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Do qualified key management create shareholder value? Evidence from Nordic M&As

A quantitative study of Nordic Mergers & Acquisitions in the short run

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Abstract

In this paper we investigate the relation between managerial characteristics and shareholder value in the context of a merger or acquisition announcement. We use a Nordic dataset on completed mergers and acquisitions, paired with unique data on analyst rankings to proxy for managerial traits, between 2004 and 2018. Our findings indicate on a positive relation between managerial characteristics and shareholder value, measured in abnormal returns. However, our findings are not statistically significant, thus we cannot conclude that the relationship holds, nor that it does not hold. One interpretation of our study is therefore that that the market participants do not believe that managers with high managerial capability necessarily make shareholder value maximizing decisions. On the other hand, we also discover indications of that Key Management Capability and CFO Capability are economically significant. Our findings highlight the need for further research on the relation between managerial characteristics and shareholder value, especially post announcement.

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1. Introduction

Expanding through a mergers or acquisitions (M&A) is one of the most preeminent strategies for organizational growth. A merger or acquisition could be pursued to gain market share, improve margins or to obtain specific intellectual property, ultimately growing the organization and potentially creating long-term shareholder value. However, in terms of the outcome of a merger or acquisition the prevailing literature is polarized, do mergers really create shareholder value or "*is the average merger and acquisition just an executive ego trip?",* as put by Lynch and Lind (2002).

The merger and acquisition deal-flow and total transaction value has increased significantly during the past 35 years, from 2,676 transactions world-wide in 1985 to 44,926 in 2020, representing an increase of 1,679%. The total value of transactions has during the same period seen an increase from $347 billion to $2,817 billion (Institute of Merger, Acquisitions and Alliances, 2021). M&A as a growth strategy has become increasingly popular as it promises, on paper, to create shareholder value through realizing various synergies. On the other side of the equation the target shareholders get paid a premium, thus gaining value. The increased deal flow and polarized literature pinpoints the relevance of the topic of mergers and acquisitions.

The value generation through M&A transactions has been studied extensively, particularly in the US and Europe. Campa and Hernando (2004) examines shareholder value upon announcement of a merger or acquisition in the European Union and find that acquirers Cumulative Abnormal Returns (CAR) is around zero on average, using data from 1998 to 2000. Moeller and Schlingemann (2005) find that US acquirers experience -1.0% cumulative average abnormal return around the announcement of a M&A transactions between 1985 to 1995. Further, Kohers and Kohers (2000) find in their study that companies announcing a mergers or acquisitions generate positive abnormal returns on average, using data from 1987 to 1996 in the US. A variety of methodologies has been applied in order to examine the relation between mergers and acquisition announcements and abnormal returns, yet there is evidently no clear-cut consensus on whether mergers and acquisitions create or destroy value (Haleblian et al., 2008a).

Multiple studies further seek to understand and explain what sources that produce or destroy shareholder value in a merger or acquisition. Previous research has examined multiple and specific factors, including institutional ownership (Andriosopoulos and Yang, 2015), cross-border acquisitions (Doukas and Travlos, 1988) and firm size (Moeller, Schlingemann and Stulz, 2004). King et al. (2004), on the other hand, concludes in their meta-analyses of post-acquisition performance that research has not clearly identified the variables that impact the acquiring firm's performance, and that researchers should pay more attention to non-financial variables as they are underrepresented in current literature.

This leads us to the recently emerged topic of managerial characteristics and how these relate to corporate performance and shareholder value. Within the area of managerial characteristics economics, finance and psychology tangents in order to explain any relation between traits of corporate executives and shareholder value.

1.1 Contribution, purpose and research question

In this study we seek to further understand and explain how managerial characteristics relate to corporate performance in the short run, measured by abnormal returns. We aim to contribute to the stream of existing research by examining mergers and acquisitions in the Nordic landscape. Although the Nordic M&A market is growing, existing literature is primarily focused on the US and European market, leaving a gap in the prevailing literature. By studying a sample of 195 completed transactions between January 1st 2004 and December 31th 2018 we will approach and proxy managerial characteristics similarly to previous research, however, with a unique dataset which differs from what has been used in existing studies.

The relation between managerial characteristics and shareholder return is difficult to measure as it generally depends on subjective values not directly measurable. Malmendier and Tate (2008) proxies CEO overconfidence as personal over-investment in the company they are CEO for, as well as press portrayal measured as sentiment score of certain key words (e.g. “confidence”) and Dutta, MacAulay and Saadi (2011) proxy CEO power by CEO excess pay. Evidently it is challenging to find a proxy good enough for certain managerial traits as the relation between the proxy and managerial trait might be ambiguous. Aarts and Wiklund (2015), however, proxy intelligence by Swedish military enlisting’s, including inductive reasoning, technical comprehension, spatial ability, and verbal comprehension. Since intelligence is partly proxied by logical reasoning (IQ test), the cognitive ability should sustain over time, making it a better, yet far from perfect, proxy than previous two examples.

Aside from Aarts and Wiklund (2015) we believe many previous proxies show tendencies of being rather ambiguous or vague, or only capture a certain managerial trait, which opens up for further research on the topic. In this study we will proxy management capability and managerial traits using rankings assigned by analysts covering the firm. Our data is more general and measures several important managerial traits, thus not isolating one factor, e.g. cognitive ability. Therefore, we believe our proxy more properly captures managerial abilities that an investor would consider when investing in a company. Furthermore, Aarts and Wiklund (2015) do not find a significant relationship between cognitive ability and shareholder value, opening up for further research. Finally, most of the prior

research only consider the CEOs role in M&As[1], while there is a lack of the CFOs influence on M&As and the interplay between the two chief officers. We therefore also contribute to the existing literature by including the CFOs capability and traits in our study. Building on prevailing gaps in the literature we will in this paper try to answer the following research question:

How do certain sets of managerial traits and management capability relate to shareholder value around the announcement of a merger or acquisition?

1.2 Delimitations

The dataset containing analyst rankings limits the scope of the paper in terms of period studied since we only have obtained data between 2004 and 2018, as well as geographically, since the data only covers Nordic firms[2]. Further, we only have analyst rankings on certain firms, constraining the sample size further. Despite the delimitations, we see no barriers that would prevent us from drawing any general conclusions on the geographical area of interest. Finally, we take a *shareholder perspective* in this paper as opposed to a *stakeholder perspective*.

1.3 Disposition

The remainder of this paper will be structured as follows. Section two outlines previous research on the topic including more details on previous findings. Section three derives empirical predications of management capability and managerial traits, as well as for selected control variables. Section four introduces the sample and methodology. Section five outlines our findings. Section six discusses the findings and any alternative interpretations. Section seven discusses the validity of our study. Section eight concludes.

2. Literature review

There is extensive research on the topic of mergers and acquisitions and how it relates to value creation or destruction from a shareholder perspective. This section aims to provide the reader with a body of knowledge on the topic, outlining previous findings within the field. We begin the section by outlining the market and shareholder value theory which underpins our as well as similar studies. We then present reasons why firms pursue M&As, followed by short-term shareholder value creation or destruction, measured in returns on the respective shares around announcement, and what factors have an impact on the returns.

[1] See Malmendier and Tate, (2008); Ferris, Jayaraman and Sainani, (2013); Custodio and Metzger, (2014). We discuss these papers and findings further in the literature review section.
[2] In this study Nordic firms pertain to Denmark, Finland, Norway, and Sweden. Iceland is excluded from our definition.

2.1 Market efficiency

Before outlining previous findings on the topic, we want to address market efficiency and how it underpins the vast majority of event studies on the topic, including ours. Without making any assumption about efficiency of markets, the power of the tests is unknown. In essence, investors of a company are competing for opportunities with positive net present value and allocate their resources thereof. Ultimately, in theory, it will result in fairly priced financial instruments given the available information on future cash flows[3]. The theory of efficient capital markets has been studied thoroughly and (Fama 1970) summarize the main the theories. Firstly, the *weak form* states that current stock prices only reflect historic information. Thus, an investor cannot achieve abnormal return using historic information. Secondly, the *semi-strong* form adds on to the weak form that stock prices additionally reflect all publicly available information about the future. The semi-strong form is a common assumption in event studies where share price reactions to announcements are studied. Finally, the *strong form* adds on the semi-strong form to include that stock prices also reflect private information that not all investors can get easy access to. This study assumes a semi-strong market efficiency, in line with prior similar studies.

2.2 Rationale behind a merger or acquisition

There are multiple underlying reasons as to why a firm decides to acquire another firm. In a competitive market economy firms compete for scarce resources with the ultimate goal to enhance value for its shareholders. As highlighted in the introduction, a common strategy to achieve growth of a corporation is to acquire, or merge with, another firm. Suggested corporate motivation for acquiring another firm is to realize gains through economies of scale, obtaining patented technology, expand to new markets, because management believe they can operate the target firm more efficiently, or simply that the target is undervalued (Andrade, Mitchell and Stafford, 2001). From a shareholder perspective, an acquisition should be value enhancing for the shareholder if the price paid in addition to current price to acquire the firm ('premium') is less than the realized gains, i.e. synergies, that result from the merger. Naturally, it's difficult to forecast the present value of future synergies from an acquisition, and the M&A process often involve complex and lengthy work of research, due diligence, planning and negotiations. At the announcement of an acquisition in a semi-strong market, it would be a reasonable to expect that a firm's share price would increase (decrease) if the premium is less (more) than the present value of synergies.

[3] For instance, see Berk and DeMarzo, (2017) pg. 333 – 338. It is also important to distinguish between an efficient market and the absence of arbitrage. Arbitrage is referred to the same future cash flows being priced differently while the efficient market hypothesis is more related to the expected risk and return trade-off, i.e., when a security is priced, its future cash flows of equal risk should be discounted in same way. Different investors may perceive the expected risks differently.

The area of interest, shareholders' return surrounding announcement, is thoroughly examined and scholars agree that mergers and acquisitions create substantial value for shareholders of the publicly traded target[4]. The underlying rational is that the acquirer must pay a premium. However, there is discrepancies in the literature on the returns to acquiring firm shareholders. Some scholars suggest that mergers and acquisitions destroy value as a result of e.g. overpayment, while other argue that merger and acquisitors are value enhancing given potential synergies. For instance, DeLong (2001) studies 280 mergers and acquisitions in the US between 1988 and 1995 and find that, on average, completed mergers and acquisitions yield an excess return of -1.68% over the event window -10 to 1 days. Moeller, Schlingemann and Stulz (2004) further find in their study of 12 023 acquisitions in the US, between 1980 and 2001, that mergers and acquisitions on average generate an abnormal return of 1.1% over the event window -1 to 1 day. Hence, their findings contradict the findings of DeLong (2001), despite using similar data. They further find that smaller acquirer firms produce 2 percentage points higher excess return than large firms upon announcement. Table 1 summarize selected papers on the topic.

Table 1
Summary of selected Papers - Acquirer shareholder returns

Study	Sample Period	Sample Size	Cumulative Abnormal Returns (%)	Event Window	Notes
Langetieg, 1978	1929 - 1969	149	-1.69%	(-120,0)	Effective date used as event date
Bradley et al., 1988	1962 - 1980	161	2.35%	(-10,10)	Tender offers only
Varaiya and Ferris, 1987	1974 - 1988	96	-2.15%	(-1,0)	
Jarrell et al., 1988	1962 - 1985	440	1.14%	(-10,5)	
Serra et al., 2016	1972 - 1987	384	-1.07%	(-1,0)	
Schwert, 1996	1975 - 1991	666	1.64%	(-42,126)	
Kohers and Kohers, 2000	1987 - 1996	1,634	1.26%	(0,1)	Mergers in high-tech firms
DeLong, 2001	1988 - 1985	280	-1.68%	(-10,1)	
Feito-Ruiz and Menéndez-Requejo, 2011	2002 - 2006	469	0.99%	(-1,1)	
Andriosopoulos et al., 2016	2000 - 2010	2,582	0.60%	(-1,1)	

The table summarizes prior studies on the topic of shareholder value, measured as abnormal returns, from the perspective of the acquirer firm. The table shows the wide variety of CARs found in prior literature, whereby there is no consensus on if M&As do create shareholder value.

The *synergy hypothesis* argues that acquisition takes place when the expected value of the combined firm is greater than the sum of the individual firms alone (Díaz Díaz et al., 2009). Consequently, the greater the synergy the greater the amount that the acquiring firm is willing to pay in premium and the

[4] Refer to Table A.1 in the Appendix for a summary of previous literature on the target shareholder's return upon acquisition announcement.

price premium would according to the hypothesis signal the expected synergies. If the premium paid is too large, a negative abnormal return would be expected as formulated in the *overpayment hypothesis*. The basic mathematic principles behind shareholder value from M&A[5] states that:

$$V_{AB} = V_A + V_B + V_S - C \qquad (1)$$

Where V_{AB} is the equity value of the firm after acquisition, V_A and V_B is the equity value of the acquiror and target respectively before acquisition, V_S is the present value of synergies and C is the cash, or present value of the price paid for the acquisition. From the equation, it is evident that if $V_S > C$ then the share price post acquisition should increase as the value of the combined firm is larger than the firm's equity value independent of each other.

Another argument for pursuing an acquisition is that it would be a strategy for strategic expansion into a new industry or market, known as a conglomerate merger or acquisition. Berk and DeMarzo (2017, p. 1002) states that a conglomerate merger is often pursued with motivation of diversification benefits in terms of risk reduction, lower cost of debt and increased liquidity. However, they argue that diversification can't by itself create shareholder value, because an individual shareholder can diversify his own stock portfolio, potential gains from tax benefits or lower probability of default in a large firm is offset by increased costs of running a larger firm and it is often necessary to pay a large premium to the target shareholders.

2.3 Shareholder value and managerial characteristics

We have in the above section described the economic rationale of why a firm would acquire another firm, but research suggest that increased shareholder value may not always be the motivation from a management perspective. The *managerialism hypothesis* emphasize that managers do not always act in a value-maximizing behavior and thus pursue acquisition in order to maximize their own utility, rather than value of equity. The apparent conflict of interest between managers and shareholders is referred to as *Agency theory*. Jensen (1986) highlighted in his paper how management's decisions to pay out free cash flow to shareholders, as opposed to reinvestments to expanding the firm, would decrease management's power as they would be managing fewer resources. Furthermore, Harford and Li (2007) found in their study that 75 % of CEO's overall wealth was increased even after an underperforming acquisition as result of the CEO's compensation scheme. They further find that CEO's that were highly

[5] According to an article in FT Lex (2012-09-27), shareholders should look back at the basics when analysing an acquisition and the shareholder value formula (1) exemplifies this. The individual shareholder can buy the growth of the target themselves (V_B) so the acquirer needs to create positive synergies (V_S). According to the article, a shareholder should focus on the price of acquisition and potential cost savings, as these are more reliable measures that are easier to predict. Revenue synergies or accelerated growth are harder to deliver.

trusted by the board could convince the board that an underperforming acquisition still would be beneficial in the long-term.

Roll (1986) present the *hubris hypothesis* as a motive for why managers of large firms pursue mergers and acquisitions. According to the theory, managers of large firms are overconfident and thus tend to overpay for acquisitions. The theory is further tested by Malmendier and Tate (2008) who find that overconfident CEOs, as defined by press portrayal and personal over-investment in their company, is 65 % more likely of making an acquisition. Further, the market reacted significantly more negatively to such mergers than for mergers with less overconfident and more rational CEOs, -0.90 % compared to -0.12 %.

Managerial characteristics of key executives has become an area of interest lately and researchers have attempted to find relationships between personality traits and e.g. company performance and corporate actions, not least within the area of mergers and acquisitions. It is not surprising that the interest for the topic has grown as key management have significant influence over certain corporate actions and decisions. Thus, company performance and corporate actions are often highly influenced by managerial characteristics, e.g. risk aversion or optimism, and corporate policies and actions. Prevailing literature suggest that risk tolerant CEOs, for instance, make more acquisitions, and that CEO optimism entails larger portion of short-term debt (Kling et al., 2014). Research thus supports an empirical relation between managerial characteristics and compensation.

Moreover, Dutta, MacAulay and Saadi (2011) examine how CEO power relates to mergers and acquisition activity and corresponding shareholder returns. They use a dataset with Canadian deals between 1997 to 2005 and use CEO excess pay as a proxy for CEO power. Their empirical results show that shareholder returns are not affected by CEO power, entailing that powerful CEOs don't make value destroying nor value enhancing acquisitions. However, they find that powerful CEOs in general make more acquisitions. They also argue that any merger and acquisition will increase the size of the company, thus increasing managerial pay.

Shi, Zhang and Hoskisson (2017) find, in line with the managerial hubris hypothesis, that CEOs in the US who recently had won a non-monetary reward for their CEO performance not only pursued more acquisition after receiving their reward, but also realized less shareholder return post announcement. Their findings are in line with the result described above in relation to overconfident CEOs. The findings on managerial influence and M&A deals thus entail that management hubris or overconfidence, whether the management is chasing monetary rewards or social status recognition, tend to lower post-acquisition announcement returns.

Aarts and Wiklund (2015) find tendencies of that high managerial leadership aptitude is related to value creation. They also find the likelihood of pursuing an acquisition is inversely correlated with cognitive ability, reflecting risk aversion and patience. Moreover, they regress cognitive ability on CAR, but their results are insignificant. Aarts and Wiklund (2015) study the Swedish market and proxy mangers intelligence and leadership aptitude by results from Swedish military enlistment test. However, as the authors highlight, the results are not clear-cut and sensitive to how value creation and leadership aptitude is both defined and measured. Previous research has also found that higher CEO compensations, as well as stock options schemes, are associated with an increased M&A activity (Haleblian et al., 2008b).

2.3.1 Ownership and institutional investors

While studying the Nordic region and managerial motives it is worthwhile to highlight how ownership structure differ from many other markets. In the Nordic region, Sweden in particular, the ownership structure is less diverse than in the Anglo-Saxon region as a large percentage of the ownership on the Stockholm Stock exchange is controlled by a family or individuals (Agnblad et al, 2000). Furthermore, it's common in the Nordics to have dual classes of shares, e.g. A and B shares, where an investor can have more voting power/control than they own capital, or vice versa (Faccio and Lang, 2002). This tends to further increases the control to the majority shareholders.

Relating to above, a lot of prior research have considered the institutional ownership factor as institutional owners tend to have a large influence over the management and operational decision making, and prior research have shown the effect is especially evident in decisions related to M&A (Stulz, Walking and Song, 1990). A high concentration of institutional ownership has been found to increase the likelihood of a cross-border acquisition occurring to completion (Andriosopoulos and Yang, 2015; Ferreira, Massa and Matos, 2010). In prior studies, institutional ownership has been found to increase the success of M&A, as an outcome from the *monitoring hypothesis* presented by Chang (1998) who suggests that a large shareholder, or large blocks of shareholders, acts as effective monitors of the management and thus precent poor M&A decisions.

3. Theory and Hypothesis Development

In the following section we will develop the theory and rational underpinning each of the factors we will test or control for in the regressions and hypothesis tests. We begin by outlining the rationale of how each of the respective factors will affect shareholder returns on announcement, followed by expected sign of the coefficient, i.e. the expected effect on shareholder value.

3.1 Management capability and managerial traits

This paper aims to specifically investigate how management capability and managerial traits relates cumulative abnormal returns surrounding the announcement of merger or acquisition in the Nordic setting. We use a unique dataset to proxy for management capability and managerial traits, containing analyst rankings by Nordic stock analysts on a 1 to 10 scale on CEO and CFO traits. Specifically, we have obtained rankings on four variables representing different sets of managerial traits. Using these traits, we intend to build on the growing stream of research building on the upper echelon's theory which suggests that key management's characteristics and unobservable traits have influence on corporate decisions and strategy (Hambrick and Mason, 1984). We include both the CEO and CFO as both parties are highly engaged throughout the M&A process and important for the success of a merger or acquisition (Ferris and Sainani, 2021). In a recent article in Harvard Business Review (Chen and Shi, 2019), the authors state that an optimal CEO-CFO combination do increase the success rate of M&As. They point out the key management's importance as *"Which M&As have the best odds of success? An obvious place to look for the answer is the C-suite. [. . .] CFOs are the Robin to the CEO's Batman, the Watson to Sherlock".* Below we describe each set of traits and further formulate our hypothesis.

CEO Performance relates to the degree the CEO is perceived as competent and capable during interviews, presentations and other public appearances. There are different definitions of *competence* and *capability*, however, the ultimate implication is rather similar between the definitions. Boyatzis (2011) defines *competence* as "capacities and skills that enable an individual to conduct activities more effectively" and such ability, as per definition, must be related to better performance and thus greater returns. Hence, we believe *CEO Performance* to be positively related with cumulative abnormal returns. Similar proxies have further been used previously. Malmendier and Tate, (2008) assign managers sentiment scores based on press portrayal. Similarly, we use analyst rankings, instead of sentiment scores based on certain words, thus making the proxy feasible.

H1: CEO Performance is positively related to cumulative abnormal returns

CEO Trust relates to how trustworthy the CEO is perceived. In their study, Jones and Judge (2002) find in that CEO trustworthiness is positively correlated with firm performance across their sample of 69 semi-structured interviews of CEOs and another 189 survey answers. The authors suggest CEO trustworthiness provides the company a competitive advantage, thus being related to firm performance. As a result, we expect *CEO Trust* to be positively associated with CARs.

H2: CEO Trust is positively related to cumulative abnormal returns

CFO Competence further describe the level of knowledge regarding investor relation and financially related issues, as well as if relevant information is communicated. Prior literature has found that directors, such as CFOs, with relevant financial experience and knowledge achieve higher announcement returns Huang et al., (2014). Similarly, we use analyst rankings instead of e.g. experience, to proxy for *CFO Competence*. Referring to the definition of *competence* we expect *CFO Competence* to have a positive impact on CARs.

H3: CFO Competence is positively related to cumulative abnormal returns

Lastly, *CFO Proactiveness* represents to what degree the CFO act to gain investors' confidence, as well as to what degree the CFO is cooperative and reliable. There is not much research on the particular set of traits, we do however find that the CFO has an important role in identifying and realizing the synergies from M&As (Tarun, Kiymaz and Baker, 2004). As described in section 2.2, a key component in a value creating M&A is that the uncertain future cash flows in form of synergies is higher than the less uncertain premium. An important job by the CFO is therefore, as pointed out by Hommel et al. (2012), to strike a good balance between proactive value generation (performance management) and risk reduction.

H4: CFO Proactiveness is positively related to cumulative abnormal returns

To gain insights on a CEO and CFO level we use an average ranking for the CEO and CFO variables respectively. By employing an average ranking, we aim to capture the managerial capability of a CEO and CFO, estimated by each of the respective set of traits. The rational underpinning the approach is that the average of all managerial traits should reflects the manager capability and thus the managers qualification. Similarly, we proxy *Key management capability* by the average of all four set of traits, giving a relatively broad picture of the key management. Since we expect each of the respective set of traits to be positively related to CARs, we also expect CEO, CFO and Key management capability to be related to CARs in the same way.

H5: Key management, CEO and CFO capability is positively related to cumulative abnormal returns

Our study considers a set of traits or several sets of traits, contrasting prevailing literature where generally only a single, or two, trait is explored in a variable (Aarts and Wiklund, 2015; Malmendier and Tate, 2008). In previous studies researchers have tried to examine management competence by examining more quantifiable and per definition less ambiguous metrics. Serra, Três and Ferreira (2016) use data collected through a survey to explore how CEO experience and competence is related to the

performance of 73 Brazilian firms between 1997 to 2012. They find that more experienced CEOs perform no better in dynamic environments. They further conclude that that more competent CEOs, defined by formal education, do not show better short-term performance. Despite the parameters examined in their study are more quantifiable, our variables provide a broader proxy for management competence as well as more relevant metrics.

3.2 Control variables

To further gain insight on the relation between management capability and managerial traits and shareholder value we will control for certain other factors. We use a set of control variables which has a confirmed impact on cumulative abnormal returns in prior research, but also taking the Nordic setting, which we study, in consideration. As described in the literature review, the Nordic market typically have larger blocks of shareholders and more concentrated control of the companies. We continue this section by describing the control variables used in our study and expected coefficient.

3.2.1 Relative transaction size

Relative transaction size refers to the transaction value in relation to the acquiror's pre-acquisition market capitalization. The relative transaction size varies depending on the corporate motive for pursuing the transaction, e.g. a company may acquire a small target to get access to niche or patented technology, while a larger acquisition may pursued as a way to get established in a new country.

Moeller, Schlingemann and Stulz (2004) find that an acquisition of other public firms, private firms, and subsidiaries of other firms, pursued by small firms, defined as market cap below 25th percentile, fare significantly better than for large firms. Their findings are robust and indicates that abnormal returns related to the acquisition is 2.24 percentage point higher for small firms. Moeller, Schlingemann and Stulz (2004) argue that large firms offer greater premiums on acquisitions, thus redistributing wealth to target shareholders and therefor enter deals with negative synergies.

Other studies within the field have include relative size, primarily as a control variable, and findings on the coefficient differ. Seth (1990) provide evidence for relative size being value enhancing, further confirmed by Moeller, Schlingemann and Stulz (2004) who concluded that relative size has a significant positive coefficient across their regressions, i.e. that relatively large mergers and acquisitions create value for the shareholders of the acquirer. In a later study, researchers found that relative size has a negative coefficient (Oler, 2008). Jansen, Sanning and Stuart (2013) further show that relative size of an acquisition amplifies any shareholder wealth effects. They identify a positive relationship between relative size and cumulative abnormal returns in value-creating acquisitions, i.e. deals with positive net present value, and a negative relationship for value-destroying deals. The findings explain why there is a discrepancy in the literature.

Given the ambiguity in the body of literature on the topic we cannot determine whether the coefficient of relative size will be positive or negative. However, given findings in Jansen, Sanning and Stuart (2013) study, we believe the coefficient will be positive if the cumulative average abnormal returns are positive and vice versa.

3.2.2 Cross-border transaction

The aim of a mergers or acquisitions is to create shareholder value through e.g. top-line growth. Since it is time consuming and difficult to grow organically in foreign countries many firms pursue an acquisition strategy to gain foothold abroad. Expanding in foreign markets can be preferable to do through a merger or acquisition as the process is generally faster as the target firm already has established facilities and networks in place (Gaughan, 2018). However, as Gaughan (2008) and many corporate valuation textbooks points out, only growth is not sufficient to create value[6]. Expansion to new and foreign markets adds additional risks and potential friction in acquisitions, both for geographical and cultural differences in operating the firm (Erel, Liao and Weisbach, 2012).

In the case of cross-border transactions, there may be different motives and different sources of synergies compared to domestic transactions. Doukas and Travlos (1988) found that US multinational firms that makes an acquisition in a country where they do not already operate experience statistically significant positive valuation effect, however, the effect of a cross-border acquisition of a multinational firm already operating in the target firm's market is negative and not statistically significant. The findings suggest that a firm's market value would increase by expanding its current multinational presence, also confirmed by Markides and Oyon (1998). Song, Seth and Oettut (2000), however, find in their empirical study that in cross-border transactions, the target company's shareholders realize most of the gains, and the acquirers neither gain nor lose on average.

Cross-border M&As are becoming increasingly popular and important and Shimizu et al., (2004) highlights that more research on post-acquisition performance is welcome. However, most of the prior research point towards cross-border M&As, despite being riskier, to have great potential to show positive average abnormal returns, which also is supported by empirical findings. Therefore, we expect cross-border M&As to have a positive effect on CAR.

[6] See for instance Koller, Goedhart and Wessels (2015) *Valuation: Measuring and Managing the Value of Companies* pg. 120 – 124. It's detailed that high growth does not mean high value creation, as the high growth comes at increased costs, competitors can retaliate and growth through large cross-border acquisitions are often complex and uncertain. According to Berk and DeMarzo (2017), a common mistake when valuing long-term growth in free cash flow (FCF) is to assume that $FCF_{T+1}=FCF_T(1+\text{growth})$. The growth rate between time T+1 (post acquisition) and T (pre-acquisition) will likely change as the acquisition will yield increased working capital costs for the firm.

3.2.3 Industry expansion

In our study, we define industry expansions as when the two first digits in the four-digit Standard Industry Classification code (SIC) differs between the acquirer and the target. The first two digits represents the major industry group, e.g. wholesale, air transportation or rubber and plastic products. We use a dummy variable the separate firms expanding into new industries from those who don't. The method for classification is commonly used by researchers in prior literature (Berger and Ofek, 1995; Mann and Sicherman, 1991).

Maquieira, Megginson and Nail (1998) studies 260 mergers and acquisitions from 1963 and 1996. They find that for acquisitions that were defined as industry expanding, the acquiring shareholders on average lost value while non-industry expanding acquisitions experience wealth gains on average. Interestingly, they find that bondholders do experience wealth increases in industry expanding mergers which could indicate that the bondholders' gain the most from the diversification benefits. In a similar study on 101 Swedish acquisitions, Doukas, Holmen and Travlos (2002) find statistically significant results for industry expansion having negative effect on CAR, while a non-expanding acquisition had positive effect of CAR. They argue this is due to the costs of diversification, e.g. agency costs and inefficiencies due from operational inexperience, is greater than the benefits. Custódio and Metzger (2013) find that CEOs with knowledge of the target's industry is better at realizing the synergies and can also negotiate lower premiums, suggesting that industry expansion creates shareholder value under certain settings.

Given the empirical evidence from prior research, we expect that industry expansion will have a negative effect on CAR.

3.2.4 Market-to-book

Market-to-Book (M/B), also commonly referred to as price-to-book (P/B), is a common factor when examining shareholder value in the context of mergers and acquisitions. It's defined as market value of equity in relation to book value of equity. If the M/B ratio is larger than 1, it effectively means that the shareholders believe the assets are put to good use, i.e. the value of assets in the firm's operations exceeds the assets on a stand-alone basis and future growth is expected.

In their study, Alexandridis, Antypas and Travlos (2017) find that M/B has a negative sign in the regression analysis, i.e. that acquirers with high a M/B ratio destroy more shareholder value opposed to acquirers with a low M/B. Further, Andriosopoulos, Yang and Li (2016) find that value acquirers (low M/B) in UK outperform glamour acquirers (high M/B) at both announcement and short-term post-announcement. They argue that value acquirers, defined as the first tercile of market-to-book ratio, are more prudent on acquisition decisions, thus gaining more from an acquisition. Raghavendra Rau and Vermaelen (1998) found in their study that firms with high M/B value initially receive positive

abnormal returns upon announcement of an acquisition, but that over a long-term window of three years it becomes significantly negative (-17 %) compared to firms with lower M/B value. They argue that the reason is that the firm, board of directors and market extrapolates, and overestimates future returns based on past performance, also referred to as the *extrapolation hypothesis*.

In our study, we expect that high M/B ratio will have a positive or negative effect on cumulative abnormal returns. Due to the conflicting prior research and theory, we do not draw a definite conclusion.

3.2.5 Return on Equity

Return on equity (ROE) is a commonly used ratio by analysts that's calculated by dividing the firm's net income with book value of equity. The variable is a measure on pre-acquisition performance. The performance of the acquirer before the acquisition is expected to have an outcome on the merger or acquisition performance, as described by Touch and O'Sullivan (2007). Therefore, we believe that a firm with high ROE will have a positive share-price reaction (and thereby be positively related to CAR) as opposed to a firm with low ROE.

We include the ROE variable as a percentage in our regressions. Although the ROE varies between industries, due to different capital structures, the effect is expected to be insignificant on the overall results.

3.2.6 Corporate governance

Since we in this study assume managers pursue mergers and acquisitions to ultimately create shareholder value, we also assume there are no major conflicting interests between mangers and shareholders. To control for any potential conflicting agendas, we control for corporate governance using institutional ownership as a proxy. Chung and Zhang (2011) find that institutional ownership is larger in firms with better governance quality, thus making our proxy feasible. We only include the five largest institutional owners to remove any noise from very small owners who don't have any significant voting power, which is not uncommon in prevailing literature (Andriosopoulos, Yang and Li, 2016). The underlying rational is that institutional investors play a proactive role where they continuously monitor the firm and what decisions are made. Institutional investors aim to align managers incentives with shareholders. Prior studies have concluded that large institutional investors do exercise large influence of managers' behavior and decision making, thus affecting both current performance and the future firm performance (Andriosopoulos and Yang, 2015; Andriosopoulos, Yang and Li, 2016). Moreover, institutional ownership has increased during the last decades in the Nordics (SCB, 2021), suggesting we should control for institutional ownership. In terms of announcement returns Andriosopoulos, Yang and Li (2016) find that institutional ownership has a negative relationship to shareholder returns, building on data from the United Kingdom between 2000 and 2010. The authors

suggest that institutional investors mitigate information asymmetries and reduce risk-taking, thus constraining future returns. They conclude that their results support the effective monitoring hypothesis.

Building on prior research we believe institutional ownership will have a negative relation to cumulative abnormal returns.

3.2.7 Other factors

To further understand how mergers and acquisition activities relates to shareholder returns researchers has tested numerous other parameters, including past acquisitions and payment terms, among other parameters. Given the scope of this paper we do not include these factors, however, we summarize the key findings below.

When pursuing an acquisition, there are several options regarding payment method. Most of the time the consideration is paid in shares (equity), cash, or a combination of the two. Andriosopoulos, Yang and Li (2016) shows that the market views acquiring firms more favorably in short term if the acquisition is paid in cash, rather than in equity. The findings are also confirmed in an earlier study (Berkovitch and Narayanan, 1990). Further, Alexandridis, Antypas and Travlos (2017) explore how previous acquisitions relates to returns. Their empirical findings suggest that that companies that have consumed more than three deals the past five years presents worse returns than other comparable firms.

3.3 Summary of hypothesis

We have, based on prior literature and research methods, selected set of control variables in order to test for managerial influence on shareholder return upon M&A announcements. In table 2 we summarize the variables we will test in this study, as well as expected coefficient and motivation of each and respective variable.

Table 2
Summary of examined variables and control variables

Variable	Expected Coefficient	Motivation
Key management		
Key management capability	Positive	Variables calculated as an average; thus, we expect a positive relation to CAR since we hypnotize that each set of traits is positively related with CAR
CEO capability	Positive	
CFO capability	Positive	
Managerial traits		
CEO Performance	Positive	As per definition
CEO Trust	Positive	In line with prior literature
CFO Competence	Positive	In line with prior literature: relevant financial experience is found to be positively impacting announcement return
CFO Proactiveness	Positive	In line with theory, highlighting the importance of proactiveness
Corporate Governance		
Institutional Ownership	Negative	In line with *monitoring hypothesis*.
Deal Characteristics		
Relative Size	Positive/Negative	Prior research suggests an amplifying effect, thus dependent on our findings.
Industry Expansion	Negative	In line with prior literature
Cross-border acquisition	Positive	Cross-border acquisitions increases risk and thus potential returns
Acquirer Characteristics		
Market-to-Book (M/B)	Positive/Negative	Ambiguity on prior research and theory
Return on Equity (RoE)	Positive	High performing firms expected to make higher performing acquisitions

Summary of the variables used in our regressions, including expected coefficient (impact on cumulative abnormal returns) and rationale based on prior literature and theory.

4. Data and research design

This section describes our data, data sources and data treatment in more detail. We also motivate the choice of methodology, describe the methodology and highlight any crucial assumptions and potential errors.

4.1 Data gathering and sources

In this study we examine the Nordic region, excluding Iceland, between January 2004 and December 2018. The period studied is limited geographically and in terms of time frame by the analyst ranking dataset, while still being sufficiently long which allows for general conclusions on the topic. We further examine the Nordic region, instead of single countries, to obtain a larger data set from which we can draw more accurate conclusions from. This is made possible by the Nordic countries being similar in

terms of economic development, corporate governance and various risk-factors. Hence, the study and any conclusions are designed to be applicable in all countries included in the sample. Moreover, there are few papers published on the topic of the Nordic M&A landscape, especially on managerial traits and management capability and how it relates to shareholder value.

We obtained the data in three stages. Firstly, all M&A related data was retrieved from Refinitiv Securities Data Corporations (SDC) Platinum database. Retrieving data from SDC is a standard practice within the area of research making it trustworthy. Secondly, we obtained a dataset on managerial characteristics, complied by a Consulting firm. The dataset consists of rankings of managers of listed firms in the Nordic countries, excluding Iceland. Each company's CEO and CFO has been assigned a ranking between 1-10 on certain managerial characteristics by the analysts covering the firm, hence the data represents the average ranking for the respective firm and year. For the acquiring firms included in the SDC dataset and analyst ranking dataset we obtained further data on a number of variables and share price data from Standard & Poor's database Computat. Moreover, we obtained data on institutional ownership for each of the respective observations in the dataset from Refinitiv Thomson Reuters Eikon database, containing quarterly data on percentage of shares held by the top five largest institutional shareholders. Institutional owners include e.g. foundations, pensions funds, private equity and endowment funds. We do not include mutual funds in the top five largest shareholders. Our data is obtained from sources widely used in similar studies, paired with a unique dataset of analyst rankings.

4.2 Data breakdown

An exhaustive list of mergers and acquisitions in Sweden, Norway, Denmark and Finland, was extracted from SDC U.S. Mergers and Acquisitions database. All monetary items have been translated at prevailing exchange rate at announcement, to United State Dollar (USD). Inspired by Masulis, Wang and Xie's (2007) criteria for selecting M&A transactions we identify a total of 4,641 transactions made by Scandinavian firms between January 1, 2000 and December 31, 2020. A list of criteria is provided below.

Criteria in SDC Platinum:

1. The acquiring firm is Swedish, Norwegian, Danish or Finish between January 2000 and December 2020.
2. The acquisition is completed.
3. The acquirer owns less than 50% of the target´s shares prior to the announcement and own 100% of the target's shares after the transaction
4. The deal value as disclosed in SDC is greater than $1 million

We further matched in analyst rankings to the dataset obtained from SDC and removed observations where analyst rankings were unavailable. Details regarding analyst rankings are provided in the following section. Further observations were dropped due to lack of financial statement information available from Compustat. Moreover, we retrieved stock return data from Compustat which was translated from local currency into USD in order to determine the relative size of the transaction. We also excluded observations where the merger or acquisition was smaller than 1% of the acquirers' market capitalization, in line with the method of Masulis, Wang and Xie's (2007). Furthermore, previous studies on the topic have excluded firms with dual-class shares, e.g. Masulis, Wang and Xie (2007). However, since dual-class shares are common in Scandinavia, especially in Sweden, we have included these in our sample. In our market capitalization calculations, we have included all listed shares. We have not included any unlisted shares, which is an inherent issue across the methodology. The calculation of cumulative abnormal returns is further based on the share-class with highest liquidity, which should reflect price movements best.

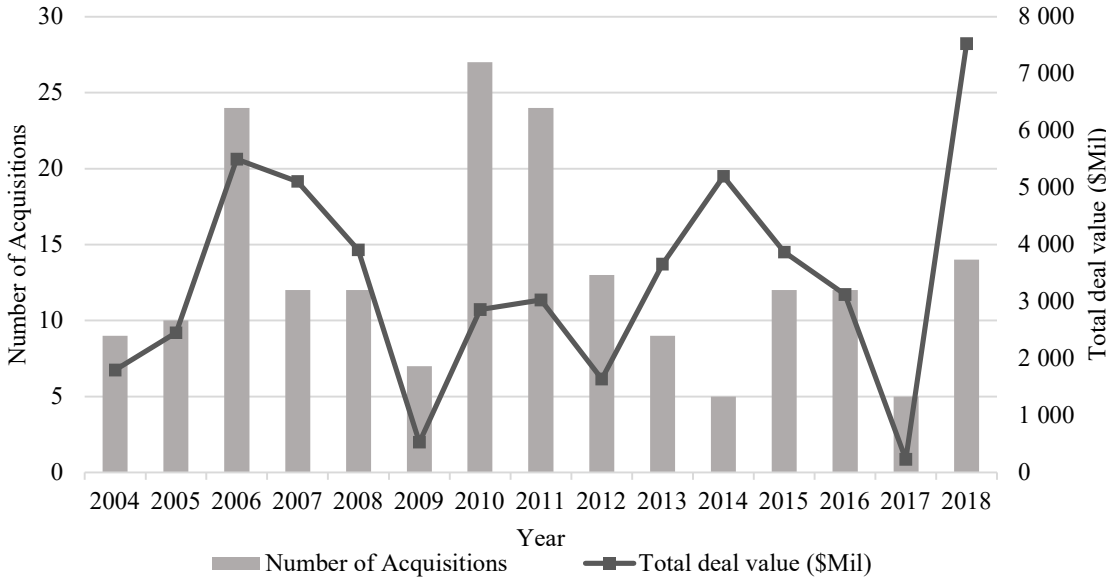
The final dataset consists of 195 transactions across Sweden, Norway, Denmark and Finland, between January 1, 2004 and December 31, 2018. In Table 3 we present a complete list of the data breakdown and figure 1 illustrates deal flow and transaction value by year.

Table 3
Data break-down

	Number of observations	Data loss	Description	Data source
1	279,578	-	Mergers & Acquisitions between 2000-01-01 - 2020-12-31	SDC Platinum
2	279,578	0	Deal Value larger than $1 Mil	SDC Platinum
3	97,549	182,029	Percent of shares owned post transaction is 100%	SDC Platinum
4	89 269	8,280	Percent of shares held at announcement is less than 50%	SDC Platinum
5	4,641	84,628	Acquirer nation is Sweden, Norway, Denmark or Finland	SDC Platinum
6	4,641	0	Deal status is "Completed"	SDC Platinum
7	326	4,315	Analyst ranking data available	Analyst ranking
8	317	9	Financial data available	Compustat
9	200	117	Transaction value is greater than 1% of Acquirer market capitalization	Compustat
10	195	5	Share price data available	Compustat

The table illustrates how we have built our final dataset, i.e. what data and how many observations has been excluded and what source that excludes the observations

Figure 1
Sample summary of Number & Value of M&A transactions



The chart displays number of deals and total deal value per year in our sample. In 2004, there are 9 acquisitions with a total deal value of 1,797 $Mil, which have increased to 14 acquisitions in 2018 with a total deal value of 7,530 $Mil.

4.2.1. Analyst rankings

The analyst ranking dataset was originally gathered and compiled by a Consultancy firm[7]. The consultancy firm gathered the data through a questionnaire where analysts covering a certain firm or firms were asked certain questions relating to e.g. management, regularly reporting and press releases. Over the years the questionnaire has been extended in terms of scope and thus questions have been added over time, with a total of 36 questions in 2018. In 2018 1,040 analysts were asked about 181 unique companies, while only 145 firms were surveyed during 1999. The full sample consists of firms listed in Sweden, Norway, Denmark and Finland, limiting the geographical scope of the paper. As of 2018 the country split of all questions asked to analyst was 39%, 18%, 17% and 27% respectively for Sweden, Norway, Denmark and Finland. In this paper we will only consider CEO Performance, CEO Trust, CFO Competence and CFO Proactiveness, out of the total 36 variables in 2018. For each of the respective variables, representing a set of managerial traits, analysts answered a specific question and assigned the company a ranking based on his/her subjective opinion. The definition of the variables is provided in table 4.

[7] The Consultancy firm is not mentioned by its legal name due to privacy reason and sensitivity of data.

Table 4
Definition of the managerial sets of traits

Question	Question introduced	Variable name
To what degree do you perceive the CEO as competent and capable during presentations, interviews and other public appearances?	2001	CEO Performance
To what degree do you perceive the company's CEO as trustworthy?	2001	CEO Trust
To what degree does the CFO have enough knowledge regarding IR-related and financial issues? To what degree does he/she communicate relevant information to investors and analysts in a professional way?	2003	CFO Competence
To what degree does the CFO act proactive to gain investors' and analysts' confidence? To what degree is he/she service-minded, reliable and cooperative?	2003	CFO Proactiveness

The table shows the questionnaire that Consulting Firm sent out to Nordic analysts. The same questions have been sent yearly during the time-period studied.

The variables on a stand-alone basis could be correlated and thus entail multicollinearity in the ordinary least square (OLS) regressions. As a result of potential multicollinearity and that we want to test CEO, CFO and Key management capability we group the data, as described in section 3.1. If a value is missing for a managerial trait, we exclude that particular managerial trait when calculating the average. However, in most of the cases we have data for all variables. Summary statistics for the analyst ranking data is provided in more detail in table 5.

As a result of the rankings being assigned by analysts, the rankings are rather subjective and we expect some ambiguity in the data, as other proxies in related research. By comparing two firms with similar ranking on a variable, yet different rankings, it is difficult to argue for the firm with higher ranking to have e.g. more capable management as a result of the rankings being subjective. Hence, we have followed the approach used by Andriosopoulos, Yang and Li (2016) and divided each variable into quartiles, by converting the variables into a dummy variables and assigned an observation 1 if it is in the top quartile and 0 if it is in the bottom quartile. Under these settings the difference in ranking between the top and bottom quartile is larger, thus reducing the ambiguity caused by subjectivity. We have divided the full analyst ranking dataset into quartiles for each year and then assigned the observation 1 if it is in the top quartile and 0 if it is in the bottom quartile for that particular year. We have used the full analyst ranking dataset, instead of only our sample of 195 observations, to get a more accurate proxy of whether the firm is the top or bottom quartile in the population. This method allows for comparison of firms in the top quartile with the bottom quartile over time since scorings changes over time, as illustrated in table 5.

Table 5
Management variables overview

Year	Average CEO Performance (Median)	Average CEO Trust (Median)	Average CFO Competence (Median)	Average CFO Proactiveness (Median)	Average CEO capability (Median)	Average CFO capability (Median)	Average Key management capability (Median)
2004	7,92 (8,10)	7,61 (7,53)	7,28 (7,33)	6,46 (6,57)	7,76 (7,79)	6,87 (6,95)	7,32 (7,37)
2005	7,76 (7,97)	7,71 (7,91)	7,60 (7,34)	6,76 (7,00)	7,73 (7,81)	7,18 (7,09)	7,46 (7,35)
2006	8,18 (8,00)	7,98 (7,79)	8,23 (8,50)	7,75 (8,00)	8,08 (7,83)	7,99 (8,17)	8,03 (7,96)
2007	8,21 (8,36)	8,19 (8,44)	8,31 (8,42)	7,82 (8,07)	8,20 (8,41)	8,06 (8,12)	8,13 (8,27)
2008	7,62 (7,50)	7,37 (7,42)	8,33 (8,40)	7,89 (7,81)	7,49 (7,58)	8,11 (8,10)	7,80 (7,86)
2009	7,45 (8,00)	7,84 (8,00)	7,61 (8,00)	7,65 (8,00)	7,64 (8,00)	7,63 (8,00)	7,64 (7,58)
2010	7,70 (7,67)	7,69 (8,00)	7,79 (8,00)	7,19 (7,43)	7,70 (7,85)	7,49 (7,71)	7,59 (7,31)
2011	8,02 (8,12)	8,10 (7,94)	7,48 (8,06)	7,01 (7,77)	8,06 (8,08)	7,24 (7,96)	7,99 (7,93)
2012	7,65 (7,71)	7,86 (8,14)	7,52 (8,00)	7,09 (8,00)	7,75 (8,00)	7,30 (8,14)	7,83 (8,03)
2013	8,10 (8,21)	8,02 (8,00)	8,06 (8,00)	7,72 (7,67)	8,06 (8,03)	7,89 (7,75)	7,98 (8,13)
2014	7,34 (7,50)	7,86 (7,75)	8,37 (8,50)	7,31 (7,45)	7,60 (7,68)	7,84 (8,00)	7,72 (7,69)
2015	7,93 (8,18)	8,16 (8,10)	8,28 (8,31)	7,93 (7,93)	8,04 (8,21)	8,10 (8,08)	8,07 (8,12)
2016	7,71 (8,00)	7,89 (8,31)	7,53 (7,00)	6,97 (6,92)	7,80 (8,08)	7,25 (7,00)	7,53 (7,50)
2017	6,07 (7,00)	5,92 (7,00)	7,20 (8,00)	6,61 (7,00)	5,99 (7,00)	6,91 (7,00)	7,15 (7,00)
2018	N/A N/A	7,84 (8,00)	8,12 (8,25)	7,92 (7,95)	7,84 (8,00)	8,02 (8,10)	7,96 (7,83)
All	7,86 (8,00)	7,87 (8,00)	7,99 (8,14)	7,49 (7,67)	7,86 (7,97)	7,74 (7,93)	7,80 (7,91)

The table displays the average ranking (Median ranking) per year for each of the respective variables we test in this study. The rankings for the managerial traits are assigned by the analysts covering the firm on a 1-10 scale, whilst CEO, CFO and Key management capability is an average as described in section 3.1.

4.3 Research Design

To answer the question whether more capable management or certain managerial traits are related to any shareholder value creation around the announcement of a M&As in the short run we will take a deductive research approach. To explore the potential hypothesized relation, we will conduct an event study to isolate returns surrounding the event. The methodology is commonly used in prevailing literature as well as in related topics where the researchers examine how certain events affect e.g. shareholder value. The method is further the most statistically reliable method for testing if mergers

and acquisitions create value or not, according to Andrade, Mitchell and Stafford (2001). However, despite being the most reliable method it rests on presumption that the semi-strong form of market efficiency holds true, which implies that all publicly available information is reflected in the share price.

To examine any potential relationships, we will compute cumulative abnormal returns which indicates if a stock outperforms or underperforms the market during the event window. Positive CARs indicate on outperformance and vice versa. CARs are estimated based on a one factor market model, the Capital Asset Pricing Model (CAPM). We follow the approach put forth by Craig MacKinlay (1997) to measure normal share performance, i.e. expected returns. Craig MacKinlay (1997) further emphasize that there are multiple models available to estimate normal returns, e,g, Fama and French's three factor model or Arbitrage Pricing model, however, gains from employing multifactor models are limited. Despite multifactor models reduce variance of abnormal returns, the marginal explanatory power of additional factors is small, thus not reducing variance in abnormal returns significantly. The choice of model to estimate expected returns is further generally dictated by the availability of data, which is not an issue under our settings. Hence, we derive expected returns according to CAPM in equation 2.

$$\hat{R}_{i,t} = \mathrm{r}_{\mathrm{f,\,t}} + \hat{\beta}_{i,t} \times \text{Market Risk Premium} \qquad (2)$$

Where $\hat{R}_{i,t}$ is expected return of stock i at time t, $r_{f,t}$ is the risk-free rate at time t and Market Risk Premium defined as expected return of the market less risk-free rate $(R_{mrkt,t} - r_{f,t})$ at time t. Return of the market is proxied by OMXSPI, OMXCPI and OMXHPI respectively for Sweden, Denmark and Finland. The benchmark indexes are all-share price indexes, i.e. supposed to give a fair picture of the market development. In terms of scope the indexes can be compared to Standard & Poor's 500 index, commonly used as a market proxy in similar studies on the American market. Since Oslo Børs operates on Euronext, and not Nasdaq, there is no comparative index for Norway. Hence, we proxy the Norwegian market by MSCI Nordic Countries Index. All indexes are price indexes, thus not adjusted for dividends, which matches the data provided in Compustat. The risk-free rate is further proxied by 3-month government bonds in Sweden, Norway and Denmark. Since the Finnish government has no data on such bonds, we use the average risk-free rate of the other countries to proxy the Finish risk-free rate, again assuming the Nordic countries are relatively similar.

To estimate expected return, we have to estimate the beta of each share in the sample. We use the estimation window of -741 to -11 days prior to the event window, where betas are estimated on a weekly basis. By using a two-year estimation window and weekly returns we measure a sufficiently long estimation window to get a reliable estimate, while reducing the noise from daily returns. From the beta regressions we also obtained the standard errors, as described by Henderson (1990).

Abnormal Returns (AR) are further calculated by subtracting expected returns, estimated by CAPM, from actual returns, as showed in equation 3.

$$AR_{i,t} = R_{i,t} - \widehat{R_{i,t}} \quad (3)$$

Where $R_{i,t}$ is the actual return of the stock i for time t. Adding $AR_{i,t}$ for each share i over an event window we derive Cumulative Abnormal Returns (CAR_i) according to equation 4.

$$CAR_i(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_{i,t} \quad (4)$$

The measure of $CAR_i(t_1, t_2)$ is the dependent variable in the OLS regressions described later. Finally, we calculate the Cumulative Average Abnormal Return $\overline{CAR}$ for the full sample according to equation 5.

$$\overline{CAR}(t_1, t_2) = \frac{1}{N} \sum_{t=t_1}^{t_2} CAR_i(t_1, t_2) \quad (5)$$

To further test the null hypothesis that cumulative abnormal returns are zero we continue with the approach put forth by Craig MacKinlay (1997). The statistic θ is calculated accordingly, assuming that abnormal returns are uncorrelated across different firms.

$$\theta = \frac{\overline{CAR}(t_1,t_2}{\sqrt{Var\left(\overline{CAR}(t_1, t_2)\right)}} \quad (6)$$

Where:

$$Var\left(\overline{CAR}(t_1, t_2)\right) = \frac{1}{N^2} \sum_{i=1}^{N} \sigma_i^2(t_1, t_2) \quad (7)$$

And:

$$\widehat{\sigma_i^2}(t_1, t_2) = (t_2 - t_1 + 1)\sigma_{\epsilon_i}^2 \quad (8)$$

The variance in equation 7 is estimated based on standard errors in the beta regressions.

We will further test if cumulative average abnormal returns for companies with analyst rankings in the top quartile is significantly different from CARs in the bottom quartile. Testing the difference in mean is a common approach used by e.g Kaplan, Klebanov and Sorenson (2012). We calculate a t-statistic according to a standard two-tailed Welch-test. The formula is shown in equation (9).

$$t = \frac{\overline{CAR}_A(t_1, t_2) - \overline{CAR}_B(t_1, t_2)}{\sqrt{Var\left(\frac{CAR_A(t_1,t_2)}{n_A}\right) + Var\left(\frac{CAR_B(t_1,t_2)}{n_B}\right)}} \quad (9)$$

A and B denotes the two different subsamples with unequal variances.

As a final step we regress the analyst ranking variables, i.e. Key management, CEO and CFO capability, as well as the individual set of traits, on the dependent variable cumulative abnormal return, in order to examine the relation between the dependent and independent variables. We will control for factors that literature suggest have a significant impact on share returns around announcement. We control for institutional ownership, relative size, industry expansion, cross-border expansion, market-to-book and return on equity.

4.4 Assumptions and potential errors in regression models

Our methodology rests on the assumptions on that he semi-strong market efficiency holds true. If this is not the case, we will not be able to determine the power of our model since we would not be able to isolate the share price effect of the announcement of the merger or acquisition. We further assume mangers aim to maximize shareholder value.

Another potential error in our study, and most other event studies, is the existence of multiple events occurring the event window entailing issues in terms of what causes the market movement. This phenomenon is referred to as to *event clustering* or *calendar clustering* (Dyckman, Philbrick and Stephan, 1984). The clustering issue can further reduce explanatory power if the events that occur are concentrated to the same industry. However, it is an inherent issue for this specific methodology. In order to reduce the impact events occurring closely to the announcement we examine different event windows. In a -1 to 1 event window there should be fewer simultaneous and significant events affected a firm, compared to a -10 to 10 event window.

5. Empirical results

In the following section we outline the empirical results from our study. Firstly, we present the general results on whether mergers and acquisitions, in the Scandinavian market, are value enhancing or value destroying. In the second part we present the results from the hypothesis tests for Key management, CEO and CFO capability. Finally, we show the results from the regressions where we also control for other factors that could potentially impact cumulative abnormal returns around announcement.

5.1 Cumulative abnormal returns surrounding announcement

Based on our sample we find that cumulative average abnormal returns are positive across all tested event windows, indicating that merger and acquisitions do enhance shareholder value on average in the Nordic setting. The findings, in the bisected literature, are in line with previous findings of Schwert (1996), Kohers and Kohers (2000) and Feito-Ruiz and Menéndez-Requejo (2011), among others, who also find mergers and acquisitions being value enhancing. Despite we find that cumulative average abnormal returns are positive, the results are not significant on the announcement day and further only significant at a 15% for the event window -1 to 1 and -10 to 10. However, the results for event window -2 to 2 and -5 to 5 days are significant on a 10% level. From the two event windows significant on a 10% level, the cumulative average abnormal return is positive at 1.06% and 1.40% respectively, in line with previous findings. The results are to be found in table 6. We will in the following sections focus on event window -2 to 2 and -5 to 5 since the cumulative average abnormal returns are most significant for these two event windows. Empirical results for event window -1 to 1 and -10 to 10 days are provided in the appendix.

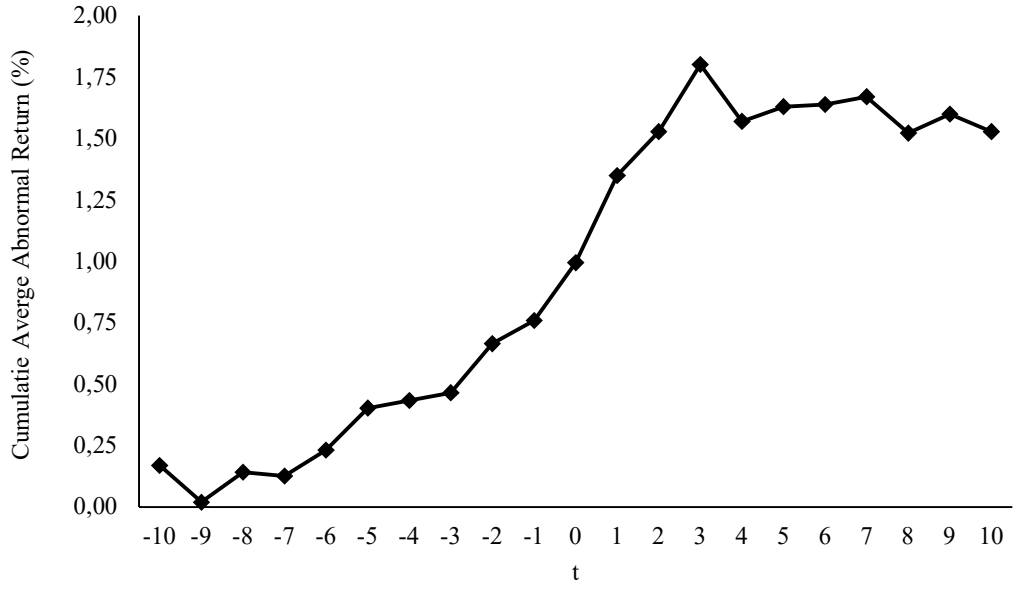
Table 6
Cumulative average abnormal returns around event window

Event window	$\overline{CAR}$		Statistic	p-value	Observations
(0)	0.0024		0.7568	0.2250	195
(-1,1)	0.0069	.	1.2715	0.1025	195
(-2,2)	0.0106	*	1.5283	0.0640	195
(-5,5)	0.0140	*	1.3553	0.0885	195
(-10,10)	0.0153	.	1.0724	0.1424	195

Abnormal returns are derived by comparing actual returns with expected returns, where expected returns are estimated by the Capital Asset Pricing Model. We have followed the approach put forth by Craig MacKinlay (1997). Asterisks and dot indicate significance at the 15% (.), 10% (*), 5% (**) and 1% (***) level.

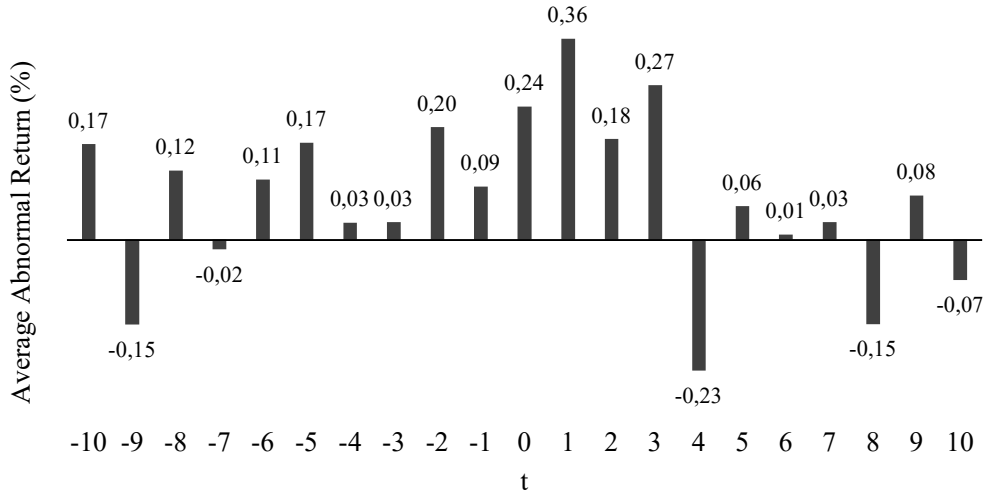
The cumulative average abnormal returns are further displayed in figure 2, where we find that average abnormal returns are positive prior the announcement. The finding is rather surprising, however other researchers, e.g. Schwert (1996), also find that abnormal returns are positive prior to announcement, but not as evident in our study. Schwert (1996) finds that cumulative average return start to rise around 41 days prior to the announcement. Average abnormal return for each day is further displayed in figure 2. The general expectation might be average abnormal returns around zero surrounding the announcement day and then distinct change in average abnormal return at announcement date and the subsequent day (if the transaction is announced after market close), however, our findings indicate on positive abnormal returns prior to the announcement and surrounding the announcement. The average abnormal returns then settle around zero from day 4 after announcement. The findings could indicate on information leakage regarding the deal, i.e. that the semi strong form of the efficient market hypothesis does not hold true. Nonetheless, average abnormal returns are largest in conjunction to and the days subsequent to the announcement.

Figure 2
Cumulative Average Abnormal Returns



Abnormal returns are derived by comparing actual returns with expected returns, where expected returns are estimated by the Capital Asset Pricing Model. We have followed the approach put forth by Craig MacKinlay (1997).

Figure 3
Average Abnormal Returns



Abnormal returns are derived by comparing actual returns with expected returns, where expected returns are estimated by the Capital Asset Pricing Model. We have followed the approach put forth by Craig MacKinlay (1997).

5.2 Difference in mean between top and bottom quartile

To explore the relation between abnormal returns and management capability and managerial traits we begin by testing if higher scoring, in isolation, entails larger cumulative average abnormal returns. In the below Welch test, Table 7, we test Key management capability for all event windows, but we only perform the Welch test on the event windows significant on a 10% level for the remaining variables. The test is performed by comparing the cumulative average abnormal return of the top quartile of analyst ranking with the bottom quartile, as described in section 4.2.1. We don't find that firms with more capable Key management, CEO or CFO find more value enhancing deals in the short run, i.e. during the event window. Nor do we find any evidence that would suggest that more capable management would undertake value destroying acquisitions. The results rather indicate that mergers and acquisitions pursued by capable management entail lower returns, yet positive, than less qualified management. The results are further consistent across all variables, on Key management level, CEO and CFO level and on individual managerial trait level (see table 7 and appendix table A.5), across tested event windows. However, none of the results are statistically significant, thus we cannot conclude that more capable key management, CEOs or CFOs, or mangers with certain traits, pursue more value enhancing mergers and acquisitions, nor the opposite. We do not reject the null hypothesis at this point.

Table 7
Welch test on Key management, CEO and CFO capability

	Top Quartile	**Bottom Quartile**	**Difference in $\overline{CAR}$**		
Panel A: Key Management Capability					
Event Window	$\overline{CAR}$	$\overline{CAR}$	$\overline{CAR}$	t-statistic	p-value
(0)	0.0032	0.0063	-0.0031	-0.4030	0.6883
(-1,1)	0.0062	0.0062	0.0000	-0.0025	0.9980
(-2,2)	0.0134	0.0186	-0.0052	-0.4594	0.6472
(-5,5)	0.0099	0.0212	-0.0113	-0.6815	0.4974
(-10,10)	0.0112	0.0229	-0.0117	-0.4851	0.6288
n	43	46			
Panel B: CEO Capability					
Event Window	$\overline{CAR}$	$\overline{CAR}$	$\overline{CAR}$	t-statistic	p-value
(-2,2)	0.0136	0.0153	-0.0017	-0.1492	0.8818
(-5,5)	0.0198	0.0233	-0.0035	-0.2369	0.8133
n	43	46			
Panel C: CFO Capability					
Event Window	$\overline{CAR}$	$\overline{CAR}$	$\overline{CAR}$	t-statistic	p-value
(-2,2)	0.0037	0.0137	-0.0100	-0.9129	0.3642
(-5,5)	0.0037	0.0185	-0.0148	-0.9941	0.3229
n	52	47			

Abnormal returns are derived by comparing actual returns with expected returns, where expected returns are estimated by the Capital Asset Pricing Model. We have followed the approach put forth by Craig MacKinlay (1997). The calculations for the Welch test are provided in equation (9). Asterisks and dot indicate significance at the 15% (.), 10% (*), 5% (**) and 1% (***) level.

5.3 Regressions on shareholder value

The Welch test in the previous section only tests one variable in isolation, thus not giving a full picture of the potential relationship between management capability and traits, and abnormal returns surrounding the announcement of a merger or acquisition. Hence, we will in this section provide regressions where analyst rankings on Key management, CEO, CFO and the individual traits, together with control variables, are regressed on the dependent variable, cumulative abnormal return. Under these settings we get a more comprehensive understanding of the relation between management capability and abnormal returns. The following sections are divided into three parts where we first test Key management capability, next the CEO and CFO capability and lastly, we test rankings on all four sets of managerial traits. We also perform regressions where we only consider the top and bottom quartile of each variable.

5.3.1 Key management capability

In table 8 we regress Key management capability on cumulative abnormal returns for both event window -2 to 2 and -5 to 5. The betas of Key management capability are positive across all regressions indicating that a deal on average entail 0.31 to 0.48 percentage points for each point of key management ranking. The results are thus in line with our hypothesis on Key management level, however, the results are not statistically significant. Hence, we cannot reject our null hypothesis. The result also contradicts the findings in the Welch test where we found that Key management with higher rankings produce lower abnormal returns, yet positive. We also find that institutional ownership is negatively related to cumulative abnormal returns and is thus value destroying, in line with our hypothesis and the findings of Andriosopoulos, Yang and Li (2016). For each percentage point of institutional ownership cumulative abnormal returns decrease -0.13 to -0.085 percentage points. Betas are statistically significant on a 1% level for event window -2 to 2 and on a 5 % on event window -5 to 5. Furthermore, the adjusted R^2, or explanatory power, of the regressions ranges between 1.83% to 6.69%, which is in line, previous studies with similar regressions (Moeller and Schlingemann, 2005; Andriosopoulos, Yang and Li 2016; Alexandridis, Antypas and Travlos, 2017; Masulis, Wang and Xie, 2007).

Table 8
Regressions: Key management level, event window (-2,2) and (-5,5)

Variable	(1)	(2)	(3)	(4)
Management Scoring				
Key management capability	0.0031	0.0032	0.0062	0.0048
	(0.0068)	(0.0065)	(0.0092)	(0.0090)
Corporate Governance				
Institutional ownership (Top 5)	-0.1095 ***	-0.0854 ***	-0.1309 **	-0.1052 **
	(0.0365)	(0.0344)	(0.0492)	(0.0474)
Deal Characteristics				
Relative size	-0.0116	-0.0038	-0.0442	-0.0364
	(0.0229)	(0.0224)	(0.0309)	(0.0309)
Industry expansion	0.0086	0.0102	0.0103	0.0155
	(0.0086)	(0.0082)	(0.0116)	(0.0114)
Cross-border acquisition	-0.0094	-0.0063	-0.0103	-0.0029
	(0.0088)	(0.0082)	(0.0119)	(0.0114)
Acquirer Characteristics				
Market-to-book	-0.0004		-0.0007	
	(0.0004)		(0.0005)	
Return on equity	0.0392		0.10812	
	(0.0534)		(0.0720)	
Intercept	-0.0064	-0.0065	-0.0327	0.0141
	(0.0514)	(0.0497)	(0.0693)	(0.0685)
Number of obs.	144	154	144	154
Adjusted R^2	3.43%	1.85%	6.69%	1.83%

In regression (1) and (2) we regress the independent variables on the dependent variable, cumulative abnormal returns, over event window (-2,2) and in regression (3) and (4) we regress the independent variables on the dependent variable over the event window (-5,5). The number within parenthesis represent the standard error. Abnormal returns are derived by comparing actual returns with expected returns, where expected returns are estimated by the Capital Asset Pricing Model. We have followed the approach put forth by Craig MacKinlay (1997). Regressions are ran using OLS method in RStudio. Asterisks and dot indicate significance at the 15% (.), 10% (*), 5% (**) and 1% (***) level.

As a result of subjectivity in the analyst ranking data, we also run the previous regressions with Key management capability as a dummy variable, as described in section 4.2.1. The results are in line with those presented above, i.e. Key management capability has a positive beta indicating that mangers with higher ranking generate larger abnormal returns around announcement. The results are again not statistically significant. Furthermore, adjusted R^2 is negative, indicating the model is worse than simply fitting a horizontal line, i.e. its explanatory value is very low or negligible.

Table 9
Regressions: Key management level, top and bottom quartile, event window (-2,2) and (-5,5)

Variable	(1)	(2)	(3)	(4)
Management Scoring				
Key management capability	0.0071	0.0050	0.0149	0.0037
	(0.0130)	(0.0110)	(0.0199)	(0.0175)
Corporate Governance				
Institutional ownership (Top 5)	-0.0261	-0.0092	-0.0547	-0.0217
	(0.0492)	(0.0418)	(0.0754)	(0.0667)
Deal Characteristics				
Relative size	0.0083	0.0086	-0.1135 *	-0.1079 *
	(0.0405)	(0.0392)	(0.0620)	(0.0624)
Industry expansion	-0.0026	-0.0060	0.0100	0.0056
	(0.0122)	(0.0106)	(0.0187)	(0.0169)
Cross-border acquisition	-0.0026	-0.0040	0.0138	0.0108
	(0.0141)	(0.0110)	(0.0216)	(0.0176)
Acquirer Characteristics				
Market-to-book	-0.0026		-0.0068 *	
	(0.0026)		(0.0040)	
Return on equity	0.0081		0.0279	
	(0.0877)		(0.1343)	
Intercept	0.0212	0.0175 .	0.0218	0.0154
	(0.0160)	(0.0117)	(0.0245)	(0.0187)
Number of obs.	60	66	60	66
Adjusted R^2	-8.68%	-6.78%	0.64%	-0.01%

In regression (1) and (2) we regress the independent variables on the dependent variable, cumulative abnormal returns, over event window (-2,2) and in regression (3) and (4) we regress the independent variables on the dependent variable over the event window (-5,5). Key management capability has been transformed to quartiles and the regression shows the top and bottom quartile. The number within parenthesis represent the standard error. Abnormal returns are derived by comparing actual returns with expected returns, where expected returns are estimated by the Capital Asset Pricing Model. We have followed the approach put forth by Craig MacKinlay (1997). Regressions are ran using OLS method in RStudio. Asterisks and dot indicate significance at the 15% (.), 10% (*), 5% (**) and 1% (***) level.

5.3.2 CEO and CFO capability

We furthermore find that the CFO capability has a positive beta across all regressions, while CEO capability has a negative beta, yet extremely small, for the event window -2 to 2 in regressions (1) and (2). Over the -5 to 5 day event window in regression (3) and (4) both variables have positive betas. Again, none of the betas are significant on a 15% level or lower. Furthermore, institutional ownership is statistically significant at a 5% level or lower. Coefficients on control variables are further in line with those presented in table 8.

Table 10
Regression: CEO and CFO level, event window (-2,2) and (-5,5)

Variable	(1)	(2)	(3)	(4)
Management Scoring				
CEO capability	-0.0005	-0.0004	0.0022	0.0006
	(0.0051)	(0.0048)	(0.0070)	(0.0067)
CFO capability	0.0061	0.0060	0.0062	0.0064
	(0.0052)	(0.0050)	(0.0071)	(0.0069)
Corporate Governance				
Institutional ownership (Top 5)	-0.1096 ***	-0.0866 **	-0.1275 **	-0.1039 **
	(0.0362)	(0.0342)	(0.0495)	(0.0478)
Deal Characteristics				
Relative size	-0.0121	-0.0043	-0.0438	-0.0370
	(0.0226)	(0.0221)	(0.0309)	(0.0310)
Industry expansion	0.0065	0.0084	0.0077	0.0136
	(0.0086)	(0.0030)	(0.0118)	(0.0116)
Cross-border acquisition	-0.0073	-0.0040	-0.0074	0.0004
	(0.0089)	(0.0084)	(0.0122)	(0.0117)
Acquirer Characteristics				
Market-to-book	-0.0004		-0.0008 .	
	(0.004)		(0.0005)	
Return on equity	0.0454		0.1193 .	
	(0.0532)		(0.0729)	
Intercept	-0.0275	-0.0258	-0.0535	-0.0331
	(0.0519)	(0.0503)	(0.0711)	(0.0704)
Number of obs.	141	151	141	151
Adjusted R^2	3.11%	1.36%	3.75%	0.88%

In regression (1) and (2) we regress the independent variables on the dependent variable, cumulative abnormal returns, over event window (-2,2) and in regression (3) and (4) we regress the independent variables on the dependent variable over the event window (-5,5). The number within parenthesis represent the standard error. Abnormal returns are derived by comparing actual returns with expected returns, where expected returns are estimated by the Capital Asset Pricing Model. We have followed the approach put forth by Craig MacKinlay (1997). Regressions are ran using OLS method in RStudio. Asterisks and dot indicate significance at the 15% (.), 10% (*), 5% (**) and 1% (***) level.

When regressing the top and bottom quartiles betas are positive across both variables across both event windows, except for CFO capability in regression (1). In all four regressions industry expansion is statistically significant on a 10% level or lower. Moreover, adjusted R^2 ranges between 22.26% to 38.85%, which is significantly higher than in previous regressions, and can be further explained by the small number of observations. As number of observation decreases, the relative number of regressor to observations decreases, which entails a smaller denominator in the R^2 calculation which entails a larger adjusted R^2.

Table 11
Regression: CEO and CFO level, top and bottom quartile, event window (-2,2) and (-5,5)

Variable	(1)		(2)		(3)		(4)	
Management Scoring								
	0.0151		0.0175		0.0010		0.0139	
CEO capability	(0.0140)		(0.0120)		(0.0167)		(0.0154)	
	-0.0032		0.0003		0.0125		0.0138	
CFO capability	(0.0152)		(0.0117)		(0.0180)		(0.0150)	
Corporate Governance								
	-0.0187		-0.0331		-0.0499		-0.0683	
Institutional ownership (Top 5)	(0.0480)		(0.0423)		(0.0570)		(0.0546)	
Deal Characteristics								
	-0.0298		-0.0234		0.1068	*	0.0801	
Relative size	(0.0478)		(0.0435)		(0.0567)		(0.0561)	
	-0.0357	**	-0.0339	***	-0.0345	**	-0.0277	*
Industry expansion	(0.0128)		(0.0110)		(0.0152)		(0.0142)	
	-0.0265	*	-0.0215	*	-0.0175		-0.0228	
Cross-border acquisition	(0.0147)		(0.0122)		(0.0174)		(0.0158)	
Acquirer Characteristics								
	0.0013				-0.0091	**		
Market-to-book	(0.0147)				(0.0040)			
	-0.0061				0.1671			
Return on equity	(0.1079)				(0.1280)			
	0.0450	**	0.0398	**	0.0362	.	0.0337	
Intercept	(0.0183)		(0.0159)		0.0218)		(0.0205)	
Number of obs.	28		30		28		30	
Adjusted R^2	22.64%		29.17%		38.85%		30.36%	

In regression (1) and (2) we regress the independent variables on the dependent variable, cumulative abnormal returns, over event window (-2,2) and in regression (3) and (4) we regress the independent variables on the dependent variable over the event window (-5,5). CEO and CFO capability has been transformed to quartiles and the regression shows the top and bottom quartile. The number within parenthesis represent the standard error. Abnormal returns are derived by comparing actual returns with expected returns, where expected returns are estimated by the Capital Asset Pricing Model. We have followed the approach put forth by Craig MacKinlay (1997). Regressions are ran using OLS method in RStudio. Asterisks and dot indicate significance at the 15% (.), 10% (*), 5% (**) and 1% (***) level.

5.3.3 Managerial traits

We finally examine the individual set of traits, and the results are not as easily interpreted as in the previous findings. CFO Proactiveness has a positive coefficient across all regressions and CEO Trust a positive coefficient across all regressions, except for regression (2). CEO performance is inversely related to CAR across all regressions, except for regression (2). Finally, the coefficient of CEO Capability is positive on the -2 to 2 day event window, but negative over the -5 to 5 event window. In line with previous two regressions on the full sample institutional ownership is significant at a 5% level or lower. We don't run any regressions on the top and bottom quartile data on each of the sets of traits since the sub sample gets too small because of omitted observations. Such small sample is not likely being representative for the population and thus any conclusion drawn from a very small sample might

be very sensitive and thus not accurate. However, we do test each variable individually with a corresponding Welch test (see appendix table A.5).

Table 12
Regressions: Managerial trait level, event window (-2,2) and (-5,5)

Variable	(1)	(2)	(3)	(4)
Management Scoring				
CEO Performance	-0.0012	0.0025	-0.0092	-0.0046
	(0.0083)	(0.0081)	(0.0113)	(0.0112)
CEO Trust	0.0005	-0.0035	0.0108	0.0036
	(0.0083)	(0.0080)	(0.0112)	(0.0110)
CFO Competence	0.0046	0.0033	-0.0030	-0.0027
	(0.0082)	(0.0080)	(0.0110)	(0.0111)
CFO Proactiveness	0.0046	0.0052	0.0125	0.0124
	(0.0067)	(0.0067)	(0.0091)	(0.0092)
Corporate Governance				
Institutional ownership (Top 5)	-0.1203 ***	-0.0943 **	-0.1467 ***	-0.1198 **
	(0.0393)	(0.0364)	(0.0533)	(0.0505)
Deal Characteristics				
Relative size	-0.0111	-0.0015	-0.0521	-0.0419
	(0.0241)	(0.0235)	(0.0326)	(0.0326)
Industry expansion	0.0107	0.0126	0.0173	0.0241 *
	(0.0097)	(0.0090)	(0.0131)	(0.0126)
Cross-border acquisition	-0.0034	-0.0022	0.0013	0.0058
	(0.0098)	(0.0090)	(0.0133)	(0.0125)
Acquirer Characteristics				
Market-to-book	-0.0002		-0.0006	
	(0.0004)		(0.0006)	
Return on equity	0.0097		0.0617	
	(0.0004)		(0.0828)	
Intercept	-0.0460	-0.0412	-0.0667	-0.0444
	(0.0558)	(0.0532)	(0.0756)	(0.0737)
Number of obs.	130	140	130	140
Adjusted R^2	1.47%	0.81%	3.68%	2.09%

In regression (1) and (2) we regress the independent variables on the dependent variable, cumulative abnormal returns, over event window (-2,2) and in regression (3) and (4) we regress the independent variables on the dependent variable over the event window (-5,5). The number within parenthesis represent the standard error. Abnormal returns are derived by comparing actual returns with expected returns, where expected returns are estimated by the Capital Asset Pricing Model. We have followed the approach put forth by Craig MacKinlay (1997). Regressions are ran using OLS method in RStudio. Asterisks and dot indicate significance at the 15% (.), 10% (*), 5% (**) and 1% (***) level.

5.4 Summary of empirical results

We find that mergers and acquisitions in the Nordics on average enhance shareholder value in the short run. The results are significant on a 15% to 10% significance level. We also find abnormal returns become positive prior to announcement. We do further not find that higher analyst ranking, in isolation, on Key management level, CEO and CFO level and trait level, enhance shareholder value. We rather

find average CARs greater for the bottom quartile of Key management, CEO and CFO capability, as well as for the sets of traits. The results are not statistically significant on a 15% or lower level.

In our regressions we find positive beta coefficients for Key management capability and further generally positive betas for CEO and CFO capability, including regressions accounting for top and bottom quartiles. The coefficients are thus in line with our hypothesis and contradicts the findings on the management capability and traits in isolation, in the Welch test. The regressions further have larger explanatory value since the regression's accounts for other factors as well. The results for event window -2 to 2 and -5 to 5 are in line with those from event window -1 to 1 and -10 to 10 (Table A.5). On a managerial trait level, the results are not as evident. CEO Performance has a negative sign across three of four regressions while the remaining set of traits generally have positive signs. Overall, the results from the regressions are not significant on a 15% level or lower. We can therefore not reject any of our null hypothesis. Hence, our results are in line with the findings of Aarts and Wiklund (2015), who find that cognitive ability has no significant impact on shareholder value creation in conjunction with a merger or acquisition. Noteworthy is that our proxy for management capability and set managerial traits are not directly comparable to an individual trait, which Aarts and Wiklund (2015) tests for. Aarts and Wiklud (2015) do however find leadership aptitude being positively related to cumulative abnormal returns on a 10% significance level.

Institutional ownership is moreover inversely correlated with CARs across our regressions and significant on the full sample, in line with our expectation. Institutional ownership is however not statistically significant in the regressions on top and bottom quartiles. We do further include institutional ownership across all regressions to control for corporate governance and if the variable would be dropped the regressions would yield extremely low adjusted R^2, or even negative adjusted R^2, indicating that the explanatory value is very low or negligible. The relationship between institutional ownership and CAR is moreover in line with what we expected.

On the remaining control variable, we find that relative size and market-to-book has overall a negative coefficient in our regressions with a few exceptions, i.e. opposite to what we expected. Industry expansion has a mixed relationship in the regressions, also opposed to what we expected. Meanwhile, Cross-border negative, Market-to-Book negative and Return on Equity positive, i.e. in line to what we expected. Coefficients are thus generally in line with what previous literature suggests and our expectations.

6. Discussion

We find management capability being positively related to cumulative abnormal returns surrounding announcement, which could indicate that higher management capability enhance value in conjunction with a merger or acquisition. However, the results are not significant on a 15% level or lower, thus we cannot conclude that the relationship holds, nor can we conclude the opposite. Our empirical findings further indicate that CEO Trust and CFO Proactiveness is positively related with CARs, while CEO Performance is inversely related to CAR. The result of CFO Competence is difficult to interpret thus unclear. Again, results are not statistically significant. The implication is that we cannot reject any of our null hypothesis, hence reducing the practical or theoretical applications of our findings. However, one interpretation is that the market participants do not believe that managers, who are highly ranked by analysts, necessarily make shareholder value maximizing decisions. Our results on a managerial trait level are moreover in line with the empirical findings of Aarts and Wiklund (2015), when testing cognitive ability. Aart and Wiklund (2015) propose that cognitive ability cannot be seen by an investor, thus not impacting CARs, contrasting leadership aptitude which can be observed. However, our proxies are designed to be observable, hence their suggested explanation is invalid in our study.

In effect to that we do not find any statistically significant results, the gap in the prevailing literature prevails. Our findings suggest there is room for further research on the growing topic of managerial characteristics as our findings suggests that analysts' ranking on managerial capabilities and traits may not be a good proxy. As our findings are statistically insignificant, we will below discuss if there is any economic significance and further present potential issues or errors relate to the study, which could impact on our findings.

Thorbecke (2004) put emphasize on the fact that there is no thresholds for determining economic significance, as for statistical significance. As per definition, the implication is that it is up to the researcher(s) to motivate and discuss any economic significance, introducing a layer of subjectivity. We don't believe any coefficient is large enough to clearly conclude economically significance, we do however want to highlight that coefficient of Key Management Capability and CFO Capability in table 8 and 10, are relatively large compared to the coefficients in the other regressions. Putting the coefficient in economic context the implication is that each ranking on Key Management Capability and CFO Capability entail up to 0.62 and 0.64 percentage points of abnormal return respectively, which would entail a total of 4.9 and 5.0 percentage points in cumulative abnormal return respectively, using the average ranking and putting other factors aside. To provide some perspective, the 4.9 and 5.0 percentage point is further substantially different from the 1.40% cumulative average abnormal return for the corresponding event window. Hence, we suggest there could be some economically significance on Key Management Capability and CFO Capability as a result of the large impact of the two variables on

CAR, with reservation for that the numbers are not statistically significant. In general, betas in other regressions would yield significantly lower cumulative abnormal returns. The implication is that Key Management Capability and CFO Capability potentially are important factors when studying shareholder value relating to a merger or acquisition.

Continuing to any issues or errors in our study one potential explanation to our results is that investors don't understand the full potential, or overpayment, of a deal (Hietala, Kaplan and Robinson, 2003). This could be a result of poor communication or the difficulty of separating any value between the target or acquirer. As a result, a longer event window could capture the effect of investors understanding the deal. However, a longer event window also entails greater risk event clustering.

Another issue relates to the CFO decision making power. Although the CFO is receiving good rankings by the analysts, his or her power and role in influencing the actual operational M&A decisions may be limited or different across firm. A potential alternative measurement to capture this is to look whether the CFO has a board seat or not. Given regular board meetings where strategic decisions often are discussed, especially those decision of high importance such as M&As, it's likely that a CFO who is on the board would have more influence on the corporate decisions (Adams and Ferreria, 2007). For the purpose of our study, we did not include a separate variable to control for this, as we assume it would already be indirectly reflected in the CFO ranking on proactiveness and gaining investors trust. It's not an unreasonable assumption that a CFO who is less able to influence the actual operating decisions on the firm would receive a lower ranking.

There might be further underlying factors affecting the variability in our data, especially in the analyst rankings, which in turn has important implications for the significance of management capability and managerial traits across our tests. As we have discussed throughout the paper, the analyst rankings suffer from subjectivity. Rankings are based on, or biased by, analysts' personal views on company management. This suggest that the dataset on analyst rankings is not optimal proxy for management capability, however, as previously mention it is difficult to proxy for management ability. We try to eliminate the effect of the subjectivity by comparing top and bottom quartiles, however, it is not sufficient to provide any statistically significant results.

Another error relates to that qualified mangers with high management capability are hired by large companies since large companies can offer better pay, stability, and status. This is supported by our analyst ranking data, especially for the CEO. The CEO Performance measure shows an average of 0.13 units higher ranking and CEO Trust shows an average of 0.37 units higher ranking for the 25 largest companies in the sample compared to the 25 smallest companies. On CFO level, we do not see this trend for the 25 largest and smallest companies where the averages are approximately the same,

however if we look at the very largest (top five largest and smallest companies in sample), the same trend appear with CFO Competence showing an average of 0.14 units higher rating and CFO Proactiveness an average of 0.16 units higher rating. However, these discrepancies could also be due to other reasons such as the individual analyst have an increased exposure to e.g. press coverage of larger companies and we have not statistically tested these differences. Large firms further pursue relatively smaller acquisitions, confirmed by our sample as well as by Moeller, Schlingemann and Stulz (2004), entailing lower cumulative abnormal absolute returns. Since we find mergers and acquisitions being value enhancing in general, large companies generate lower abnormal returns, despite having higher analyst rankings. If our hypothesis regarding good managers being hired by larger companies is true, it might be an issue in the sample as the returns for large firms in our sample are relatively smaller, while the ranking is relatively higher.

Violation of the semi-efficient market hypothesis could be another issue. As highlighted in the empirical findings we find positive abnormal returns prior to announcement which could indicate on information leakage. As a result, abnormal returns for the days nearby announcement become smaller, thus decreasing the significance of our tests.

Lastly, we do not consider causality in this paper. Nonetheless, it is important to highlight the issue. In our study we assume that analyst rankings influence abnormal returns around announcement. However, it could be the case that previous mergers and acquisitions increases analyst rankings significantly. We do not believe this is a major issue since the questions in the survey did not explicitly ask about mergers and acquisitions, but since the analyst ranking is subjective, we do not know. If an analyst would consider previous mergers and acquisitions, it should only explain a fraction of the total ranking assigned. Again, this relates back to the issue of subjectivity where we cannot determine the factors behind an analysts' ranking.

7. Reliability and validity

The methodology applied in our study is designed to give robustness to our results. Firstly, we run our regressions over four different event windows. The purpose is to capture the market's price reaction which may partially lag the announcement day due to e.g. unclear communication or complexity of the deal and its synergies. Regressions for all event windows are presented in section 5 (Empirical results) and section 10 (Appendix A). Secondly, due to our management variables is not normally distributed and the subjective nature of the data, we also run our regressions using quartiles via the top and bottom 25 % of rankings.

The presence of multicollinearity in our regression model is referred to as intercorrelations among our independent variables. When analyzing our results high multicollinearity could possibly skew the results because of the aim of our control variables is to explain variations in the dependent variable. We examine whether multicollinearity exist among our independent variables in the regressions through a correlation matrix, see Appendix table A.11. As evident from the table, there is correlation between the variable *CEO Performance* and *CEO Trust*, as well as between *CFO Competence* and *CFO Proactiveness*. The remainder of the intercorrelations are deemed to be at acceptable low levels. The correlation between the two CEO variables and the two CFO variables is mitigated by running additional regressions where the two variables are consolidated in to one variable, refer to section 3.1 for rational. We therefore conclude the empirics are analyzed with an acceptable level of multicollinearity.

We have further analyzed our data through an event study, which is commonly used by practitioners and is one of the most popular methods (Henderson, 1990). The event study model relies on a few important assumptions, mainly that we have a *semi-strong* form efficient market, i.e. that the stock prices adjusts quickly to new public information. It is these stock price adjustments that are aimed to be captures during the event window of 0, (-2, 2) or (-5, 5) days from the acquisition announcement. Another important assumption related to our methodology is that the *information value* provided at announcement is correct and sufficient for the market to valuate and use the information. Increasing (decreasing) the event window would allow more (less) time for the market to correctly analyze financial implication of the acquisition. However, it would also bring more (less) *noise* to the model where other factors besides the M&A announcement would affect the share price[8]. We have in our study presented the results for the commonly used event windows in prior studies.

Our data sample further relies on that the acquiring firm was included in the analyst rankings obtained by Consulting firm. For instance, in 2018 the management data contained ratings for 181 firms in the Nordics. This filtering removed approximately four thousand observations from our SDC Platinum dataset on Nordic acquisitions. The size of the final sample is however in line with previous studies (see table 1) and should contain enough observations draw any conclusions on the population.

Lastly, the empirical result of our study can be questioned in terms of explanatory power of the model used. In the regressions, R^2 is generally low which indicate that the variance of CAR in our regression is only to a small extent explained by the input variables in the model.

[8] The phenomenon is also known as *event clustering* or *calendar clustering problem*.

8. Conclusion

We analyze the impact of managerial capability and traits on the market's reaction to announcements of mergers and acquisitions in the Nordic market. Building on a unique dataset containing analysts' ranking data on managerial characteristics of CEOs and CFOs we conduct an event study to explore any relationship between managerial characteristics and shareholder value, measured in abnormal returns. We use data on 195 completed transactions between 2004 and 2018. We proxy each set of managerial traits, as well as Key management, CEO and CFO capability, by analysts' rankings and further hypothesize that each variable is positively related to shareholder value surrounding the announcement. Our empirical results indicate on a positive relationship across all variables, except for CEO Performance, however, the results are not statistically significant. As a result, we do not reject our null hypothesis, hence the gap in literature largely prevails. In effect, our results open up for further research on the topic in order to understand how managerial characteristics relates to shareholder value in connection to a merger or acquisition announcement. We also want to underline that our proxies of managerial traits evidently suffer from subjectivity, which could explain our statistically insignificant results. We try to reduce the level of subjectivity by comparing the top and bottom quartiles, however, it was not sufficient in order to yield statistically significant results. Despite we do not find any statistically significant results we want to emphasize that our findings on Key Management Capability and CFO Capability show signs of economic significance due to their impact on CAR. Hence, the variables show tendencies of being an important factor when examining shareholder value relating to a merger or acquisition.

As a result of the statistical insignificance of our empirical results we open for further research using other proxies to test managerial characteristics and how these relates to shareholder value. For instance, Demerjian, Lev and McVay (2012) has developed a more quantifiable measure of management's efficiency in generating revenue with the firm's readily available resource compared to its industry peers. However, such measure presents difficulties in the light of many aspects of performance is unrelated to management and out of managements control. Moreover, since we find signs of Key Management Capability and CFO Capability being economically significant, we encourage future researchers to explore the variables, or managerial traits, further and from different perspectives using different methods. We furthermore point out the possibility that investors' do not understand the full potential, or overpayment, of a deal in the short run in our discussion. As a result, the potential issue requires a post-announcement perspective and analysis. From such perspective future research can uncover the long-term post-announcement relation between management capability and shareholder value in order to determine whether qualified managers can realize larger synergies over time. Lastly, it would further be interesting to examine if managers with higher rankings pursue more, or larger, acquisitions to increase personal wealth, in line with the managerialism hypothesis.

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10. Appendix A

Table A.1
Summary of selected Papers - Target shareholder returns

Study	Sample Period	Sample Size	Cumulative Abnormal Returns (%)	Event Window (Days)	Notes
Langetieg, 1978	1929 - 1969	149	10.63%	(-120,0)	Effective date used as event date
Servaes, 1991	1972 - 1987	704	23.64%	(-1,0)	
Franks et al., 1991	1975 - 1984	399	28.04%	(-5,5)	
Schwert, 1996	1975 - 1991	666	26.30%	(-42,126)	
Mulherin and Boone, 2000	1990 - 1999	376	21.2%	(-1,1)	
DeLong, 2001	1988 - 1985	280	16.61%	(-10,1)	At least one party is a bank

The table summarizes prior studies on the topic of shareholder value, measured as abnormal returns, from the perspective of the target.

Table A.2
List of observations

Date Announced	Acquiror Company name	Target Company name
2004-01-27	Ratos AB	Haendig AB
2004-03-17	WM-data AB	Parere AB
2004-05-04	SKF AB	Willy Vogel AG
2004-05-06	Securitas AB	Bell Group PLC
2004-07-01	Teleca AB	GeraCap Oy
2004-08-19	HiQ International AB	Computer & Audio- Technical
2004-10-14	Tele2 AB	UTA Telekom AG
2004-11-01	Scania AB	Ainax AB
2004-11-15	OMX AB	Copenhagen Stock Exchange A/S
2005-01-27	Capio AB	Grupo Sanitario IDC
2005-03-01	IBS AB	TMS Tailor Made Sys Pty Ltd
2005-04-13	Telelogic AB	Focal Point AB
2005-04-25	Stora Enso Oyj	Papyrus Germany GmbH & Co KG
2005-05-09	IBS AB	IDS Enterprise Systems
2005-09-26	Eniro AB	Findexa AS
2005-11-18	OMX AB	Computershare-Markets Tech Bus
2005-12-01	Elekta AB	Medical Intelligence Medizinte
2005-12-06	Ratos AB	Anticimex
2005-12-21	Trelleborg AB	CRP Group Ltd
2006-01-16	Citycon Oyj	Valtari Shopping Centre
2006-02-10	Wartsila Oyj Abp	Total Automation Ltd
2006-02-14	Nobia AB	Hygena Cuisines SA
2006-02-17	Cardo AB	Grupo Combursa
2006-04-03	SKF AB	SNFA SAS
2006-04-04	Rautaruukki Oyj	Ventall Steelwork

2006-04-11	Teleca AB	Telma Ltd
2006-05-22	SKF AB	Economos Austria GmbH
2006-05-22	Citycon Oyj	Stenungs Torg Fastighets AB
2006-05-29	Citycon Oyj	UAB Rimvesta
2006-06-12	Cargotec Oyj	BMH Marine AB
2006-06-12	Saab AB	Ericsson Microwave Systems AB
2006-06-16	Citycon Oyj	Columbus Shopping Center
2006-06-26	Citycon Oyj	BHM Centrumfastigheter AB
2006-07-31	Telenor ASA	Mobi63
2006-08-14	Novozymes A/S	GroPep Ltd
2006-08-21	Capio AB	Deutsche Klinik GmbH
2006-08-22	Stora Enso Oyj	Intl Paper-Coated Papers Bus
2006-08-22	Citycon Oyj	Liljeholmsplan Fastighets AB
2006-08-31	Yara International ASA	Fertibras SA
2006-08-31	Capio AB	Tonkin Investissements SA
2006-09-20	OMX AB	Icelandic Stock Exchange
2006-12-15	Citycon Oyj	Tumba Cenrtumfastighets AB
2006-12-21	Husqvarna AB	Gardena Holding AG
2007-01-08	Castellum AB	Undisclosed Swedish
2007-02-07	Swedbank AB	JSCB TAS-Kommerzbank
2007-03-23	Elekta AB	3D Line Medical Systems Srl
2007-05-23	Ratos AB	Hag ASA
2007-06-15	HiQ International AB	MobilEyes AB
2007-06-28	Munters AB	Turbovent Argo
2007-06-29	Ratos AB	EuroMaint AB
2007-07-23	Ratos AB	Contex Scanning Technology A/S
2007-09-03	Storebrand ASA	SPP Livforsakring AB
2007-10-11	PA Resources AB	Scotsdale Ltd
2007-10-24	Saab AB	Saab Grintek(Pty)Ltd
2007-11-09	Alfa Laval AB	Fincoil-teollisuus Oy
2008-02-15	JM AB	Undisclosed RE Ppty Portfolio
2008-02-20	Kungsleden AB	Santa Maria-RE Ppty Portfolio
2008-02-22	Haldex AB	Concentric PLC
2008-03-28	Kungsleden AB	GE Real Estate Sverige AB-Publ
2008-04-02	Kungsleden AB	Undisclosed Public Properties
2008-05-29	Kappahl AB	London & Regional-Undisclosed
2008-07-03	Wartsila Oyj Abp	Vik-Sandvik AS
2008-07-10	Munters AB	Toussaint Nyssenne SA
2008-07-14	Yara International ASA	Saskferco Products Inc
2008-07-31	Modern Times Group MTG AB	Nova Televisia
2008-09-04	Elcoteq SE	P-Harmony Monitors HK Hldg Ltd
2008-10-15	Peab AB	Peab Industri AB
2009-04-17	Peab AB	Annehem Fastigheter AB
2009-07-10	F-Secure Corp	Steek SA

2009-10-13	Kungsleden AB	Northern Logistics Property-
2009-10-14	Bure Equity AB	Skanditek Industriforvaltning
2009-11-18	Wallenstam AB	Vasakronan AB-Buildings(3)
2009-12-07	Knowit AB	Endero Oy
2009-12-10	Outotec Oyj	Ausmelt Ltd
2010-03-10	Wihlborgs Fastigheter AB	Brinova Fastigheter-Portfolio
2010-03-12	Hufvudstaden AB	Inom Vallgraven Bldgs,(2)
2010-04-12	Wihlborgs Fastigheter AB	Nordic Land Terminalen AB
2010-04-26	ALK-Abello A/S	Artu Biologicals Europe NV
2010-04-29	Outotec Oyj	Edmeston AB
2010-05-04	Kungsleden AB	Commercial Properties(3)
2010-05-31	Elekta AB	Resonant Medical Inc
2010-06-04	HKScan Oyj	Rose Poultry A/S
2010-06-07	Rockwool International A/S	TZMP
2010-06-16	Atea ASA	Portal Datortillbehor AB
2010-07-02	Investor AB	Aleris Holding AB
2010-07-06	Rockwool International A/S	CSR-Insulation, Panels&Trading
2010-07-08	Ratos AB	Stofa A/S
2010-08-27	Rapala VMC Oyj	Dynamite Baits Ltd
2010-09-08	Finnair Oyj	Undisclosed Airline Co,Finland
2010-09-30	Securitas AB	Reliance Security Services Ltd
2010-10-01	Kungsleden AB	Shopping Centre, Hudiksvall
2010-11-03	Intrum Justitia AB	Aktiv Kapital-Credit Mgmt Op
2010-11-05	HiQ International AB	Frends Technology Oy
2010-11-24	Trelleborg AB	Watts Tyre Group
2010-11-26	Kungsleden AB	NREP-Retail properties(6)
2010-11-29	Atea ASA	Umoe IKT AS
2010-12-17	Lemminkainen Oyj	Mesta Industri AS
2010-12-17	Kungsleden AB	NewCap Holding-Properties(2)
2010-12-20	Kungsleden AB	NR Nordic & Russia-36 Ppty
2010-12-21	Alfa Laval AB	Aalborg Industries Holding A/S
2010-12-21	Intrum Justitia AB	Nice Invest Nordic AB
2011-01-11	Cramo Oyj	THEISEN Baumaschinen AG
2011-01-14	Securitas AB	Chubb Security Personnel Ltd
2011-01-26	Wallenstam AB	NIAM-RE Properties(7)
2011-01-27	Mekonomen AB	AS Sorensen og Balchen
2011-02-21	Meda AB	Antula Healthcare AB
2011-02-28	PKC Group Oyj	SEGU-Systemelektrik GmbH
2011-03-14	SalMar ASA	Bringsvor Laks AS
2011-03-17	Citycon Oyj	Kristiine Kaubanduskeskus AS
2011-03-21	Ratos AB	Finnkino Oy
2011-03-28	Trelleborg AB	Silcotech AG-Swiss Operations
2011-04-11	Medivir AB	BioPhausia AB
2011-04-11	TGS-NOPEC Geophysical Co ASA	Stingray Geophysical Ltd

2011-04-19	Tikkurila Oyj	Zorka Color ad-Business Op
2011-06-21	Elekta AB	Nucletron BV
2011-09-01	Atea ASA	FotoPhono AS
2011-10-04	Kungsleden AB	Kefren AB-Coml Ppty
2011-10-12	Mekonomen AB	Meca Scandinavia AB
2011-10-28	ASSA ABLOY AB	Albany Door Systems GmbH
2011-11-17	Wartsila Oyj Abp	Hamworthy PLC
2011-12-01	New Wave Group AB	Paris Glove of Canada Ltd
2011-12-07	NCC AB	Morgan Stanley P2-RE ppt,(2)
2011-12-21	Loomis AB	Efectivox SA
2011-12-21	Alma Media Oyj	LMC sro
2011-12-23	Eniro AB	De Gule Sider-Online Assets
2012-01-13	Intrum Justitia AB	Buckaroo BV
2012-04-04	Citycon Oyj	Tapiola-Yhtiot-Shopping Center
2012-04-18	Betsson AB	Nordic Gaming Group Ltd
2012-06-07	Citycon Oyj	Albertslund-shopping centre
2012-06-07	Saab AB	HITT NV
2012-06-22	Orkla ASA	Jordan Personal & Home Care AS
2012-07-04	Wallenstam AB	Vasakronan AB-RE ppty(5)
2012-08-15	Technopolis Oyj	Yleisradio-Tohloppi,Tampere
2012-09-18	Spar Nord Bank A/S	Sparbank A/S
2012-10-26	Saab AB	Medav GmbH
2012-11-15	Alma Media Oyj	A&N Media-Job Portal Assets
2012-12-07	Yara International ASA	Bunge Ltd-Fertilizer Branch
2012-12-14	Kungsleden AB	Hemso Fastigheter-Properties(1
2013-01-09	SKF AB	Blohm + Voss Industries GmbH
2013-02-01	Electrolux AB	Niam-Office Property,Stockholm
2013-03-27	Investor AB	Permobil AB
2013-04-26	Telenor ASA	Cosmo Bulgaria Mobile EAD
2013-06-18	Kungsleden AB	Properties,Gothenburg(2)
2013-07-16	Cargotec Oyj	Hatlapa Uetersener
2013-08-15	Kungsleden AB	GE Capital RE-Properties(84)
2013-11-26	Yara International ASA	OFD Holding Inc
2013-12-09	Cloetta AB	Alrifai Nutisal AB
2014-04-07	Alfa Laval AB	Frank Mohn AS
2014-04-14	Saab AB	ThyssenKrupp Marine Systems AB
2014-09-15	TDC A/S	Get AS
2014-11-12	ICA Gruppen AB	Apotek Hjartat AB
2014-12-09	Nobia AB	Rixonway Kitchens Ltd
2015-01-20	ISS A/S	GSH Grp Ltd-UK,Ireland Ops
2015-05-25	Citycon Oyj	Sektor Gruppen AS
2015-06-01	Spectrum ASA	Fugro NV-Data Library Business
2015-06-29	Betsson AB	Chempionebi 111 LLC
2015-06-29	TGS-NOPEC Geophysical Co ASA	Polarcus Ltd - Client Library

2015-07-17	Cloetta AB	Locawo BV
2015-09-29	Alma Media Oyj	Talentum Oyj
2015-10-29	Yara International ASA	Apache Fertilisers Pty Ltd
2015-11-09	Trelleborg AB	CGS Holding AS
2015-11-12	Modern Times Group MTG AB	Dreamhack AB
2015-11-12	Nobia AB	Commodore Kitchens Ltd
2015-12-11	Orkla ASA	HAME sro
2016-01-12	Kesko Oyj	Onninen Oy
2016-02-04	Sponda Oyj	Ab Mercator Oy
2016-03-10	Boliden AB	First Quantum Minerals-Kevitsa
2016-04-18	Recipharm AB	Kemwell AB
2016-04-18	Recipharm AB	Kemwell Biopharma Pvt Ltd-
2016-05-24	Technopolis Oyj	Niam V Garda
2016-06-03	HEXPOL AB	Berwin Group Ltd
2016-06-08	Com Hem Holding AB	Boxer TV Access AB
2016-06-21	Tele2 AB	TDC Sverige AB
2016-09-27	Ratos AB	Plantasjen AS
2016-11-10	Electrolux AB	Kwikot Ltd
2016-12-15	Axfood AB	Matse Holding AB
2017-02-02	Betsson AB	NetPlay TV PLC
2017-02-17	Cloetta AB	Candyking Holding AB
2017-03-30	Aker Solutions ASA	Reinertsen AS
2017-03-31	HEXPOL AB	Trelleborg Material & Mixing
2017-06-29	SimCorp A/S	APL Italiana SPA
2018-01-10	Tele2 AB	Com Hem Holding AB
2018-01-26	LINK Mobility Group ASA	SMS Italia Srl
2018-03-16	H Lundbeck A/S	Prexton Therapeutics BV
2018-04-18	Ringkjobing Landbobank A/S	Nordjyske Bank A/S
2018-06-04	Loomis AB	CPoR Devises SA
2018-06-13	Recipharm AB	Sanofi SA-CMO Business
2018-06-26	Cramo Oyj	Nordic Modular Group AB
2018-07-02	Axactor AB	Banc Sabadell SA-Unsecured Por
2018-07-06	Kongsberg Gruppen ASA	Rolls-Royce-Marine Bus
2018-09-26	Systemair AB	Koolair SA
2018-11-16	Axactor AB	Caja Rural Del Sur-loans
2018-11-22	Orkla ASA	Kotipizza Group Oyj
2018-11-26	DNO ASA	Faroe Petroleum PLC
2018-11-27	BillerudKorsnas AB	Bergvik Skog Ost AB

The table shows all Nordic acquirors in our sample for the time-period 2004 to 2018. It consists of 195 M&A announcements over 96 unique acquiror companies. The list consists of our final sample after adjustments as described in section 4.2

Table A.3
Summary statistics of the sample

Year	Number of Acquisitions	Percentage of Sample	Total deal value ($Mil)	Mean Deal Value ($mil) (Median)	Mean Acquirer Market Value of Equity ($Mil) (Median)	Mean Relative Size (Median)
2004	9	4.6%	1,797	87 (200)	1,642 (2,810)	0.04 (0.06)
2005	10	5.1%	2,454	76 (245)	1,490 (2,120)	0.07 (0.14)
2006	24	12.3%	5,501	80 (229)	1,929 (3,592)	0.06 (0,08)
2007	12	6.2%	5,108	100 (426)	2,964 (4,777)	0.03 (0.09)
2008	12	6.2%	3,903	111 (325)	1,591 (3,578)	0.08 (0.19)
2009	7	3.6%	526	42 (75)	919 (739)	0.08 (0.20)
2010	27	13.8%	2,856	33 (106)	1,120 (2,035)	0.03 (0.05)
2011	24	12.3%	3,025	61 (126)	1,103 (2,135)	0.05 (0.07)
2012	13	6.7%	1,639	51 (126)	1,128 (2,527)	0.04 (0.07)
2013	9	4.6%	3,658	211 (406)	7,552 (10,154)	0.04 (0.14)
2014	5	2.6%	5,200	767 (1,040)	4,977 (5,412)	0.15 (0.15)
2015	12	6.2%	3,865	65 (322)	2,013 (3,489)	0.03 (0.18)
2016	12	6.2%	3,123	169 (260)	2,545 (2,659)	0.11 (0.15)
2017	5	2.6%	228	40 (46)	1,676 (1,914)	0.02 (0.03)
2018	14	7.2%	7,530	237 (538)	1,537 (2,873)	0.13 (0.19)
All	195	100.0%	50,412	72 (259)	1,604 (3,175)	0.04 (0.11)

The table shows the summary statistics for our final sample, including e.g. number of deals, mean (median) deal value and mean (median) Relative size.

Table A.4
Geographical summary of observations

Year	Denmark	Finland	Norway	Sweden
2004	0	0	0	9
2005	0	1	0	9
2006	1	11	2	10
2007	0	0	1	11
2008	0	2	1	9
2009	0	2	0	5
2010	3	5	2	17
2011	0	6	3	15
2012	1	4	2	6
2013	0	1	2	6
2014	1	0	0	4
2015	1	2	4	5
2016	0	3	0	9
2017	1	0	1	3
2018	2	1	6	5
Total	10	38	24	123

The table summarizes the number of observations (transactions) per year and country, as well as the total.

Table A.5
Welch test on managerial traits

	Top Quartile	**Bottom Quartile**	**Difference in $\overline{CAR}$**		
Panel A: CEO Performance					
Event Window	$\overline{CAR}$	$\overline{CAR}$	$\overline{CAR}$	t-statistic	p-value
-2 to 2	0.0082	0.0108	-0.0026	-0.3008	0.7643
-5 to 5	0.0091	0.0182	-0.0091	-0.7371	0.4632
n	43	47			
Panel B: CEO Trust					
Event Window	$\overline{CAR}$	$\overline{CAR}$	$\overline{CAR}$	t-statistic	p-value
-2 to 2	0.0064	0.0181	-0.0116	1.0682	0.2880
-5 to 5	0.0094	0.0245	-0.0151	-1.1224	0.2644
n	46	56			
Panel C: CFO Competence					
Event Window	$\overline{CAR}$	$\overline{CAR}$	$\overline{CAR}$	t-statistic	p-value
-2 to 2	0.0075	0.0196	-0.0121	-1.0454	0.2994
-5 to 5	0.0073	0.0249	-0.0176	-1.1494	0.2541
n	42	45			
Panel D: CFO Proactiveness					
Event Window	$\overline{CAR}$	$\overline{CAR}$	$\overline{CAR}$	t-statistic	p-value
-2 to 2	0.0098	0.0101	-0.0003	-0.0297	0.9763
-5 to 5	0.0115	0.0182	-0.0066	-0.5063	0.6139
n	43	58			

Abnormal returns are derived by comparing actual returns with expected returns, where expected returns are estimated by the Capital Asset Pricing Model. We have followed the approach put forth by Craig MacKinlay (1997). The calculations for the Welch test are provided in equation (9). Asterisks and dot indicate significance at the 15% (.), 10% (*), 5% (**) and 1% (***) level.

Table A.6
Regressions: Key management level, event window (-1,1) and (-10,10)

Variable	(1)	(2)	(3)	(4)
Management Scoring				
Key management capability	0.0006	0.0012	0.0023	0.0046
	(0.0060)	(0.0057)	(0.0124)	(0.0117)
Corporate Governance				
Institutional ownership (Top 5)	-0.0643 *	-0.0504	-0.1176 *	-0.0716
	(0.0320)	(0.0300)	(0.0663)	(0.0618)
Deal Characteristics				
Relative size	-0.0324	-0.0237 .	-0.0929 **	-0.0917 **
	(0.0200)	(0.0195)	(0.0416)	(0.0402)
Industry expansion	0.0087	0.0106 *	0.0138	0.0129
	(0.0075)	(0.0072)	(0.0156)	(0.0148)
Cross-border acquisition	0.0058	0.0084	-0.0117	-0.0056
	(0.0077)	(0.0071)	(0.0161)	(0.0148)
Acquirer Characteristics				
Market-to-book	-0.0000		0.1478	
	(0.0003)		(0.0970)	
Return on equity	0.0164		-0.0009 .	
	(0.0467)		(0.0007)	
Intercept	0.0004	-0.0050	-0.0029	-0.0066
	(0.0449)	(0.0433)	(0.0933)	(0.0893)
Number of obs.	144	154	144	154
Adjusted R^2	1.63%	1.97%	4.03%	1.63%

In regression (1) and (2) we regress the independent variables on the dependent variable, cumulative abnormal returns, over event window (-1,1) and in regression (3) and (4) we regress the independent variables on the dependent variable over the event window (-10,10). The number within parenthesis represent the standard error. Abnormal returns are derived by comparing actual returns with expected returns, where expected returns are estimated by the Capital Asset Pricing Model. We have followed the approach put forth by Craig MacKinlay (1997). Regressions are ran using OLS method in RStudio. Asterisks and dot indicate significance at the 15% (.), 10% (*), 5% (**) and 1% (***) level.

Table A.7
Regressions: Key management level, top and bottom quartile, event window (-1,1) and (-10,10)

Variable	(1)	(2)	(3)	(4)
Management Scoring				
Key management capability	0.0041	0.0043	0.0093	0.0082
	(0.0143)	(0.0117)	(0.0297)	(0.0251)
Corporate Governance				
Institutional ownership (Top 5)	-0.0270	-0.0225	-0.0789	0.0096
	(0.0542)	(0.0444)	(0.1127)	(0.0956)
Deal Characteristics				
Relative size	-0.0937	-0.0950	-0.2607 ***	-0.2560 ***
	(0.0446)	(0.0416)	(0.0927)	(0.0894)
Industry expansion	-0.0072	-0.0062	0.0193	-0.0001
	(0.0134)	(0.0113)	(0.0280)	(0.0242)
Cross-border acquisition	0.0016	0.0038	0.0112	0.0069
	(0.0155)	(0.0117)	(0.0322)	(0.0251)
Acquirer Characteristics				
Market-to-book	0.0005		-0.0068	
	(0.0029)		(0.0060)	
Return on equity	-0.0013		0.0982	
	(0.0965)		(0.2008)	
Intercept	0.0146	0.0150	0.0248	0.0247
	(0.0176)	(0.0125)	(0.0366)	(0.0268)
Number of obs.	60	66	60	66
Adjusted R^2	1.63%	1.97%	6.53%	6.87%

In regression (1) and (2) we regress the independent variables on the dependent variable, cumulative abnormal returns, over event window (-1,1) and in regression (3) and (4) we regress the independent variables on the dependent variable over the event window (-10,10). Key management capability has been transformed to quartiles and the regression shows the top and bottom quartile. The number within parenthesis represent the standard error. Abnormal returns are derived by comparing actual returns with expected returns, where expected returns are estimated by the Capital Asset Pricing Model. We have followed the approach put forth by Craig MacKinlay (1997). Regressions are ran using OLS method in RStudio. Asterisks and dot indicate significance at the 15% (.), 10% (*), 5% (**) and 1% (***) level.

Table A.8
Regressions: CEO and CFO level, event window (-1,1) and (-10,10)

Variable	(1)	(2)	(3)	(4)
Management Scoring				
CEO capability	0.0008	0.0006	-0.0046	-0.0019
	(0.0045)	(0.0042)	(0.0095)	(0.0088)
CFO capability	0.0016	0.0023	0.0090	0.0089
	(0.0045)	(0.0043)	(0.0095)	(0.0090)
Corporate Governance				
Institutional ownership (Top 5)	0.0621 *	-0.0490	-0.1101 .	-0.0680
	(0.0316)	(0.0297)	(0.0669)	(0.0624)
Deal Characteristics				
Relative size	-0.0319	-0.0235	-0.0925 **	-0.0924 **
	(0.0197)	(0.0192)	(0.0417)	(0.0403)
Industry expansion	0.0057	0.0080	0.0130	0.0120
	(0.0075)	(0.0072)	(0.0159)	(0.0151)
Cross-border acquisition	0.0073	0.0103	-0.0059	-0.0001
	(0.0078)	(0.0073)	(0.0164)	(0.0153)
Acquirer Characteristics				
Market-to-book	-0.0001		-0.0010	
	(0.0003)		(0.0007)	
Return on equity	0.0220		0.1735 *	
	(0.0465)		(0.0983)	
Intercept	-0.0153	-0.0197	-0.0270	-0.0294
	(0.0454)	(0.04374)	(0.0960)	(0.0918)
Number of obs.	141	151	151	141
Adjusted R^2	0.85%	1,23%	3.89%	1.07%

In regression (1) and (2) we regress the independent variables on the dependent variable, cumulative abnormal returns, over event window (-1,1) and in regression (3) and (4) we regress the independent variables on the dependent variable over the event window (-10,10). The number within parenthesis represent the standard error. Abnormal returns are derived by comparing actual returns with expected returns, where expected returns are estimated by the Capital Asset Pricing Model. We have followed the approach put forth by Craig MacKinlay (1997). Regressions are ran using OLS method in RStudio. Asterisks and dot indicate significance at the 15% (.), 10% (*), 5% (**) and 1% (***) level.

Table A.9
Regressions: CEO and CFO level, top and bottom quartile, event window (-1,1) and (-10,10)

Variable	(1)		(2)		(3)		(4)	
Management Scoring								
CEO capability	0.0209		0.0157		0.0217		0.0501	*
	(0.0170)		(0.0145)		(0.0288)		(0.0273)	
CFO capability	0.0068		0.0021		0.0289		-0.0018	
	(0.0184)		(0.0141)		(0.0313)		(0.0266)	
Corporate Governance								
Institutional ownership (Top 5)	-0.0371		-0.0653		-0.1768	*	-0.1392	
	(0.0581)		(0.0514)		(0.0985)		(0.0967)	
Deal Characteristics								
Relative size	-0.0654		-0.0560		0.0896		0.0263	
	(0.0578)		(0.0528)		(0.0981)		(0.0994)	
Industry expansion	-0.0360	**	-0.0300	**	0.0001		-0.0118	
	(0.0155)		(0.0133)		(0.0263)		(0.0251)	
Cross-border acquisition	-0.0275	.	-0.0218		-0.0155		-0.0421	.
	(0.0178)		(0.0148)		(0.0301)		(0.0279)	
Acquirer Characteristics								
Market-to-book	0.0023				-0.0141	*		
	(0.0041)				(0.0069)			
Return on equity	-0.0438				0.1175			
	(0.1305)				(0.2214)			
Intercept	0.0479	**	0.0410	**	0.0540		0.0546	.
	(0.0222)		(0.0193)		(0.0377)		(0.0363)	
Number of obs.	28		30		28		30	
Adjusted R^2	12.48%		14.78%		17.95%		9.05%	

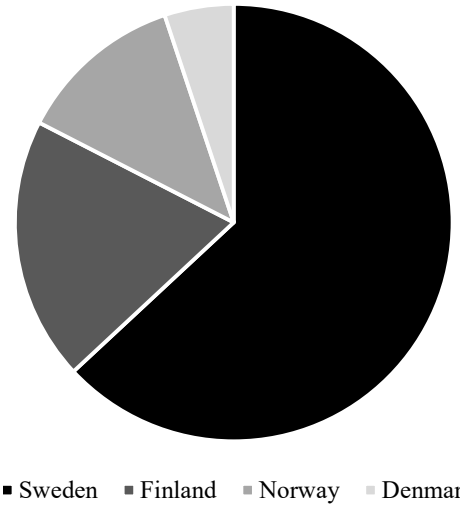
In regression (1) and (2) we regress the independent variables on the dependent variable, cumulative abnormal returns, over event window (-1,1) and in regression (3) and (4) we regress the independent variables on the dependent variable over the event window (-10,10). CEO and CFO capability has been transformed to quartiles and the regression shows the top and bottom quartile. The number within parenthesis represent the standard error. Abnormal returns are derived by comparing actual returns with expected returns, where expected returns are estimated by the Capital Asset Pricing Model. We have followed the approach put forth by Craig MacKinlay (1997). Regressions are ran using OLS method in RStudio. Asterisks and dot indicate significance at the 15% (.), 10% (*), 5% (**) and 1% (***) level.

Table A.10
Regressions: Managerial trait level, event window (-1,1) and (-10,10)

Variable	(1)	(2)	(3)	(4)
Management Scoring				
CEO Performance	-0.0040	-0.0008	-0.0191	-0.0140
	(0.0073)	(0.0071)	(0.0153)	(0.0148)
CEO Trust	0.0031	-0.0001	0.0115	0.0092
	(0.0073)	(0.0070)	(0.0152)	(0.0145)
CFO Competence	0.0100	0.0087	0.0129	0.0119
	(0.0072)	(0.0070)	(0.0151)	(0.0145)
CFO Proactiveness	-0.0052	-0.0037	0.0049	0.0046
	(0.0059)	(0.0058)	(0.0124)	(0.0122)
Corporate Governance				
Institutional ownership (Top 5)	-0.0677 *	-0.0539 *	-0.1357 *	-0.0863
	(0.0345)	(0.0319)	(0.0724)	(0.0664)
Deal Characteristics				
Relative size	-0.0313	-0.0214	-0.0978 **	-0.0922 **
	(0.0211)	(0.0206)	(0.0443)	(0.0429)
Industry expansion	0.0062	0.0090	0.0199	0.0188
	(0.0085)	(0.0080)	(0.0178)	(0.0165)
Cross-border acquisition	0.01077	0.0126 .	0.0044	0.0057
	(0.0085)	(0.0079)	(0.0180)	(0.0164)
Acquirer Characteristics				
Market-to-book	0.0027		-0.0007	
	(0.0534)		(0.0007)	
Return on equity	-0.0000		0.1144	
	(0.0004)		(0.1124)	
Intercept	-0.0280	0.0534	-0.0698	-0.0698
	(0.0488)	(0.0466)	(0.0079)	(0.0969)
Number of obs.	130	140	130	140
Adjusted R^2	0.13%	0.56%	3.42%	1.26%

In regression (1) and (2) we regress the independent variables on the dependent variable, cumulative abnormal returns, over event window (-1,1) and in regression (3) and (4) we regress the independent variables on the dependent variable over the event window (-10,10). The number within parenthesis represent the standard error. Abnormal returns are derived by comparing actual returns with expected returns, where expected returns are estimated by the Capital Asset Pricing Model. We have followed the approach put forth by Craig MacKinlay (1997). Regressions are ran using OLS method in RStudio. Asterisks and dot indicate significance at the 15% (.), 10% (*), 5% (**) and 1% (***) level.

Figure A.1
Acquiror nation in the sample



Pie chart summarizing geographical distribution in our sample.

Table A.11
Correlation matrix

	Institutional ownership	Industry expansion	Cross border	Relative size	Return on equity	CEO Performance	CEO Trust	CFO Competence	CFO Proactiveness
Institutional ownership	1.00	0.22	0.12	-0.08	0.01	0.21	0.23	0.23	0.20
Industry expansion	0.22	1.00	-0.03	-0.15	0.11	0.18	0.23	0.03	-0.09
Cross border	0.12	-0.03	1.00	-0.13	0.29	0.28	0.24	-0.05	-0.11
Relative size	-0.08	-0.15	-0.13	1.00	-0.16	-0.08	-0.11	0.03	0.10
Return on equity	0.01	0.11	0.29	-0.16	1.00	0.27	0.33	0.13	0.05
CEO Performance	0.21	0.18	0.28	-0.08	0.27	1.00	0.81	0.27	0.07
CEO Trust	0.23	0.23	0.24	-0.11	0.33	0.81	1.00	0.23	0.07
CFO Competence	0.23	0.03	-0.05	0.03	0.13	0.27	0.23	1.00	0.7
CFO Proactiveness	0.20	-0.09	-0.11	0.10	0.05	0.07	0.07	0.70	1.00

The table displays the correlation between the independent variables.

11. Appendix B

Data from Consulting firm on analyst rankings

1) The consulting firm started with the ratings in 1999 and have data up to 2018. For example, in 1999 they rated 145 unique firms and in 2018 they rated 181 unique firms.

2) For the early years (1999-2003), only the final ranking with the average grade that the firms received from the analysts is available. From 2004-2018, the rankings from each analyst on some of the firms that they cover are available, which can be easily transformed to average ratings as well for the particular firms. For example, in 2018, there are 181 unique firms and 1,040 firm-analyst observations. However, there are no analyst id or name, so it is not possible to identify the analyst that gave the rating.

3) Over the years the consulting firm has have extended the questionnaire in terms of scope and added more questions. In 1999 the analyst answered eight questions – in 2018, it was 36 questions. After coding the data, it is observed that once a question was introduced, it was seldom taken away from the survey. There is good coverage for the question in the following table.

4) The sample consists of firms that are listed in Denmark, Sweden, Finland, and Norway. From all the analyst answers in 2018, the country split is the following: Sweden (39%), Finland (27%), Norway 18%, and Denmark (17%).

5) The primary data source for accounting data is Compustat Global

Table B.1
Questionnaire sent to analysts by Consulting Firm, variables with good coverage

Question	Years in Sample	Question introduced	Question_ID
To what degree do the individual meetings provide relevant information and access to the right people? To what degree are the meetings interactive and open-minded?	14	2005	*AnalystMeeting*
To what degree are Capital Market Days arranged as often as necessary? To what degree are the presentations relevant and filled with news?	20	1999	*CapitalDays*
To what degree do you perceive the CEO as competent and capable during presentations, interviews and other public appearances?	17	2001	*CEO_Performance*
To what degree do you perceive the company's CEO as trustworthy?	18	2001	*CEO_Trust*
To what degree does the CFO have enough knowledge regarding IR-related and financial issues? To what degree does he/she communicate relevant information to investors and analysts in a professional way?	16	2003	*CFO_Competence*
To what degree does the CFO act proactive to gain investors' and analysts' confidence? To what degree is he/she service-minded, reliable and cooperative?	16	2003	*CFO_RM (CFO_Proactivness)*
To what degree do press releases, newsletters and other non-scheduled communication contain relevant and accurate information?	19	2000	*CI_Content*
To what degree are you satisfied with the number of press releases, newsletters and other non-scheduled communication published?	19	2000	*CI_Frequency*
To what degree does the IRO have enough knowledge about the company and about Investor Relations? To what degree does he/she communicate relevant IR information in a professional way?	16	2003	*IRO_Competence*
To what degree does the IRO act proactively to gain investors' and analysts' confidence? To what degree is he/she service-minded, reliable and cooperative?	16	2003	*IRO_RM*
To what degree do the quarterly reports contain relevant facts and figures and other important information?	16	2001	*QR_IR*
To what degree is it easy to gain access to top management and to what extent do they respond to your inquiries?	20	1999	*TM_Availability*
Is the top management transparent and understandable or uncertain and vague in their communication? To what degree do the top management answers questions?	20	1999	*TM_Openness*
To what degree is it easy to navigate and find contact information, relevant figures, facts and annual reports on the IR website?	18	2000	*WebIR_Function*

The table summarizes the available data available gathered by the Consulting firm. The questionnaire was sent out to analysts covering the firm.