



Article

Firm Ownership and Enterprise Risk Management Implementation: Evidence from the Nordic Region

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Abstract: The purpose of this paper is to investigate whether firm ownership characteristics can explain demand for Enterprise Risk Management (ERM) implementation. Specifically, we examine the relationship between the presence of large shareholders, multiple blockholders and a dual-class share structure, and ERM implementation. To our knowledge we provide the first evidence on the effect of multiple blockholders and dual-class share structures on the implementation of ERM. ERM best practices can be considered as *governance tools*, used to monitor managerial discretion in risk management, ultimately reducing the agency cost of risk management. Accordingly, we analyze the demand for ERM in certain governance (e.g., ownership) settings. We use quantitative methods in our study: survey and regressions (tobit and logit models). Ownership data is hand-collected while ERM data comes from a survey conducted in the Nordic region. We find that ERM is implemented less frequently in firms where there are multiple blockholders, and where large controlling owners hold dual-class shares. These findings indicate that there is less demand for ERM's monitoring role in firms that are associated with high agency costs. Given the increasing use of dual-class share structures, we believe further examination of ownership characteristics and corporate risk management is warranted.

Keywords: Enterprise Risk Management; ownership structure; multiple blockholders; dual-class shares; large owners; agency cost

1. Introduction

As strategic, economic, and operational risks have increased, both regulators and market participants have increased demands that boards and management improve risk oversight (Securities and Exchange Commission 2010; Standard and Poor's 2012; National Association of Corporate Directors 2018). In response enterprise risk management (ERM) is an increasingly prevalent management practice that is used to coordinate a holistic risk management process across the whole enterprise. Anton (2018) suggests that there is a growing consensus among practitioners and academics that ERM represents the fundamental paradigm for managing the portfolio of risks confronting enterprises. Consistent with this view ERM implementation has steadily been increasing since 2000 driven by both external demands, such as those of regulatory agencies, and internal demands, such as boards' desire for best risk management practices (Hernández-Madrigal et al. 2020). In this paper, we examine the role that firm ownership characteristics have on internal demand for ERM implementation.

An advantage of ERM is that it provides a foundation for reducing the agency cost of risk management through monitoring managerial actions. An *agency cost of risk management* refers to any agency cost to shareholders resulting from the use of risk management tools to benefit managers'

own interests, for example by favoring a specific project that increases the manager's wealth at the expense of shareholders (Tufano 1998). In other words, ERM best practices can be regarded as a *governance tool* to monitor managerial discretion in risk management, ultimately reducing the agency cost of risk management. While monitoring of managerial actions is central to corporate governance (Fama 1980; Fama and Jensen 1983; and Mayer 1997), it is also central to enterprise risk management (Nocco and Stulz 2006). For example, the Committee of Sponsoring Organizations of the Treadway Commission (COSO) ERM framework (COSO 2017) suggests a number of specific activities that would increase monitoring; such as implementing a *board-level* risk committee that is responsible for the risk oversight of the firm, requiring management to submit a formal risk management report to the *board*, and having a formal written statement of the firm's risk appetite specified at the *board*. These ERM elements allow for more effective monitoring of managers' actions, leading to a reduction of the agency problem. We use these detailed elements of ERM, consistent with Paape and Speklè (2012) and Sekerci (2015) to construct our ERM variable.

The purpose of this paper is to investigate whether firm ownership can explain the internal demand for ERM implementation. Specifically, our objective is to understand whether the presence of (i) a large controlling owner, (ii) multiple blockholders, and (iii) a dual-class share mechanism affects the internal demand for implementation of ERM.

Literature suggests that large owners demand ERM's governance role in order to constrain managerial discretion in risk management (Shleifer and Vishny 1986) especially in settings where ownership is concentrated (Shleifer and Vishny 1997). On the other hand, large owners have the tendency to divert from their monitoring role and instead engage in extracting private benefits (Edmans and Holderness 2017), and thus may demand ERM less.

Multiple blockholders play an important role in ownership in civil-law countries, especially in the Nordic region. Many firms are not controlled by only one large owner, but rather by multiple blockholders (Faccio and Lang 2002). Despite their importance, the evidence on the implications of multiple blockholders on governance is still scarce (Edmans and Holderness 2017). While the ultimate implications of multiple blockholders on corporate risk taking is evident (Boubaker et al. 2016), the effect on ERM implementation has not been investigated. The literature indicates that either multiple blockholders are expected to improve governance (Pagano and Roell 1998; Maury and Pajuste 2005; Edmans and Manso 2011) in which demand for ERM would increase, or as a result of collusion between multiple blockholders, demand for ERM would be less (Zwiebel 1995).

Finally, we examine the ownership role that the dual-class share mechanism has on ERM implementation. The debate over dual-class shares has gained particular attention in the international corporate governance arena during the last decades, and the evidence on the value of dual-class shares is mixed (Govindarjan et al. 2018; Ravid and Sekerci 2020; Gompers et al. 2010; Cronqvist and Nilsson 2003). Accordingly, the literature suggests that either owners with dual-class shares are more committed to do monitoring and thus they would demand ERM more, or they can instead entrench and therefore the demand for ERM would be less. An additional benefit of examining dual-class shareholders is that the agency relationship between shareholders with different rights is less examined (Cumming et al. 2017).

We use a dataset constructed from a survey of how firms organize their risk management programs previously developed and used in Sekerci (2015). Our ERM measures use the responses from the survey, where the response rate was nearly 21%, and enables us to introduce more dimensions into ERM measurement capturing the complexity and distinguishing features of an ERM process. The data also provides valuable inside information on the risk management programs of firms, most of which otherwise would not be obtainable through publicly available information, such as information about 'risk appetite', an element of ERM that is typically not publicly available.

Our results overall suggest that some of the aspects of the firm's ownership determine the demand for ERM implementation. We find that firms with multiple blockholders have a lower demand for ERM process and ERM reporting. This is consistent with evidence from the literature that multiple

blockholders collude and increase agency costs, and thus in such a high-agency-cost environment, the demand for the governance role of ERM is reduced. Moreover, we show that there is a negative relationship between the use of a dual-class share structure and ERM. This result suggests that dual-share owners, who are typically family owners or large controlling insiders, do entrench and are thus reluctant to provide a policy for how the firm considers risks and the responsibilities of the board and management with respect to ERM.

This study contributes to the literature in the following two ways. First, to our knowledge, we are the first to show evidence on the relationship between the presence of multiple blockholders and ERM, and dual-shares and ERM. Our sample provides a unique setting to study multiple blockholders and dual-class share structure for two reasons. First, in our sample the third owner in the firm's ownership structure is a blockholder structure (i.e., owner holding minimum 5% of firm shares) on average, which is very representative of the Nordic region and Continental Europe (Boubaker et al. 2016). Second, approximately 31% of our sample firms employ dual-class shares, and this ratio is comparable to other Continental European countries, such as Switzerland (51%) and Italy (41%) (Faccio and Lang 2002).¹

The paper proceeds as follows. In Section 2, we review the literature and develop our research questions. Section 3 presents our survey design, data and methodology, and in Section 4 we discuss the empirical results. In Section 5, we provide concluding remarks.

2. Literature Review and Research Questions

It is widely accepted in the literature that ownership as a governance mechanism improves firm value and performance in various ways (Edmans and Holderness 2017). In this paper, we study the relationship between ownership and ERM in the Nordic region, which is representative for Continental Europe (Faccio and Lang 2002). The literature gives evidence from countries that are developing or developed and are from other parts of Continental Europe as well as the Far East. These studies provide evidence on the relationship between corporate governance (e.g., board composition, ownership structure) and firm performance (for the distinguishing governance features of other regions, see: Martín and Herrero 2018; Borlea et al. 2017; Achim et al. 2016; Phung and Mishra 2016; Yu 2013). This stream of the literature overall suggests that governance affects firm value and performance and this effect could potentially come from corporate risk management.

Due to their large investment in the firm, large controlling shareholders may benefit from an effective risk oversight program (Shleifer and Vishny 1986). To monitor enterprise risks and managerial actions and to reduce related agency costs, large shareholders have a desire to oversee and control managers closely.

The monitoring incentive of large concentrated owners might differ depending on the institutional setting (Mayer 1997). Shleifer and Vishny (1997) show that in the U.S., and the U.K. where legal frameworks that protect investors are sound, diffuse ownership is prevalent, whereas Nordic countries rely less on legal protections and more on large shareholders. According to Mayer (1997), large shareholders in civil-law countries experience greater returns in doing active governance, unlike diffuse shareholders in common-law countries. Moreover, the literature indicates that ERM is expected to increase firm value as it reduces agency costs (Hoyt and Liebenberg 2011; Baxter et al. 2013). Therefore, these arguments suggest that large controlling owners would demand ERM as a governance tool, thus acting as a complement to the largest owner's monitoring role.

A counter argument suggests that large controlling owners may have an undiversified ownership position in the firm (Dyck and Zingales 2004), hence they might engage in extracting private benefits

¹ Desender and Lafuente (2009) study the relationship between ownership and ERM in the *pharmaceutical* industry. Paape and Speklè (2012) examine whether the firm is managed by a controlling owner. As an ownership type, *institutional* ownership is studied extensively in the ERM literature (e.g., Liebenberg and Hoyt 2003; Pagach and Warr 2011; Paape and Speklè 2012; Gatzert and Martin 2015). Our sample does not include private firms which have unique ownership characteristics that effect the demand for ERM implementation (Mafrolla et al. 2016; Hiebl et al. 2019).

(Edmans and Holderness 2017). Based on this view, large owners may entrench and one would expect to see the demand for ERM implementation to be reduced in firms controlled by such owners (i.e., firms with high agency costs).

As a result of these two counter arguments, the relation between the presence of a large owner and the internal demand for ERM is therefore an empirical question and we investigate the following research question:

Research Question 1. *Is the presence of a large controlling owner associated with ERM implementation?*

More commonly, firms are not controlled by one blockholder, but by multiple blockholders. This is especially common in the Nordic region and Continental Europe (Faccio and Lang 2002; Maury and Pajuste 2005). The presence of multiple blockholders are commonly associated with improved governance (Pagano and Roell 1998), and higher firm valuation (Maury and Pajuste 2005). Multiple blockholders can enhance governance via improved price efficiency (Edmans and Manso 2011). They can also play an effective monitoring role via the ‘disciplining’ effect that stems from multiple blockholders monitoring each other (e.g., Maury and Pajuste 2005). They have strong incentives to monitor the dominant shareholder because they are less subject to the free-rider problem among shareholders (Grossman and Hart 1988). Accordingly, multiple blockholders are expected to discipline the large dominant shareholder and hence prevent him/her engaging in extracting private benefits of control, and instead assure that he/she concentrates on their monitoring role as manager. As a result, firms with multiple blockholders would demand greater ERM implementation as a monitoring tool.

A counter argument suggests that multiple blockholders may collude and increase agency costs (Zwiebel 1995). Accordingly, one would expect to see less demand for ERM implementation in firms that are controlled by multiple owners colluding and resulting in high agency conflicts.

As a result of these opposing views, we do not posit an expectation regarding the direction of the relationship between the presence of multiple blockholders and ERM and we examine the following research question:

Research Questions 2. *Is the presence of multiple blockholders associated with ERM implementation?*

Our final research question examines ERM implementation in the presence of a dual-class share structure. The use of dual-class shares is both common and controversial around the world. About 31% of our sample firms employ a dual-class share structure.

As a percentage of listed companies Sweden, Denmark, Finland, and the Netherlands represent four of the top five countries in terms of the prevalence of dual-class share structures as determined by the percentage of listed companies (Kim et al. 2018). Additionally, approximately 20% of companies listed on U.S. exchanges since 2016 have used a dual-class structure, which suggests that a dual-class shares structure is an emerging corporate governance phenomenon in common-law countries (Ritter 2020).

Evidence on the implications of the dual-class share structure is mixed. The first stream of the literature shows that unequal voting stocks outperform the market over the period, 2007–2017², and that high growth and family controlled firms that use a dual-class share structure have higher long term returns (Govindarjan et al. 2018). Ravid and Sekerci (2020) also show that large controlling owners with dual-class shares improve governance and hence firm value if they give a high weight to the stock in question in their portfolio.

This evidence suggests that dual-class shares can help improve governance in certain conditions. In our sample of firms, dual-class firms are usually family firms or firms that are controlled by mainly large and insider owners who thus have strong incentives to engage in monitoring. Accordingly, we expect that large owners with dual shares to be more committed to their firm and have more incentives

² For more details on MSCI’s analysis, see: <https://www.msci.com/www/blog-posts/putting-the-spotlight-on/0898078592> (accessed on 8 May 2020).

to monitor the managerial actions more closely resulting in greater demand for ERM. This would constrain managerial discretion in risk management and ultimately increase firm value.

A counter stream of arguments suggests that dual-class shares worsen governance due to serving as an entrenchment tool for large owners, which in turn results in lower firm value (Gompers et al. 2010; Cronqvist and Nilsson 2003) and value destroying acquisitions (Govindarjan et al. 2018). Therefore, large controlling owners can potentially entrench via the use of dual-class shares and expropriate wealth from minority shareholders. Accordingly, ERM implementation would be less demanded in such high-agency-conflict firms where large owners entrench with dual-class shares.

Given the relations discussed we suggest the direction of the relationship between the presence of a dual-class share structure and ERM is an empirical question and we investigate the following research question:

Research Question 3. *Is the presence of a dual-class share structure associated with ERM implementation?*

3. Materials and Methods

The data for this study is a combination of hand-collected ownership data and survey data on firms' risk management practices. The ERM data comes from the survey in Sekerci (2015), also presented in Appendix A. Accordingly, the motivation in Sections 3.1 and 3.2 as to using a survey in the Nordic region and using a survey to measure ERM is similar to that explained in Sekerci (2015).

3.1. The Nordic Setting and Ownership Variables

Nordic firms differ from those in Anglo-Saxon countries in terms of company legislation, corporate governance traditions and some specific preconditions regarding the ownership structure on the stock market' (Corporate Governance in the Nordic Countries 2009, p. 4). Although the governance codes of each Nordic country differ in detail, they are fundamentally consistent with each other (Corporate Governance in the Nordic Countries 2009). Moreover, their capital markets are well developed and integrated. With the exception of the Oslo Stock Exchange, the Stockholm, Copenhagen, and Helsinki exchanges are operated under Nasdaq OMX, creating harmonization in terms of corporate governance guidelines among the exchanges. Lundqvist (2014) also studies Nordic firms and finds them well suited for ERM analysis, as the Nordic governance system has such features as strong general meeting powers, use of board committees, and high levels of transparency.

We measure ownership by the largest owner's voting and cash flow rights, the presence of multiple blockholders and a dual-class share mechanism. *Large BH vote* is the percentage of the firm's votes held by the largest owner. *Large BH capital* is the percentage of the firm's cash flow rights held by the largest owner. *Multiple BHs* is the number of blockholders (i.e., owner holding at least 5% of the firm's votes). *Dual-class* is a dummy variable that takes value of 1 if the firm has a dual-class share structure, and 0 otherwise.

3.2. Survey and ERM Measures

There are four main methods used in the literature to measure ERM implementation or adoption. Many early studies use the hiring announcement of a CRO or equivalent as an indication of ERM adoption (Liebenberg and Hoyt 2003; Beasley et al. 2008; and Pagach and Warr 2011). A drawback to this method is that it may provide a false positive signal of ERM adoption as firms could just have the position without having ERM in place. A second method to identify firms adopting ERM is to search for evidence of ERM (through databases; such as Lexis Nexis and Dow Jones) by entering key words, like 'Chief Risk Officer', 'enterprise risk management' and 'risk committee' (e.g., Hoyt and Liebenberg 2011; and Lin et al. 2012). However, reporting on ERM activities such as formation of a risk committee is not mandatory for firms and as a result this method may miss firms that adopt ERM but are not reporting specific activity. A third method of identifying ERM adopters is to use credit rating services. ERM ratings provided by Standard & Poor's are used as a proxy for degree of ERM adoption (e.g.,

Baxter et al. 2013; and McShane et al. 2011). A drawback to this methodology is that these ratings are not widely available for firms outside the insurance industry. Another option is to survey firms to determine to what degree they have adopted ERM processes as Beasley et al. (2005) do by asking firms to score the level of their ERM implementation. An advantage of the survey method is that it can provide more in-depth information about a firm's activities and processes. A limitation of the survey approach is that asking firms to score the level of their ERM process can potentially lead to biased results, as managers might overstate the level of ERM programs that they are leading.

In this study, we employed a survey which provides detailed information on firms' risk management programs, most of which is not publicly available. For example, we have information about firms' 'risk appetite', information that is typically not publicly disclosed. In this context, the detailed data collected through the survey enabled us to examine a firm's ERM process by using a rich set of organizational characteristics related to risk management (see also Paape and Speklè (2012); Florio and Leoni (2017); Mafrolla et al. (2016); and Grace et al. (2015) that use survey data to obtain better ERM measures in order to capture the sophistication of ERM). Our survey also advanced Beasley et al. (2005)'s work in that it reduces the bias that might have been present in their ERM-focused survey. Unlike the surveys in Beasley et al. (2005) and Hiebl et al. (2019), our respondents were not informed that they were completing a survey on ERM. Rather at the beginning of the survey, managers were told that the survey would be on risk management in general. In this way, we tried to minimize the potential response bias that might result from managers overstating the level of ERM programs in place. Moreover, the first explicit question about ERM was asked only after the questions whose answers were used to construct our ERM measures. Respondents were not allowed to return to the previous questions on the web-based survey.

Our survey is provided in Appendix A, the survey questions are straightforward and examine the existence of the key components of ERM. The survey was directed to CEOs, CFOs, and other senior level positions that have adequate knowledge about their firm's risk management process. They were asked to reply to the questions based on the firm's activities in 2010. Our final sample is formed from Nordic firms listed on the Stockholm, Copenhagen, Oslo, and Helsinki stock exchanges with headquarters located within Sweden, Denmark, Norway, and Finland, respectively. In total, 676 Nordic firms were provided the survey.

The survey was conducted in cooperation with the Swedish survey company, Sinitor, during the period 14 March 2011–13 May 2011.³ After several reminder calls to all of the firms the final tally resulted in 137 fully completed surveys, a complete response rate of 20.3%, in addition there were 11 other surveys which had enough information to calculate our additional ERM measures but not fully completed. The survey completion rate was better, in terms of sample representativeness, than comparable studies, such as by Beasley et al. (2005) (10.3%), and Paape and Speklè (2012) (9.9%). Our country-based response rates were 18% for Denmark, 21% for Finland, and 25% for Norway and Sweden. The titles of the survey respondents are: CFO (62%), CEO (10%), CRO (1%), and risk manager (27%).⁴ We conduct an analysis and find that our sample of firms is representative of the population of firms that were provided the survey and our respondent firms are not statistically different from non-respondent firms in dimensions that are key drivers of ERM based on the literature, such as size and leverage (Liebenberg and Hoyt (2003); Beasley et al. (2005); Beasley et al. (2008);

³ The biggest motivation to collaborate with Sinitor was to obtain a high response rate by utilizing their experience in multilingual surveys. Sinitor translated the survey which was prepared in English into the official languages of the four countries. Sinitor's staff who could speak those four languages called all 676 firms and on phone kindly encouraged them for participation in the survey. All the survey participation was done on the web-based survey (not on a phone call). Overall, the staff's multilingual skills brought standardization to the survey. In this way, ambiguity related to language skills was eliminated to a great extent.

⁴ Interestingly while only 1% of the survey respondents were CROs, the survey indicated that approximately 18% of the firms employ a CRO.

Hoyt and Liebenberg (2011); Pagach and Warr (2011); Baxter et al. (2013); Desender and Lafuente (2009); Gordon et al. (2009), and Lin et al. (2012)—results are available from the authors upon request.

3.3. Key Components of ERM Implementation

Some organizational aspects make ERM different from traditional risk management approaches. Following Sekerci (2015), we identified key components of ERM to construct our primary ERM measure and which constitute the major part of the questions in the survey.⁵ We focused on seven ERM components from the survey, which are as follows (in Appendix A Questions 1–2). First, ERM best practices suggests a *formal report* be submitted to the board at least annually on the current state of, and effectiveness of the risk management program. Second, a *board level committee* with responsibility for risk management oversight is another key element in an ERM process. The third key component of ERM is to have a *formal written risk management philosophy (policy)* which refers to a set of shared beliefs and attitudes characterizing how the firm considers risk in everything it does and explains the responsibilities of the management and board. Fourth, a *formal written statement of the firm's risk appetite*, which is the amount of risk specified at the board level that the firm is willing to accept in pursuit of value, is considered essential in ERM implementation. Fifth, a *centralized department or staff function* dedicated to risk management is another component of ERM. Sixth, ERM also suggests assigning *risk owners* who have primary responsibility and accountability for managing risk within their respective areas. Seventh, a *centralized technology-enabled process* to obtain risk-related information is important in an ERM process. Each of the ERM component questions are measured on a 4-point Likert scale ranging from 0 to 3 which represent the following: 0 = “does not exist. 1 = “ad hoc implementation. 2 = “implemented but improvements needed, and 3 = “robustly implemented”. The internal consistency among these components is relatively high, as our scale reliability coefficient (Cronbach's Alpha) is 0.8460 (above the considered acceptable amount of 0.70).

Appendix B presents descriptive statistics on scores given by respondent firms on each of these ERM components. The ERM component with the highest average score is the ‘formal risk management report’ (mean value: 2.287 out of the maximum score 3). The component with the second highest level of implementation is the ‘risk management philosophy’ (mean value: 1.783 out of the maximum score 3). The average scores of each of the remaining six ERM elements are around 1.4.

3.4. Measuring ERM

We used three measures of ERM implementation which are constructed based on the outcome of the survey in Appendix A: *ERMprocess*, *ERMreport*, and *ERMphilosophy*.

All seven components of ERM, discussed in Section 3.3 were used to calculate *ERMprocess*. The *ERMprocess* score was calculated by summing the scores of the seven key ERM components so that the highest score achievable is 21, and the lowest is 0.

We had two further ERM measures that focus on the most observed ERM elements among firms. These variables are *ERMreport* and *ERMphilosophy*. *ERMreport* is a dummy variable taking value of 1 if the respondents reply with “robustly implemented” to the following survey question, a *formal report* submitted to the board at least annually on the current state of risk and effectiveness of risk management, and 0 otherwise. *ERMphilosophy* is a dummy variable taking value of 1 if the formal written risk management philosophy (policy), ‘a set of shared beliefs and attitudes characterizing how the firm considers risk in everything it does and delineates the responsibility of management and the board’ is robustly implemented, and 0 otherwise.

⁵ See the survey in Appendix A. The Questions 1.1–3.3 refer to the key components of ERM used in this paper.

3.5. Econometric Model

We examined our three research questions by estimating the following three regressions, respectively:

$$ERM_i = \alpha_1 + \alpha_2 Large\ BH\ vote_i + \alpha_3 (Control\ Variables)_i + \varepsilon_i \tag{1}$$

$$ERM_i = \alpha_1 + \alpha_2 Multiple\ BHs_i + \alpha_3 Large\ BH\ vote_i + \alpha_4 (Control\ Variables)_i + \varepsilon_i \tag{2}$$

$$ERM_i = \alpha_1 + \alpha_2 Dualclass_i + \alpha_3 Large\ BH\ vote_i + \alpha_4 (Control\ Variables)_i + \varepsilon_i. \tag{3}$$

ERM is measured using the *ERMprocess*, *ERMreport*, and *ERMphilosophy* variables which are defined in the previous section. We employed two models depending on which dependent variable we use. First, we used a tobit model for our *ERMprocess* dependent variable that is bounded between 0–21. Second, for our *ERMreport* and *ERMphilosophy* variables, we use a logit model. Our variables of interest in our regressions are *Large BH vote* (or alternatively *Large BH capital*), *Multiple BHs* and *Dual-class*. *Large BH vote* is the percentage of votes held by the largest owner. *Large BH capital* is the percentage of capital (cash flow rights) held by the largest owner. *Multiple BHs* measures the existence of multiple blockholders. It is the number of blockholders (i.e., the owner holding at least 5% of the firm’s total votes). *Dual-class* is a dummy variable taking value of 1 if the firm has a dual-class share structure, and 0 otherwise. The two test variables we used in explaining ERM (*Multiple BHs* and *Dual-class*) are relatively new in the ERM literature, which, as mentioned earlier, constitutes one of our contributions. On the other hand, ERM literature uses test variables that are similar to our *Large BH vote* and *Large BH capital* variables (e.g., ownership *dispersion* measured as ‘the number of shareholders’ in Mafrolla et al. (2016)) could be considered as a proxy for ‘power of ownership’ or ‘ownership concentration’ in general, which we proxy with our *Large BH vote* and *Large BH capital* variables following the literature (Cronqvist and Nilsson 2003). Definitions of all other variables are provided in Table 1.

Table 1. Definition of Variables.

	Definitions	Source
Dependent variables:		
<i>ERMprocess</i>	Calculated by summing the scores of the seven key ERM components so that the highest score achievable is 21, and the lowest is 0. The seven components, (discussed in Section 3.3 ‘Key Components of ERM Implementation’) are: formal risk management report, board level risk committee, risk management philosophy, formal written statement of the firm’s risk appetite, centralized department or staff function, risk owners, and centralized technology-enabled process.	Survey in Appendix A
<i>ERMreport</i>	Dummy variable taking value of 1 if the respondents reply with “robustly implemented” to the following component, a formal report submitted to the board at least annually on the current state of risk and effectiveness of risk management, and 0 otherwise.	Survey in Appendix A
<i>ERMphilosophy</i>	Dummy variable taking value of 1 if the formal written risk management philosophy (policy), ‘a set of shared beliefs and attitudes characterizing how the firm considers risk in everything it does and delineates the responsibility of management and the board’ is robustly implemented, and 0 otherwise.	Survey in Appendix A

Table 1. Cont.

Definitions		Source
Variable of interests:		
<i>Dual-class</i>	Dummy variable taking value of 1 if the firm has a dual-class share structure, and 0 otherwise	Annual reports for Denmark, Finland and Norway, and www.aktieservice.se for Sweden
<i>Multiple BHs</i>	The number of blockholders (i.e., owners holding at least 5% of the firm's total votes)	Annual reports for Denmark, Finland and Norway, and www.aktieservice.se for Sweden
<i>Large BH vote</i>	% of votes held by the largest owner	Annual reports for Denmark, Finland and Norway, and www.aktieservice.se for Sweden
<i>Large BH capital</i>	% of capital (cash flow rights) held by the largest owner	Annual reports for Denmark, Finland and Norway, and www.aktieservice.se for Sweden
Control variables:		
Size	The natural logarithm of Total Assets	Datastream
Leverage	Total Debt/Total Assets	Datastream
Growth opportunity	Capital Expenditures (as additions to fixed assets)/Total Assets	Datastream
Profitability	Return on assets (ROA), calculated as Net Income/Total Assets	Datastream
Sales growth	$(\text{Net Sales}_{(t)} - \text{Net Sales}_{(t-1)})/\text{Net Sales}_{(t-1)}$	Datastream
Return volatility	Standard deviation of daily stock returns over the previous fiscal year	Datastream
Opacity	Intangible assets over total assets	Datastream
Firm complexity	The number of business segments	Osiris

This table presents the definition of variables. Control variables are measured as of fiscal year end 2009. The accounting values are in thousands of U.S. dollars.

Equation (1) can also be regarded as a baseline regression for comparison to prior research. We particularly have this set of three regressions due to potential multicollinearity among our independent variables—below in robustness tests we include all our variables of interest together on the right-hand-side of the regression. In regressions (2) and (3), we control for the largest owner's power with the *Large BH vote* variable. Control Variables is a set of observed firm characteristics.⁶ The model also controls for country fixed effects.

Consistent with prior research (e.g., Liebenberg and Hoyt 2003; Beasley et al. 2008; Hoyt and Liebenberg 2011; Pagach and Warr 2011; Gordon et al. 2009), we controlled for variables affecting risk management activities including firm size, leverage, growth opportunity, profitability, sales growth, return volatility, opacity, and firm complexity. Control variables were measured as of fiscal year end 2009. Our control variables are also described in Table 1 and were constructed consistent with previous literature.

⁶ For robustness checks in unreported results, we also control for other governance factors previously studied in the ERM literature, such as board and CEO characteristics. We obtain qualitatively similar findings for our ownership variables. However, the inclusion of other governance variables in our model reduces our sample size due to missing values in those variables.

4. Results

4.1. Descriptive Statistics

Table 2 reports descriptive statistics for our variables. The average value of the *ERMprocess* variable is 10.75 with a standard deviation of 5.70. *ERMreport* and *ERMphilosophy* are dummy variables with the respective mean values, 0.84 and 0.66, which indicate that the majority of our sample firms have implemented ERM based on these two ERM proxies.

Table 2. Summary Statistics.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	N	Mean	sd	min	max	Median	p25	p75
ERM measures								
<i>ERMprocess</i>	137	10.75	5.70	0.00	21.00	10.00	7.00	15.00
<i>ERMreport</i>	146	0.84	0.37	0.00	1.00	1.00	1.00	1.00
<i>ERMphilosophy</i>	148	0.66	0.48	0.00	1.00	1.00	0.00	1.00
Ownership characteristics								
<i>Dual-class</i>	126	0.31	0.46	0.00	1.00	0.00	0.00	1.00
<i>Multiple BHs</i>	148	2.63	1.47	0.00	7.00	3.00	2.00	4.00
<i>Large BH vote</i>	123	0.32	0.21	0.04	0.90	0.26	0.15	0.47
<i>Large BH capital</i>	146	0.30	0.20	0.02	0.94	0.25	0.15	0.43
Firm characteristics								
Size	138	12.74	2.04	8.19	17.95	12.54	11.10	14.24
Leverage	138	0.25	0.21	0.00	0.89	0.215	0.08	0.37
Growth opportunity	137	0.04	0.05	0.00	0.44	0.02	0.01	0.04
Profitability	137	0.07	0.15	−0.64	0.78	0.09	0.02	0.14
Sales growth	138	0.10	0.70	−1.51	7.33	0.01	−0.08	0.12
Return volatility	139	3.09	17.37	0.01	204.50	0.89	0.29	1.78
Opacity	137	0.18	0.20	0.00	0.83	0.11	0.02	0.29
Firm complexity	145	3.48	2.41	0.00	15.00	3.00	1.00	5.00

The table reports the descriptive statistics of the variables used. All variables are defined in Table 1.

Nordic listed firms show some different ownership characteristics compared to the U.S. firms. Ownership is in general quite concentrated, as evidenced in our Large BH vote and Large BH capital variables. The largest blockholder in the firm on average holds about 32% of total votes, and about 30% of total shares. These two statistics indicate that Nordic firms are on average held by large controlling blockholders (i.e., owner holding at least 5% of the firm's voting or cash flow rights).

Furthermore, summary statistics on our *Multiple BHs* variable show that listed Nordic firms on average have about three blockholders. An additional distinguishing ownership feature is the prevalent use of a dual-class share structure in Nordic countries. On average, 31% of listed Nordic firms employ dual-class shares, consistent with Switzerland (51%) and Italy (41%) (Faccio and Lang 2002).

Regarding firm characteristics, Nordic firms in our sample are less leveraged than U.S. firms, having, on average, 25% leverage, while in Pagach and Warr (2011)—who give evidence from the U.S.—the mean value of leverage is 64% for firms which hire a CRO and 48% for those which do not. Another difference is that Nordic firms are more opaque, with a mean value for the opacity variable of 0.183 while this ratio is 0.08 in Pagach and Warr (2011). The statistics of the other control variables are comparable to those in prior studies.

4.2. Multivariate Analyses

In this section, we investigate the relationship between ownership and ERM in a multivariate regression setting. Table 3 reports the results we use to test research question 1.

Our regressions in Table 3 examine the largest owner’s power, both in terms of voting rights as well as cash flow rights. We do not find an association between the presence of a large controlling owner and either of our three dependent variables, *ERMprocess*, *ERMreport*, or *ERMphilosophy*. One reason for the lack of significant results may be that large controlling shareholders’ demand for ERM is highly situational and dependent on their liquidity, diversification and other personal characteristics resulting in no significance for our full sample. More specifically, ERM implementation might be demanded more as the largest owner favors ERM in order to use it in constraining managerial discretion in risk management, or ERM might be demanded less due to the possibility that a large controlling owner extracts private benefits rather than engaging in governance.

Table 3. The Largest Owner’s Power and Enterprise Risk Management (ERM).

	Dependent Variables:					
	<i>ERMprocess</i>		<i>ERMreport</i>		<i>ERMphilosophy</i>	
	(1)	(2)	(3)	(4)	(5)	(6)
Large BH vote	−2.967 (2.647)		−0.810 (1.464)		−1.878 (1.169)	
Large BH capital		−3.010 (2.496)		−1.684 (1.289)		−1.367 (1.067)
Size	1.461 *** (0.308)	1.307 *** (0.278)	0.349 * (0.203)	0.221 (0.166)	0.461 *** (0.172)	0.290 ** (0.137)
Leverage	−3.861 (3.103)	−2.362 (2.686)	−1.448 (1.742)	−0.099 (1.355)	−1.639 (1.494)	−0.783 (1.192)
Growth opportunity	−3.771 (9.382)	−1.909 (8.920)	2.379 (6.804)	4.189 (7.277)	4.671 (6.043)	7.875 (6.247)
Profitability	3.448 (4.036)	0.971 (3.415)	3.326 (2.258)	0.639 (1.702)	−0.071 (1.659)	−1.699 (1.491)
Sales growth	−0.711 (0.735)	−0.660 (0.701)	−0.002 (0.432)	−0.067 (0.388)	−0.481 (0.515)	−0.465 (0.457)
Return volatility	0.083 (0.262)	0.128 (0.256)	−0.004 (0.198)	0.033 (0.181)	−0.033 (0.126)	0.002 (0.121)
Opacity	−3.161 (2.935)	−1.759 (2.527)	−0.387 (1.538)	−0.570 (1.251)	−1.056 (1.304)	−0.416 (1.081)
Firm Complexity	−0.224 (0.238)	−0.064 (0.215)	−0.172 (0.122)	−0.128 (0.102)	−0.078 (0.106)	0.006 (0.097)
Constant	−5.740 (4.047)	−4.559 (3.459)	−3.075 (2.381)	−1.217 (1.890)	−4.941 ** (2.063)	−3.135 ** (1.591)
Observations	99	119	106	127	108	129
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.0620	0.0514	0.227	0.118	0.227	0.153

This table presents tobit model (Column 1–2) and logit model (Column 3–6) results. All variables are defined in Table 1. Standard errors are in parentheses. ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Next, Table 4 reports the results for our second research question. We find that the presence of multiple blockholders is negatively associated with *ERMprocess* and *ERMreport*. This is in line with the premise that multiple blockholders with a collusion potential would be less inclined to favor ERM adoption. This result holds even when controlling for the percentage of voting rights held by the largest owner. We do not find a significant relationship between multiple blockholders and *ERMphilosophy*.

Table 4. Multiple Blockholders and ERM.

	Dependent Variables:					
	<i>ERMprocess</i>		<i>ERMreport</i>		<i>ERMphilosophy</i>	
	(1)	(2)	(3)	(4)	(5)	(6)
Multiple BHs	−0.715 ** (0.341)	−0.801 ** (0.381)	−0.366 ** (0.175)	−0.639 ** (0.262)	−0.013 (0.151)	−0.019 (0.193)
Large BH vote		−4.443 (2.675)		−2.378 (1.751)		−1.924 (1.257)
Size	1.274 *** (0.284)	1.252 *** (0.315)	0.184 (0.167)	0.205 (0.224)	0.318 ** (0.138)	0.456 ** (0.179)
Leverage	−3.104 (2.642)	−2.927 (3.057)	−0.401 (1.353)	−0.393 (1.882)	−1.206 (1.138)	−1.608 (1.525)
Growth opportunity	0.395 (9.098)	−0.259 (9.299)	5.340 (7.300)	5.010 (8.535)	6.899 (5.914)	4.746 (6.102)
Profitability	1.109 (3.420)	4.469 (3.960)	0.826 (1.700)	5.223 ** (2.596)	−2.097 (1.535)	−0.032 (1.708)
Sales growth	−0.436 (0.702)	−0.601 (0.719)	0.124 (0.478)	0.274 (0.700)	−0.449 (0.464)	−0.473 (0.517)
Return volatility	0.107 (0.255)	0.017 (0.258)	0.024 (0.182)	−0.057 (0.214)	0.020 (0.117)	−0.035 (0.128)
Opacity	−1.648 (2.536)	−2.814 (2.863)	−0.494 (1.331)	−0.653 (1.731)	−0.559 (1.080)	−1.054 (1.304)
Firm Complexity	−0.038 (0.213)	−0.225 (0.232)	−0.109 (0.105)	−0.201 (0.131)	0.007 (0.095)	−0.078 (0.106)
Constant	−2.499 (3.674)	−0.444 (4.668)	−0.210 (1.977)	1.086 (2.921)	−3.680 ** (1.719)	−4.814 ** (2.414)
Observations	120	99	128	106	130	108
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.0566	0.0690	0.140	0.299	0.142	0.227

This table presents tobit model (Column 1–2) and logit model (Column 3–6) results. All variables are defined in Table 1. Standard errors are in parentheses. ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

We present the results for research question 3 in Table 5. We show that the presence of a dual-class share mechanism is negatively associated with ERM. This supports the argument that ERM adoption would be less common where large owners entrench with dual-class shares, which reflects a high level of agency conflict. Specifically, we find a significant relationship between dual-shares and *ERMphilosophy*. This might be explained by dual-class shareholders not being motivated to demand a written risk management philosophy, which lays out the responsibilities of the *management* and the board regarding the communication of the set of beliefs and attitudes characterizing how the firm considers risk in everything it does across the enterprise. Such a written risk management philosophy is not considered to be necessary or a priority by entrenched dual-share owners, who are not inclined to do significant monitoring.

As robustness tests, we include both the dual-class and multiple blockholders variables in the same regression, controlling for the largest owner’s power. Unreported results from these regressions, available from the authors, show consistent results with respect to each of the ERM variables.

Table 5. Dual-class Share Mechanism and ERM.

	Dependent Variables:					
	<i>ERMprocess</i>		<i>ERMreport</i>		<i>ERMphilosophy</i>	
	(1)	(2)	(3)	(4)	(5)	(6)
Dual-class	−1.799 (1.292)	−1.322 (1.313)	−0.176 (0.672)	−0.009 (0.725)	−1.723 ** (0.688)	−1.559 ** (0.706)
Large BH vote		−2.285 (2.720)		−0.803 (1.560)		−1.348 (1.257)
Size	1.576 *** (0.310)	1.478 *** (0.307)	0.381 * (0.201)	0.349 * (0.203)	0.495 *** (0.172)	0.488 *** (0.178)
Leverage	−4.854 (3.105)	−3.988 (3.091)	−1.673 (1.716)	−1.449 (1.742)	−2.187 (1.505)	−1.821 (1.545)
Growth opportunity	−7.148 (9.641)	−5.484 (9.491)	1.787 (6.533)	2.364 (6.901)	1.737 (5.569)	2.790 (6.156)
Profitability	3.265 (4.099)	3.852 (4.034)	3.135 (2.251)	3.329 (2.272)	0.061 (1.676)	0.231 (1.696)
Sales growth	−0.661 (0.741)	−0.677 (0.732)	0.002 (0.425)	−0.002 (0.432)	−0.491 (0.564)	−0.493 (0.554)
Return volatility	0.124 (0.265)	0.113 (0.262)	0.003 (0.198)	−0.004 (0.200)	−0.001 (0.126)	−0.021 (0.130)
Opacity	−4.285 (3.019)	−3.757 (2.980)	−0.535 (1.605)	−0.393 (1.613)	−1.949 (1.384)	−1.856 (1.402)
Firm Complexity	−0.186 (0.242)	−0.184 (0.241)	−0.173 (0.123)	−0.171 (0.123)	−0.051 (0.110)	−0.053 (0.111)
Constant	−7.005 * (3.866)	−5.890 (4.031)	−3.567 (2.274)	−3.074 (2.381)	−5.472 *** (2.061)	−5.102 ** (2.114)
Observations	100	99	107	106	109	108
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R2	0.0638	0.0636	0.223	0.227	0.257	0.266

This table presents tobit model (Column 1–2) and logit model (Column 3–6) results. All variables are defined in Table 1. Standard errors are in parentheses. ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

5. Conclusions and Discussion

This paper investigates the relationship between characteristics of firm ownership and the internal demand for ERM by using hand-collected data on ownership and survey data on how firms organize their risk management programs. Our ERM measures were constructed using survey data, yielding valuable firm specific information, and enabling us to capture the complexity and distinguishing features of a firm’s ERM program.

We contribute to the literature in two ways: We provide, to our best knowledge, the first evidence on the relationship between the presence of multiple blockholders and ERM and dual-shares and ERM. In addition, this paper investigates the relationship between firm ownership and ERM by including all types of owners and multiple industries in our sample. Our results suggest that firm ownership affects the need to adopt ERM practices, which constrains managerial discretion in risk management. We show that there is less need for ERM’s monitoring role in firms that are associated with high agency costs. Specifically, we find that *ERMprocess* and *ERMreport* are demanded less in firms with multiple blockholders. In addition, we find a negative relationship between the use of a dual-class share structure and *ERMphilosophy*.

We recognize that there are limitations to our research. First, our research examines Nordic region firms, which have specific corporate governance features that may not be transferable to other regions. Second, survey-based research relies on the quality of the responses provided by respondents who voluntarily completed our survey. We do not believe that a respondent would give unreliable responses, however this possibility exists with survey research.

By providing international evidence, our study adds to the research on how ownership related factors can contribute to the demand for ERM implementation, specifically informing us that multiple blockholders and dual-class shares play an essential role in governance and the demand for ERM. In this way, we add to the insights already drawn in the literature that ownership matters for ERM (e.g., [Mafrolla et al. 2016](#)). This paper particularly offers an avenue for future research with respect to multiple blockholders and dual-class share structures that can be studied in relation to corporate risk management at large. For example, new lessons can be obtained by studying the impact of multiple blockholders and dual-class shares on the corporate hedging decisions (e.g., derivatives use). Dual-class shares and multiple blockholders are two phenomena that are already widely prevalent in many financial markets and are becoming an emerging phenomena in many other financial markets, such as the United States and which tend to be understudied among other ownership characteristics ([Edmans and Holderness 2017](#)).

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Appendix A. Survey

Risk Management, Organization, and Value Creation

Directions: Please read each question carefully and choose from the answers provided or fill in the blanks for open-ended questions. Please answer based on the firm's activities in 2010.

Please provide us with some identification information on the individual filling out this survey.

Your title/position

Not at all Some familiarity Working knowledge Very familiar

To what degree are you familiar with the organization of risk management and risk management activities at the firm?

1. To what degree are the following risk management dimensions implemented throughout the firm?

Does not exist Ad hoc implementation Implemented but improvements needed Robustly implemented Don't know

1.1 Formal report submitted to the board at least annually on the current state of risk and effectiveness of risk management

1.2 Centralized technology-enabled process to obtain risk-related information

1.3 Formal written risk management philosophy (policy) *(a set of shared beliefs and attitudes characterizing how the firm considers risk in everything it does and delineates the responsibility of management and the board)*

1.4 Formal written statement of the firm's risk appetite *(the amount of risk specified at the board level that the firm is willing to accept in pursuit of value)*

2. To what degree are the following risk management organizational dimensions implemented throughout the firm?

Does not exist Ad hoc implementation Implemented but improvements needed Robustly implemented Don't know

2.1 Board level committee with responsibility for risk management oversight

2.2 Centralized department or staff function dedicated to risk management

2.3 Allocated risk owners who have primary responsibility and accountability for managing risk within their respective areas

3. Please answer the following yes/no questions about the firm's risk management organization.

	Yes	No	Don't know
3.1a Does anyone at the firm hold the title Chief Risk Officer (CRO)?			
3.2 Does the Chief Risk Officer (CRO) have the highest responsibility for overseeing the centralized risk management (CRM) function?			
3.1b If the firm does not have a CRO, but has a (CRM) function, please specify what the title of the person in charge of that function is.			
3.3 Is the CRO (or equivalent position) independent of risk taking activities and decisions?			

4. Please answer the following questions about the firm's risk management practices.

A frequently cited definition of Enterprise Risk Management (ERM) is 'a process, affected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives.'

	Not at all	Ad hoc implementation	Implemented but improvements needed	Robustly implemented	Implement ERM but only according to other definition	Don't know
To what degree does the firm implement ERM according to the above definition?						

5. What lead the firm to implement ERM (mark those which apply)?

Encouragement from the Board of Directors						
Encouragement from executive management						
Competition or other industry-related pressures						
Shareholder pressure						
Regulation compliance						
Compliance with stock exchange guidelines						
The need for more effective internal audit control						
The recent financial crisis						
Other:						
	Yes	No	Don't know			

6. Does the firm have any plans to implement ERM?

7a. What are the main challenges the firm has faced in implementing ERM (mark those which apply)?

7b. What has held the firm back from implementing ERM (mark those which apply)?

Resistance from the Board of Directors

Need for internal control and review systems

Embedding risk management within company culture

Difficulty in quantifying risks

Timeliness and quality of information

Difficulty in integrating risk management with other business processes

Lack of necessary knowledge and skills within the organization

Corporate priorities are often conflicting

Availability of information

Unclear who is responsible for managing risk

Organizational culture which is resistant to change

Other:

The table contains the whole survey. Questions represented here are in the same order as those in the web-based survey. Some are conditional, i.e., Question 7 is conditional upon Q4. If the firm answered anything besides 'not at all' to Q4, Q7a appears on the screen of the web-based survey. If the answer is 'not at all' to Q4, then Q7b appears on the screen.

Appendix B. Descriptive Statistics on Scores Given by Respondents on ERM Components

ERM Components	Mean	Median	Std. Dev.	Max	Min	Observation
Formal risk management report	2.287	3	0.901	3	0	146
Board level risk committee	1.462	2	1.274	3	0	145
Risk management philosophy	1.783	2	1.007	3	0	148
Formal written statement of the firm’s risk appetite	1.398	1	1.086	3	0	148
Centralized department or staff function	1.080	0	1.255	3	0	150
Risk owners	1.568	2	1.185	3	0	146
Centralized technology-enabled process	1.120	1	1.098	3	0	141

This table presents the statistics of the scores that the respondent firms give on each ERM component. See section ‘Key Components of ERM’ for the definition of the ERM components. Each of the ERM component questions are measured on a 4-point Likert scale ranging from 0 to 3 which represent the following: 0 = “does not exist. 1 = “ad hoc implementation. 2 = “implemented but improvements needed, and 3 = “robustly implemented”.

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