explicit policies for capital structure and payout (including e.g. an upper limit for equity-to-assets). We expect a positive sign for *ROA*. Size in turn is measured by the logarithm of annual turnover, **ln(turnover)**. We expect a negative sign for size, since larger firms have a better access to capital market and may therefore have a smaller need for strict capital structure targets. *Solidity* is measured as equity to total assets. We expect that the debt target is stricter in more leveraged firms, due to creditor control and thereby induced incentives to restrict agency costs of debt. This is in line with the results in Graham and Harvey (2001), where the respondents (CFOs) told that the companies may issue equity to maintain a target debt-equity ratio especially if the firm is highly levered.

We also include *Market-to-book*, measured as the market value of equity over its book value, and *Past\_12m\_sales\_growth*, measured as the change in sales between those reported in the last annual report and the report before that. In empirical leverage regressions, both of these have been found to correlate negatively with leverage (see e.g. Baker and Wurgler (2002)). However, for our model for the strictness of the capital structure target, we do not have explicit expectations for these. We also include the logarithm of the age of the firm, *ln\_firm\_age*. We expect that stricter capital structure targets have been more in need in times with less developed capital markets. By the inclusion of firm age we want to test whether these is a tradition in older firms for fixing stronger targets.

Finally, we include our main variables of interest, *ln\_CM\_age*, the logarithm of the age of the Chairman of the board at the time of the survey (i.e. the respondent to the survey questions on capital structure and dividend policy), and *Div\_policy\_dummy*, a survey variable taking the value of one if the Chairman has indicated that the firm has a defined dividend policy. With the inclusion of *Div\_pay* we test whether capital structure policies are more or less common in dividend paying firms. Table 2 Panel B reports descriptive statistics for the additional non-survey related variables (in addition to those in Panel A of Table 2) used in our estimation.<sup>7</sup>

The tested model is an ordered probit model (estimated using maximum likelihood with robust standard errors) of the following type:

$$\begin{aligned}
 \text{Strict\_cap\_struct}_i = & \beta_0 + \beta_1 (\text{FIRM\_CHAR}_i) \\
 & + \beta_2 (\text{ln\_CM\_age}_i) + \beta_3 (\text{DIV\_POLICY}_i) \\
 & + \beta_4 (\text{Sector\_dummies}_i) + \beta_5 (\text{Country\_dummies}_i) + \epsilon_i,
 \end{aligned}
 \tag{1}$$

<sup>7</sup> A correlation matrix (not reported) for the variables used in our model reveals that the highest correlation between our explanatory variables is between *ROA* and *ln(turnover)* (0.41), followed by that between *ln(turnover)* and *Div\_policy\_dummy* (0.32), and *Past\_12m\_sales\_growth* and *Market-to-book* (0.30). Three other correlations exceed 0.2, most being below 0.1. A regression of *ROA* on all the other explanatory variables yields a VIF of 3.2, which is below the suggested critical levels for multicollinearity.

where  $FIRM\_CHAR_i$  is a vector of firm (i) variables including  $ROA$ ,  $\ln(\text{turnover})$ ,  $Solidity$ ,  $Market\text{-}to\text{-}book$ ,  $Past\_12m\_sales\_growth$ , and  $\ln\_firm\_age$ .  $DIV\_POLICY_i$  is a vector including  $Div\_policy\_dummy$ , a dummy taking the value of one if the respondent has indicated that firm  $i$  has a defined dividend policy, and zero otherwise, and  $Div\_pay$ , a dummy taking the value of one if firm  $i$  paid a dividend during any of the years around the questionnaire (2006 to 2008), and zero ot-

herwise. Among the 158 responses from Chairmen, 38 (24%) are from firms which obtain a value of zero for the  $Div\_pay$  variable. Sector dummies for banking and manufacturing as well as country dummies for Denmark, Norway and Sweden are also included.<sup>8</sup> The results are reported in Table 4.

Model I in Table 4 reports the results from a basic model with only the three main corporate control variables for which we have a clear

TABLE 4. Debt ratio target range strictness

Results from an ordered probit model are reported, where the ordinary dependent variable  $Strict\_cap\_struct$  can have values from zero to three (0 = no target value for debt/equity ratio, 1 = flexible target, 2 = somewhat tight target range, and 3 = strict target range). The explanatory variables are: Net profit over total assets ( $ROA$ ), the natural logarithm of turnover ( $\ln(\text{turnover})$ ), equity to total assets ( $Solidity$ ), market value of equity over book value of equity ( $Market\text{-}to\text{-}book$ ), the percentage change in annual sales between last two years ( $Past\_12m\_sales\_growth$ ), the logarithm of firm age ( $\ln\_firm\_age$ ), the logarithm of the age of the Chairman of the board ( $\ln\_CM\_age$ ), a dummy for firms paying dividends around the survey ( $Div\_pay$ ), and a dummy for firms indicating in the survey that they have a definite dividend policy ( $Div\_policy\_dummy$ ). Country dummies for Denmark, Norway and Sweden as well as for manufacturing and financial firms are included. Robust standard errors are used to calculate z-values (provided below the parameter estimates). \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels, one-sided tests. The Wald  $\chi^2$  and the Pseudo- $R^2$  are also reported.

EXPLANATORY VARIABLES	MODEL I	MODEL II	MODEL III	MODEL IV
<b>ROA</b>	0.0312 (3.46)***	0.0294 (2.89)***	0.0228 (2.07)**	0.0252 (2.34)**
<b><math>\ln(\text{turnover})</math></b>	-0.0695 (-1.30)	-0.0596 (-1.04)	-0.0766 (-1.39)	-0.1082 (-1.89)*
<b>Solidity</b>	-0.0169 (-3.02)***	-0.0165 (-2.89)***	-0.0158 (-2.76)***	-0.0162 (-2.79)***
<b>Market-to-book</b>		0.0175 (0.94)	0.0179 (0.92)	0.0143 (0.67)
<b>Past_12m_sales_growth</b>		0.0579 (0.69)	-0.0678 (-0.80)	0.1365 (1.51)
<b><math>\ln\_firm\_age</math></b>	0.2763 (2.39)**	0.2583 (2.10)**	0.2613 (2.10)**	0.2490 (1.89)*
<b><math>\ln\_CM\_age</math></b>	1.3718 (1.98)**	1.4735 (1.97)**	1.4579 (1.92)*	1.8642 (2.26)**
<b>Div_pay</b>			0.4779 (1.94)*	
<b>Div_policy_dummy</b>				1.0817 (3.91)***
Obs (N)	133	127	127	124
Sector dummies	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes
Wald Chi	45.44	49.59	50.53	59.99
Pseudo R <sup>2</sup> (%)	10.75	12.19	13.07	16.62

<sup>8</sup> This leaves two countries with close to identical coefficient estimates (if included and some other country left out) without a dummy. There are only 4 observations for Iceland. The results are robust to the inclusion of a dummy for Iceland as well.

expectation (*ROA*,  $\ln(\textit{turnover})$ , and *Solidity*). The behavioral variables of  $\ln\_firm\_age$  and  $\ln\_CM\_age$  are also included. We obtain expected signs for all of these, and all but size, are significant at least at the 10% level. Model II also includes the remaining firm characteristics, i.e. *Market-to-book* and *Past\_12m\_sales\_growth*. They obtain positive signs but are not significant in this specification. Next, we also include *Div\_pay* (in Model III), and *Div\_policy\_dummy*, the survey variable (in Model IV).<sup>9</sup> We find that the dummy for a defined dividend policy obtains a positive sign as expected, and is highly significant. Robustness tests reveal that it is significant in all specifications where included. In Model IV, also  $\ln(\textit{turnover})$  is significant at the 10% level.

We performed additional robustness tests of the models in Table 4. When the model is estimated only for the non-financial firms, the significance of some of the corporate characteristics decline, but both  $\ln\_CM\_age$  as well as *Div\_policy\_dummy* remain highly significant. However, also *ROA* and *Solidity* are significant also e.g. in Model I specification without financials. In the Graham and Harvey (2001) study, the respondents (CFOs) told that the companies may issue equity to maintain a target debt-equity ratio especially if ownership is dispersed. In additional robustness tests, our variables for ownership concentration (the percentage of equity owned by the five largest owners, or alternatively, a dummy for cases when the cumulative ownership of the five largest owners exceeds 20%), were insignificant with positive coefficient estimates, not supporting the result in Graham and Harvey (2001).

In this subsection, we reported the results from our survey concerning the responses to the question on the strictness of the firms' capital structure target, and performed tests of the determinants of policy strictness. We find that a stricter target capital structure is more common in profitable, and in leveraged firms. The latter is in contrast to Graham and Harvey (2001) who find no difference between the score for financial flexibility in firms with high

or low debt ratio. A simple interpretation may be that these are cases where the specification of either a maximum level for equity-to-assets, or a minimum one, may be required from owners (due to agency costs associated with free cash flow), or creditors, respectively. We also find support for managerial effects: a stricter capital structure target is more common if the Chairman is older. This finding is in line with managerial risk aversion affecting the choice of debt policy strictness. It is in contrast with Graham and Harvey (2001) who find no significant difference between financial flexibility scores between firms with younger or mature CEOs (the same conclusion holds for most other GH scores capturing aspects of debt policy strictness).

We also find that a stricter policy is more common in older firms, a finding that perhaps may also be addressed to behavioral / traditional reasons. Finally, we find that a stricter capital structure policy goes hand in hand with a dividend policy. Both the dummy for a dividend paying firm, as well as the response variable from the questionnaire, confirming the existence of a definite dividend policy, obtain significance in explaining the strictness of the capital structure target. The fact, that dividend policy variables retain their significance to debt policy strictness even in the presence of a leverage (level) control, supports the notion that dividend and debt policies often need to be coordinated jointly.

#### 4.2 The level of the capital structure target

We also asked both the CFOs and Chairmen to evaluate the importance of several alternative explanations to the selection of the appropriate level of debt for the company. A scale from one (not important) to five (highly important) was given for each explanation. Table 5 show the results, first for CM (Panel B) and then for CFOs (Panel C). The results show in line with Graham and Harvey (2001) that both CM and CFOs consider the financial flexibility and operational financing as the most important factors in deciding the appropriate amount of debt for the company. The

<sup>9</sup> The correlation between these two dividend variables is high (0.49), and hence they are not included in the same model.

TABLE 5. Short vs. long term debt

CFOs were asked what factors affect their company’s choice between short and long-term debt. Five alternatives were listed and they were asked to indicate whether the given factor’s importance. Answers were given on a scale from 1 (not important) to 5 (very important). *N* and *N<sup>empty</sup>* are the total number of respondents with non-empty or empty reply, respectively.

	N	MEAN	MEDIAN	STD. DEV.	N <sub>EMPTY</sub>
Use long-term to minimize risk of financial distress	142	3.47	4	1.13	15
Match maturity of debt and assets	136	3.21	3	1.18	21
Use short-term to wait long-term rates to decline	134	2.37	2	0.98	23
Long-term debt increases risk of taking on more risk project	129	2.09	2	0.88	28
Expect rating to improve, so short-term issued until happened	130	1.80	2	0.94	27

volatility of the earnings (cash flows) was third important aspect for both. On the other end, both respondent groups agreed that debt levels are not set to use it as way of avoiding the threat of being a target for a takeover nor for tax reasons.

Overall, our results here are quite consistent with Graham and Harvey (2001) who document that financial flexibility, credit play role, earnings/cash flow volatility and insufficient internal funds (in our case “operational financing”) are the four most important determinants of debt policy.

### 4.3 Short-term vs. long term debt

We asked the CFOs what factors affect their company’s choice between short and long-term debt. Five different potential reasons were given. Respondents were asked to evaluate each reason on a scale from 1 (not important) to 5 (very important). The results are provided in Table 5.

The most important factor is clearly the use of long term debt to minimize risk of financial risk (mean answer 3.47) which we interpret as meaning securing access to funds and locking in the cost of debt for a longer time thorough issuing fixed rate bonds. It is followed by the hope of matching the maturity of debt and assets (mean 3.21). Both explanations are clearly of strategic nature, whereas the two least important factors, use of short-term debt to wait long-term rates to decline (2.37) and wait with long-term issuance until rating has improved (1.80), are more of speculative nature.

### 4.4 Seasoned equity offerings

We also asked the CFOs whether their company had seriously considered issuing common stock during the last two years. If yes, they were further asked to evaluate potential factors that typically affect company’s decision to issue common stock. Ten different potential reasons were given and in case the respondents evaluated them on a scale from 1 (not important) to 5 (very important). The results are provided in Table 6.

Out of the 157 responses from the CFOs, thirteen did not answer this question. 54 (35.5%) of the companies had considered issuing common stock whereas 98 (64.5%) had not. This is almost similar to Graham and Harvey (2001) who found that 36% of their sample firms had seriously considered issuing equity. Earnings per share dilution and inability to obtain funds from other sources were found to be the most important contributing factors when considering the decision whether or not to issue common stock. Taxation and competitor’s debt-to-equity ratios were, on the other hand, found to be the least important contributing factors. Unlike in Graham and Harvey (2001) recent stock price increase or undervaluation were not rated as important reasons to issue equity.

### 4.5 Convertible debt

Finally, we asked the CFOs whether their company had seriously considered issuing convertible debt during the last two years. If yes, they were further

TABLE 6. Seasoned equity offering

CFOs were first asked whether the company has seriously considered issuing common stock. If yes, they were asked to indicate the degree the importance of the given factors in their choice of issuing stock. Answers were given on a scale from 1 (not important) to 5 (very important). Panel A reports the results for the first question. Panel B reports the results for the factors influencing the offering decision. N and Nempty are the total number of respondents with non-empty or empty reply, respectively.

PANEL A: CONSIDERED ISSUING		N	YES	NO	N <sub>EMPTY</sub>	
All	N	152	54	98	5	
	% of all		35.5%	64.5%		
PANEL B: FACTORS		N	MEAN	MEDIAN	STD. DEV.	NEMPTY
Earnings per share dilution		62	3.44	4	1.21	95
Our recent profits have not been sufficient to fund activities		58	3.19	4	1.32	99
Inability to obtain funds from other sources		60	3.05	3	1.36	97
Utilize high valuation		57	2.93	3	1.08	100
Maintain debt-to-equity ratio		60	2.93	3	1.23	97
Stock under/overvalued		58	2.62	3	1.23	99
Employee stock option plan		60	2.58	2	1.29	97
Dilute holdings of certain owners		58	2.52	2	1.33	99
Comparison to competitors debt-to-equity ratios		57	2.21	2	1.11	100
Taxation (capital gains tax vs. tax on dividends)		56	1.82	2	0.90	101

asked to evaluate potential factors that typically affect company’s decision to issue common stock. Eight different potential reasons were given and in case the respondents evaluated them on a scale from 1 (not important) to 5 (very important). The results are provided in Table 7.

Out of the 154 responses from the CFOs, 32 (20.8%) gave an affirmative answer and 122 (79.2%) negative answer. About one fifth of the companies have seriously considered convertible debt. The results are again almost similar to what Graham and Harvey (2001) found. In their sample 20% of the firms had seriously considered issuing convertible debt.

In Panel B, we can see that the most important factor contributing to the choice of convertible debt is the (conceived) notation that it is cheaper than debt. The second most important reason is that convertible debt avoids short-term equity dilution (against the alternative of SEO). This finding is consistent with the Graham and Harvey (2001) finding convertibles are seen as an inexpensive way to issue delayed equity. Successful con-

vertible issuances by other firms were not found important nor the aim to protect bondholders against managers and/or stockholders.

### 5. Conclusions

In this paper we analyze the results from a survey among all publicly listed Nordic firms on their policy decisions their capital structure. The results show that more than 60 percent of the companies have a relatively flexible debt target, whereas a strict target or no target at all is approximately equally common among the rest of the companies.

When studying the determinants of capital structure strictness, we find support for firm characteristics as well as variables of a behavioral nature. More profitable, and more levered firms are more likely to have a stricter capital structure policy. The latter finding is in contrast to findings in Graham and Harvey (2001). This finding may be interpreted as examples of cases where there is pressure for the specification of either a min-

TABLE 7. Convertible debt

CFOs were first asked whether the company has seriously considered issuing convertible debt or issued in the last two years. If yes, they were asked to indicate the degree the importance of the given factors in their choice of issuing convertible debt. Answers were given on a 1 (not important) to 5 (very important) scale. Panel A reports the results for the first question. Panel B reports the results for the factors influencing the offering decision. N and Nempty are the total number of respondents with non-empty or empty reply, respectively.

PANEL A: CONSIDERED ISSUING		N	YES	NO	N <sub>EMPTY</sub>	
All	N	154	32	122	0	
	% of all		20.8%	79.2%		
PANEL B: FACTORS		N	MEAN	MEDIAN	STD. DEV.	N <sub>EMPTY</sub>
Less expensive than debt		29	3.14	3	1.33	3
Avoid short-term equity dilution		31	3.03	3	1.40	1
Stock is undervalued		31	2.90	3	1.42	1
Ability to force conversion when need to		31	2.84	3	1.19	1
Attract investors		30	2.67	3	1.18	2
Others have used successfully		30	2.53	3	1.20	2
Protect bondholders against managers/ stockholders		31	2.23	2	1.15	1

imum or a maximum equity-to-assets level from creditors or owners due to agency problems of free cash flow.

We also find that the age of the respondent, the Chairman of the board, is significantly positively related to the strictness of the capital structure policy. This is in line with the “behavioral consistency theory” and the results of e.g. Cronqvist et al. (2012), suggesting a match between the choices of the firm and the manager, conditional on older managers being more risk averse (Morin and Suarez (1983)). We also find that a stricter debt target is more common in older firms.

We find support for a link between the strictness of the capital structure target and the firms’ dividend policy. Stricter debt targets are more common among dividend paying firms, and firms whose respondents indicate that the firm has a definite dividend policy. These results support the joint setting of capital structure and dividend policies (as presented in Faulkender et al. (2012)), and suggest that more research should be targeted to the joint analysis of these two.

In conclusion, regarding the overall capital structure policy, we find that CFOs emphasize the use of long-term debt over short-term mostly to minimize the risk of financial distress. Debt rating considerations play clearly a less important role in the companies. Many companies had considered seasoned equity offering (35.5%) or issuing convertible debt (20.8%). Earnings per share dilution and inability to obtain funds from other sources were found to be the most important contributing factors when considering the decision whether or not to issue common stock. Taxation and competitor’s debt-to-equity ratios were, on the other hand, found to be the least important contributing factors. On the other hand, the most important factor contributing to the choice of convertible debt is the conceived notion that it is cheaper than debt. The second most important reason is that convertible debt avoids short-term equity dilution – against the alternative of seasoned equity offering.

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**APPENDIX: The questions from the survey included in this study. Questions 1, 2 and 8 were directed to the Chairmen, and questions 2–7 to the CFOs.**

1. Does Your Company have a target range for Your debt ratio?

No target range      Flexible target range      Somewhat tight target range      Strict target range

                

2. What factors affect how You choose the appropriate amount of debt for Your Company?

	not important — very important				
	1	2	3	4	5
- Financial flexibility					
- Our credit rating (as assigned by rating agencies)					
- The tax advantage of interest deductibility					
- The volatility of our earnings and cashflows					
- The transactions costs and fees for issuing debt					
- The potential costs of bankruptcy or near bankruptcy financial distress					
- The debt levels of other companies in our industry					
- The personal tax cost that our investors face when they receive interest income					
- We try to have enough debt so that we are not an attractive target					
- To finance our operations					
- Stock price valuation					

3. What factors affect Your Company's choice between short- and long-term debt?

	not important — very important				
	1	2	3	4	5
- Matching the maturity of our debt with the life of our assets					
- Issuing long-term debt to minimize the risk of having financial distress					
- Issuing short term debt when we are waiting for long term market interest rates to decline					
- Expecting our rating to improve, so we borrow short term until it does					
- Borrowing long-term increases the risk of taking on more risk project					

4. Has Your Company seriously considered issuing common stock (in the last two years)?

Yes      No

      If No, skip the next question.

5. What factors affect Your Company's decisions about issuing common stock?

	not important		---	very important		
	1	2	3	4	5	
- Earning per share dilution						
- If our stock price has recently risen, the price at which we can issue is "high"						
- Maintaining a target debt-to-equity ratio						
- Providing shares to employee stock option plan						
- The amount by which our stock is undervalued or overvalued by the market						
- Diluting the holdings of certain shareholders						
- Whether our recent profits have been sufficient to fund our activities						
- Using a similar debt/equity ratio as is used by other companies in our industry						
- The capital gains tax rates faced by our investors (relative to tax rates on dividends)						
- Inability to obtain funds using other sources						

6. Has Your Company seriously considered issuing convertible debt (or issued debt in the last two years)?

Yes  No  If No, skip the next question.

7. What factors affect Your Company's decision to issue convertible debt?

	not important		---	very important		
	1	2	3	4	5	
- Ability to "call" or force conversion of convertible debt if/when we need to						
- Avoiding short-term equity dilution						
- Our stock is currently undervalued						
- Convertibles are an inexpensive way to issue "delayed" common stock						
- To attract investors unsure about the riskiness of our Company						
- Convertibles are less expensive than debt						
- Other companies in our industry successfully use convertibles						
- Protecting bondholders against unfavourable actions by managers or stockholders						

8. Does the Company have a defined dividend policy?

Yes  No