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Board of Director 'Skin in the Game' and Firm Performance

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Abstract

This paper investigates the relationship between the non-executive directors' 'skin in the game' and firm performance. How to best assure impartial corporate governance to limit the distance between shareholders and management has received much attention over the years. There is, however, limited research regarding how to align shareholder and director incentives, and what effect such alignments have on future firm performance. In this thesis, we collect board composition and ownership data for companies listed on OMX Stockholm Small Cap during 2015-2019. Our findings suggest that director ownership positively contributes to year ahead ROA, indicating ownership to impose incentive aligning effects that contribute to more efficient corporate governance. The result is useful for both remuneration committees, as well as for investors to consider before making investments.

JEL Classification: C23, G34, J41, J44, L25, O16

Keywords: Corporate governance, director ownership, board composition, director independence, director remuneration, OMX Stockholm Small Cap, ownership and performance, panel data

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1 Introduction

The widely discussed and researched domain regarding executive remuneration models and its impact on firm performance has provided firms all over the globe with guidelines to best align the shareholders' and managements' interests. The still missing piece of the complex agency-principal related puzzle manifests itself by the not so evident conflict of interest between that of the shareholders and the firm governing instrument itself: the board of directors. The academic and worldwide inconclusiveness regarding the benefits of directorial independence and by what means directors should be compensated to achieve an ideal corporate governance function is far from being resolved. Additionally, the common used metrics when measuring the level and effectiveness of monitoring by NED's (non-executive directors) are seen as relatively weak and ambiguous. Supplementary research is therefore needed to determine a remuneration method that minimizes the director and shareholder agency dilemma.

Different government and exchange guidelines universally diverge on whether to include performance and incentive components into director remuneration or not. The argument could therefore be made that a study or examination to evaluate each stance should be conducted on firms listed on exchanges where neither of the stands are explicitly praised. The Swedish code of corporate governance (2016) does not include any advice when it comes to the non-executive director remuneration. Furthermore, on the contrary to most firms listed on *e.g.* NYSE, firms listed on the Stockholm stock exchange show few signs of ownership requirements of the nonexecutive directors (Cordeiro *et al.*, 2005). With a relatively high minimum level regarding corporate governance disclosure, as well as distinct criteria of board member independence, firms listed on the Swedish stock market become an appropriate sample to conduct relevant research on.

Bhagat, *et al.* (1999) find that efficient corporate governance increases both shareholder value and firm performance. Subsequent corporate governance research consists of studies on the optimal level of cash fees for NEDs, as well as on how to compose the most effective board regarding independence, board size, gender ratio etc., (see *e.g.*, Cordeiro *et al.*, 2005; Adams and Ferreira, 2009; Pucheta-Martínez and Gallego-Álvarez, 2020). However, the issue whether the board of directors 'skin in the game' could improve firm performance has not been sufficiently explored. We therefore also raise the question whether the board of directors should be wholly or partly compensated for their efforts in shares or similar incentive components that are dependent on firm performance, or if the election committee should require the elected independent directors to acquire 'skin in the game' to align their interests with the shareholders which they are supposed to represent. A resolution to this question should assist answering how to remunerate the board of directors to incentivize them, and align their interest with the rest of the shareholders.

This study is conducted on OMX Stockholm Small Cap, where we expect the NEDO (Nonexecutive director ownership) to differ enough to have a sample where both low and high ownership stakes are represented. Furthermore, this paper is limited to the time period 2015-2019 (5 years) and a sample of 74 companies listed on the OMX Small Cap (2015), and aims to contribute to the existing corporate governance literature researching on how to best align independent directors' interests with the shareholders' to potentially improve firm performance. This paper aims to answer the below question: - Is the level of independent director 'skin in the game' an indicator of future company performance?

We find that the most important board variable that positively contributes to year ahead ROA is non-executive director ownership. The result suggests that remuneration committees arguably should consider performance based and incentivizing compensation plans for the independent board member, and not only the mere size of the board fee. Alternatively, the election committee could require mandatory minimum 'skin in the game' levels before admitting new members to the board to minimize the distance between ownership and control.

2.1 Agency Problem

Berle and Means (1932) raise the common mismatch between shareholders and management by arguing that company ownership and company control are virtually two different things. The authors recorded the common practice to fill the company's board of director seats with associated business professionals, which more often than not owned a modest amount of company shares. Company boards were, to a large extent, hence composed of inside directors/company managers and outside associates to company managers, who rarely had a genuine shareholding interest in the company. Rather than representing the shareholders' best interests in running the company as well as possible and overseeing management, directors had an incentive of not engaging in active monitoring as this potentially could have a negative impact on the relationship with company management, consequently risk losing the directors' fee. In such a situation, shareholders exercise a limited power to affect the operations of the company (Bhagat and Tookes, 2011). This concern has caused extensive debate regarding how best to combat the agency problem.

Jensen and Meckling (1976) developed the agency issue further and noted the tendency of managers to maximize personal utility, rather than the shareholders', when control and ownership are separated. Management acting under flawed corporate governance reportedly tend to engage in questionable investment strategies with excessive risk and grant themselves personal benefits (Jensen and Meckling, 1976). To mitigate the agency issues that arise due to the separation of ownership and control, Jensen and Meckling suggest that management should

invest in the company. Aligning managerial and shareholder interests ultimately increases the probability of managerial effort and sound business decision making to maximize firm value. There has since been an array of published papers sharing the view of converging managerial and shareholder interests by managerial ownership in multiple markets (Lewellen *et al.*, 1992; Chung and Pruitt, 1996; Morck, Shleifer and Vishny, 1988; Chng *et al.*, 2001).

Bhagat and Tookes (2011) highlight that most of the propositions and reforms attempting to mitigate the agency problem between the board and the shareholders involves the ingredients of introducing the professional 'independent director', with no historic association with either company or its management. These 'solutions' have, however, as mentioned by the two authors, proved unsuccessful. To align the directors' interests with the shareholders', many companies in the U.S. now impose equity-based compensation plans and minimum ownership requirements. With shareholder ownership, directors have a greater incentive to engage in active monitoring to ensure management is behaving in the best interests of the shareholders, similar to that suggested by Jensen and Meckling (1976). It is however worth noting that there is an ongoing debate regarding the equity-based compensation plan as presented by Adithipyangkul and Leung (2018), where the U.S. recommends the model to align interests, meanwhile the UK and Australia advice against it. The study finds that both sides of the argument are valid and that it is of great importance to explore each individual case to find the best design of incentive plan and monitoring (Adithipyangkul and Leung, 2018). The topic is further discussed in the next coming section.

Bhagat and Bolton (2008) point out that the independent director with 'skin in the game' will most likely be more active in replacing poor performing management than associated directors owning little to zero company shares. The invested independent directors' interests are

indirectly aligned with the shareholders' as their main desire is to enable the company to perform the best it can. Agrawal and Knoeber (1995) and Bhagat and Bolton (2008) did, however, record a statistically significant negative relationship between firm performance (ROA and Tobin's Q) and board independence. Today, both the NYSE and NASDAQ stock exchanges require a majority of independent directors. This result is naturally interesting, as there has been a major push towards independent boards to mitigate the principal agency issue (Bhagat and Bolton, 2008). The topic has received much attention and consequently yielded in diverging conclusions. Pucheta-Martínez and Gallego-Álvarez (2020) conducted an extensive research consisting of 10 314 observations from 34 countries where they establish a positive relationship between board independence and firm performance, and consecutively an increase in future shareholder wealth.

As supported by the previously mentioned literature, managerial 'skin in the game' function as the most commonly validated tool to mitigate the principal agency issue to maximize future firm value as expected by (Jensen and Meckling, 1976; Lewellen *et al.*, 1992; Chung and Pruitt, 1996; Morck, Shleifer and Vishny, 1988; Chng *et al.*, 2001). Research has, however, related weaker future company performance to high ownership concentration in the case where a majority of the company shares are concentrated among a few shareholders, as these then have the ability to utilize their majority for personal gain rather than benefiting the minority shareholders (Pucheta-Martínez and Gallego-Álvarez, 2020; Eklund and Desai, 2013; Maury and Pajuste, 2005).

2.2 Board of Directors

The debate around the role and function of the board has almost always revolved around specifics and not their raison d'être: to represent the shareholders' interests by actively monitoring and governing the management (Jensen and Meckling, 1976; Fama and Jensen, 1983). Meanwhile, the classic and commonly cited 'Agency Theory' has evolved to predominantly focus on the conflict of interest between the managers and the shareholders. The question therefore arises whether the board of directors and the managers face the same kind of agency-principal related stigma towards the shareholders of the firm, assuming that that they are not the same person.

Since previous research has recognized the positive impact of good corporate governance on firm performance (*e.g.*, Bhagat *et al.*, 1999; Van den Berghe and Levrau, 2004; Bhagat and Bolton, 2008), modern corporate governance literature frequently focus on the issue of monitoring effectiveness. The anomalies addressed in literature are derived from the context that the board does not actually represent the shareholders' best interests, but see to their own self-benefits first. Legislative actions against this issue have been taken, partly through independence requirements specified in the Sarbanes-Oxley act (Congress.gov, 2002). In addition, many governments and exchanges enforce a minimum portion of the board to be independent from the company and its management to mitigate the eventual interest alignments of management and the board (*e.g.*, NYSE, 2014; Swedish Code of Corporate Governance, 2016; ASX, 2019; Sec.Gov, 2020). Meanwhile, Coles *et al.* (2014) suggest that CEOs often have considerable influence over the board, regardless of whether the board members are independent or not, especially when directors are appointed after the CEO took office. This theory further suggests that the agency related conflict of interest also exists between the

shareholders and the board itself, especially when the board is largely influenced by management.

The independent director has in previous research been broadly defined (Bhagat and Tookes, 2011), and there are different interpretations of what independence means in many developed markets. In the Swedish code of corporate governance (2016), a board of publicly traded companies must have a majority of directors defined as independent from the company and its management. Furthermore, the code states that at least two directors that are independent from the company and its management, also should be independent from the company's major shareholders (<10% of votes/shares). The criteria also apply indirectly, making it necessary for the nomination committee to make an individual assessment on the candidates based on the requirement of independence. The corporate governance report must disclose whether each and every director has any relation with the company and/or its management, and/or its major shareholders separately, leaving a narrow room for interpretation and thus facilitates repeatability for the study. This study is conducted primarily with the focus of non-executive directors, meaning that directors who are not employed by the firm nor have any relation to the management are treated as independent, regardless of shareholder significance.

Similar to the Stockholm stock exchange, NYSE and NASDAQ mandate boards to consist of a majority of independent directors. The New York Stock exchange motivates the regulation in their *Corporate Governance Guide* by:

"Shareholders want to ensure that the boards of the companies in which they own stock are capable of handling the leadership and governance demands of the current marketplace and that the highest standards of independence are being met. This viewpoint reflects the belief that today's corporate boards are one step further from the days when boards were often formed under the auspices of long-standing friendships or business favors - and stayed that way." (NYSE, 2014).

As mentioned previously, the definitions of director independence vary slightly depending on country and stock exchange, the essence is, however, arguably close to analogous. A summary of the separate definitions is presented below.

<u>NYSE definition</u>: "Independent director" is one who the board affirmatively determines has no material relationship with the company either directly or as a partner, shareholder or officer of an organization that has a relationship with the company (NYSE, 2014).

<u>NASDAQ definition</u>: "Independent director" refers to a person other than an executive officer or employee of the company or any other individual having a relationship which, in the opinion of the company's board, would interfere with the exercise of independent judgment in carrying out the responsibilities of a director (Sec.gov, 2020).

2.3 Previous Literature on CEO & Board of Director 'Skin in the Game'

In order to align manager and shareholder interests, a considerable amount of previous research advocates some sort of incentive component in remuneration plans (*e.g.*, Lasfer and Hahn, 2011; Elsilä *et al.*, 2013). With the purpose to answer whether managers act on behalf of the shareholders to maximize firm value, Habib and Ljungqvist (2005) investigate compensation contracts and incentive schemes to mitigate the principal agency issue. Their findings present a positive relationship between CEO stock ownership and company performance (measured in Tobin's Q). The results demonstrate that underperforming firms tend to have a flawed design of internal incentives, where managers own too little stock and too many options that are

insufficiently sensitive to risk. Boards that recognized the unfavorable incentive structure and adjusted accordingly, increased future performance (Habib and Ljungqvist, 2005).

Lilienfeld-Toal and Ruenzi (2014) report a statistically significant relationship between CEO share ownership on both operating performance and stock returns, similar to that of Habib and Ljungqvist (2005), Lewellen *et al.* (1992) and Jensen and Meckling (1976). The study argues that larger ownership stakes work as an incentive for managers to increase firm value and report an increase of roughly 3-6% in ROA compared to no ownership firms (Lilienfeld-Toal and Ruenzi, 2014). The authors point out that the 'skin in the game' can work as a partial solution to the moral hazard problem, but that the firm and shareholders will yield an even larger positive outcome when the CEO chooses to invest in the company voluntarily, rather than when pushed by the board. The voluntary ownership aspect is similar to that recorded on board of directors by Bhagat and Tookes (2011), where Bhagat and Tookes make a distinction on mandatory ownership levels and voluntary holdings and how the latter positively impact future firm performance.

Lewellen *et al.* (1992) find that proportionate and absolute ownership positions of senior management share a statistically significant positive relationship with firm performance. The authors do, however, record the benefit to diminish with higher levels of ownership. Substantial ownership positions instead tend to incentivize management to become excessively risk averse and hence fail to maximize profitability. Benson and Davidson (2009) also suggest that managerial incentive components such as share ownership at a low degree have an incentive aligning effect, but at high levels it instead induces a risk-averting effect. In a similar manner, Morck *et al.* (1988) investigated the alignment theory where considerable ownership have an adverse effect on performance. They find a significant positive relationship between lower

levels of ownership and firm performance as measured in Tobin's Q. However, Morck *et al.* (1988) record the positive effect of ownership on performance to lose its significance at ownership levels between 5% and 25% of the market capitalization. They argue that there might still be a positive effect in the ownership range between 5% and 25%, but that the incentive effect is dominated by the entrenchment effect. The authors consequently raise the question whether the impact in the low levels purely stems from the convergence of interests effect, arguing that it is likely that managers representing firms with a high Tobin's Q inadvertently end up with more company shares through compensation programs (Morck, Schleifer and Vishny, 1988). Lilienfeld-Toal and Ruenzi (2014) argue that already motivated and incentivized management risk not realizing their potential under excessive corporate governance control. In addition, the authors point out that increasing already-significant ownership positions potentially could have a reverse effect on performance if "entrenchment effects start to dominate incentive effects" (Lilienfeld-Toal and Ruenzi, 2014).

The proposition that increasing amounts of managerial ownership have a positive impact on firm performance is questioned by Himmelberg, Hubbard and Palia (1999), Demsetz (1983) as well as Demsetz and Villalonga (2001). Demsetz and Villalonga (2001) as well as Himmelberg *et al.* (1999) recognize the problem of moral hazard that stems from the principal agency issue. Instead of measuring low levels of ownership, Himmelberg *et al.* (1999) investigate equilibrium levels of ownership that best align interests. The authors find evidence of each firm requiring its own design of compensation and ownership structures depending on the riskiness of the firm, where greater risk requires a larger proportion of ownership to mitigate moral hazard (Himmelberg *et al.*, 1999).

Himmelberg *et al.* (1999) and Demsetz and Villalonga (2001) are however cautious about suggesting that ownership and performance (Tobin's Q or accounting rates of returns) share a statistically significant relationship. Himmelberg *et al.* (1999) rather suggest that ownership levels are a product of performance and the firm's contracting environment. Their finding is similar to that of Demzets (1983), who suggested that managerial ownership levels reflect the optimal level of ownership merely due to pure market forces, and that there is no significant relationship between managerial ownership levels and firm performance. Fama and Jensen (1983) further argued that the long-term reputational and human capital incentives overshadow the short term-financial benefit for the outside director.

Adithipyangkul and Leung (2018) as well as Adams and Ferreira (2009) underline the importance of a properly designed remuneration/compensation plan for the board of directors, and that disproportionately large remunerations could create costly over-monitoring and instead affect performance negatively. Brick *et al.* (2006) further suggest that excessive cash compensations may mitigate the board's ability to effectively fulfill its role. They suggest that disproportionately large cash compensations make the director less likely to make tough decisions towards management, since they are afraid to lose their directors' fee. This issue is exacerbated when the CEO also occupies the chairman position on the board (not uncommon in the US), giving the CEO further influence over the firm and its board (Brick *et al.*, 2006).

In line with what *e.g.*, Jensen and Meckling, (1976), Habib and Ljungqvist (2005) as well as Lilienfeld-Toal and Ruenzi (2014) advocate to incentivize management, US firms started in the 1990's to adopt stock-based and/or option-based incentive plans as a means to incentivize the non-executive directors (Cordeiro *et al.*, 2005). In 1998, 95% of the top 200 U.S firms had some form of incentive component in addition to cash retainment, an increase from 65% only

three years prior (Cordeiro *et al.*, 2005). But unlike the U.S., financially similar countries such as the U.K, Australia and Sweden have yet to embrace the idea behind incentive components as an addition to cash retainers. The Australian ASX Securities Exchange (ASX) has even advised against performance or equity-based remuneration for non-executive directors in their code of *Corporate Governance Principles and Recommendations*, with the motivation that it would mitigate the directors' objectivity and bias their decision making against the firm's management (ASX, 2019). The existing literature regarding incentive components and performance-based remuneration to manage the shareholder and independent director relationship is sparse and inconclusive. Meanwhile, the corresponding and more extensive literature regarding the management and shareholders frequently recognize the positive effects managerial 'skin in the game' incorporates. Van den Berghe and Levrau (2004) refer to the relationship between managers, shareholders and the board as the "heart of the corporate governance triangle". The previous limited research on the third link, between the board of directors and the shareholders', evidently calls for additional academic attention.

The existing research on directors has been carried out on markets where there is a prevalent mandatory ownership structure, that initially stem from Demsetz (1983) theory: that ownership levels represent the equilibrium levels (*e.g.*, Bhagat and Tookes, 2011). Furthermore, the radical difference in views (*e.g.*, NYSE and NASDAQ versus AUX) on performance-based remuneration to independent directors evidently suggests that existing literature is inconsistent as well as incoherent, which ultimately also calls for further research.

To hypothesize that 'skin in the game' creates positive incentives for the outside director should, with the previous discussions in mind, not be seen as a far-reaching assumption. We aim to test this and shed further light on the corporate governance triangle's third link by examining NEDs (non-executive directors) ownership and what impact it has on company performance. Thus, the first hypothesis to be tested is as follows:

H1: Non-executive director ownership has a positive impact on future firm performance.

In addition to ownership, we investigate whether higher cash retainers is sufficient to incentivize the non-executive director. Previous research suggests the contrary: higher levels of cash retainer lead to a seat of convenience, and the outside director is not as likely to "rock the boat" and replace poor performing management (Brick *et al.*, 2006; Bhagat and Bolton, 2008). The second hypothesis is thus formulated as below:

H2: Non-executive director retainer has a negative impact on future firm performance.

Finally, we will investigate whether director independence yields better corporate performance. We find this question interesting due to the common view that independent directors are more likely to behave according to the shareholders' best interests, but previous research suggests contradictory results (Agrawal and Knoeber, 1995; Bhagat and Bolton, 2008). Most markets today enforce a majority of independent directors to limit the agency dilemma. The third hypothesis we aim to test is:

H3: *Higher director independence ratio positively contributes to better company performance.*

4 Method

4.1 Selection of Companies

The sample population consists of all firms listed on OMX Stockholm Small Cap as of 2015 (as recorded by Bloomberg). The study then follows the progression of the sampled companies from 2015 over a five-year period (2015-2019). We have chosen to monitor Small Cap companies with the similar reasoning as that of Bhagat and Tookes (2011): "It may be more difficult to monitor a large firm because of its size and the amount of information that must be processed, therefore increasing the value of providing directors with equity incentives". Board of directors will therefore arguably have a greater potential to significantly influence a smaller company. The firms are profiled over the time period 2015-2019 to gain a more reliable estimate regarding what effect stock ownership has on the operative and valuation performance measures (ROA & Tobin's Q). The full list of companies included in the study are listed in Appendix A.

4.2 Variables

The regression analysis is conducted with relevant control variables that best help explain the possible relationship between ownership and performance. The control variables are based on previous research and supplemented with a stepwise regression to confirm their appropriateness. The model consists of three variable categories: performance measures, board and company characteristics. A variable correlation matrix is presented in table 10 (appendix).

4.2.1 Performance Measures as Dependent Variables

As per custom in similar studies, we have chosen ROA_{t+1} and Tobin's Q_{t+1} as our metrics to measure performance (*e.g.*, Bhagat and Tookes, 2011; Himmelberg *et al.*, 1999; Morck *et al.*, 1988; Adithipyangkul and Leung, 2018). The two performance variables are used as dependent variables in the panel regression to analyze whether board ownership shares a statistically significant relationship with next year's operating performance. We use return on assets as an accounting measure of performance and Tobin's Q as a valuation performance metric. In line with Bhagat and Tookes (2011), we measure the performance metrics through the following equations:

$$ROA = \frac{Earnings \ Before \ Interest \ and \ Taxes}{Total \ Assets} \tag{1}$$

$$Tobin's Q = \frac{Market \ Cap + BV \ of \ Assets - BV \ of \ Common \ Equity}{BV \ of \ Assets}$$
(2)

4.2.2 Board Characteristics as Independent Variables

Other board composition variables than ownership are incorporated in the regression analysis to investigate the possibility that other board characteristics have a statistical significance on the dependent variable. The variables are selected based on previous similar research and available data, as well as by validating the variables through stepwise regression analysis. The included board characteristics are:

> Log of Median Non-Executive Director Stock Ownership Log of Average Non-Executive Director Retainer Board Size Non-Executive Director Ratio (independence ratio)

4.2.3 Company Characteristics as Independent Variables

Company variables are implemented to control for size and financial abilities to further validate the result of the regression analysis. Company characteristics are included as there are more than one variable that impact company performance. The variables below have been selected based on previous research similar to this thesis. They have been further validated through the stepwise regression method.

Log of Sales

Log of Market Capitalization

$$Capex \ to \ Sales = \frac{Capital \ Expenditures}{Sales} \tag{3}$$

 $Leverage = \frac{Total \ Liabilities}{Total \ Assets} \tag{4}$

4.2.4 Detailed Description of Regression Variables

Dependent Performance Variables

 Y_1 = *Return on Assets*_{t+1} = An accounting operating performance indicator measuring how efficient a company/management utilizes its assets to create value. Higher ROA indicates better efficiency. We measure "t+1", as the board of directors' effort is visible on the next year's annual report. Calculated by equation (1) as per Bhagat and Tookes (2011).

 Y_{2} = *Tobin's* Q_{t+1} = An economic performance indicator measuring the relationship between market value and intrinsic value, see equation (2). The ratio incorporates the

market value of the firm, divided by the book value of assets. The primary use of the ratio is to work as a robustness check, allowing us to make comparisons with previous research as it is commonly used as a proxy for growth opportunities. However, as the ratio is greatly affected by stock price movements, it is often used in research to measure how well the company is able to create market value with available resources. We measure "t+1" for the same reasons as with ROA.

Independent Board Composition Variables

 $x_1 = Natural Log of Median Non-Executive Director Stock Ownership = The monetary$ stock ownership value of the board's median director. The median ownership wasselected in order to capture the 'typical' ownership level and adjust for extremeownership values. In addition, one can make the argument that the median directorcould be put in position to have the 'swing vote' in corporate governance relatedmatters, potentially increasing the importance of ownership (Bhagat and Bolton, 2008).The ownership level is recorded and treated on a yearly basis, as presented in the annualreport.

 $x_2 = Natural Log of Average Non-Executive Director Retainer =$ The average salary/fee that the company paid to its independent board of directors, as recorded in its annual report. The variable is commonly included in similar research, i.e. (Bhagat and Tookes, 2011). The variable is included in the model as it potentially can help us better understand the relationship between pay and corporate governance, and whether companies should explore a more incentive aligning remuneration structure, such as equity. $x_3 = Board Size$ = The total number of appointed directors, as recorded in the annual report. Board size is included in the model as the number of directors potentially influences the board's corporate governance capability. Previous research has, however, yielded inconsistent results. Yermack (1996), Eisenberg *et al.* (1998), and Cheng (2008) find a negative relationship between board size and performance, arguing that it is more challenging to reach the best decisions in larger numbers. Linck *et al.* (2008) suggest that it is a greater challenge for smaller boards to monitor management due to higher levels of information asymmetry. Larger boards are therefore advantageous when the company can benefit from the extra knowledge and advice that the director offers. The majority of research does, however, suggest a negative relationship between board size and firm performance.

 $x_4 = NED \ Ratio =$ Ratio of independent directors to the total board of directors. The variable is included in the model per previous research and to account for the popularized theory that independence yields better corporate governance, and hence better operative performance (Pucheta-Martínez and Gallego-Álvarez, 2020; Jensen and Meckling, 1976; Fama and Jensen, 1983). The assumption is that independence will have a positive significance on the dependent variables.

Independent Company Variables

 $x_5 = Natural Log of Sales$ = The natural log of total revenue, as presented in the annual report. Sales is included to control for size and monitoring difficulty as presented by Bhagat and Tookes (2011).

 $x_6 = Leverage$ = The book value of total liabilities divided by the book value of assets. Leverage is included in the model as a control variable and aims to help explain performance. The variable is widely used in ownership research, in which a majority conclude a negative correlation between leverage and performance (Pucheta-Martínez and Gallego-Álvarez, 2020; Bhagat and Bolton, 2008; Bhagat and Tookes, 2011).

 $x_7 = Natural Log of Market Capitalization =$ The natural log of market capitalization is included to control for firm size and potential differences in raising funds due to economies of scale (Honeine and Swan, 2010). The variable is further helpful to mitigate possible entrenchment that risk emerging with higher levels of ownership, as directors in smaller companies more often own a larger share of the firm (McConnell and Servaes, 1995). The variable is likely to suffer from partial endogeneity due to its relation to Tobin's Q. However, the endogeneity issue is partially mitigated when leading Tobin's Q in the regression analysis.

 $x_8 = Capex$ to Sales = Similar to the research by Bhagat and Tookes (2011) we include capital expenditures divided by sales. Investments into its assets and new technologies increase the potential for company growth and greater profits, naturally we hence expect a positive relationship between the ratio and firm performance.

4.3 Data

The initial sample included 97 firms listed on the Nasdaq Stockholm Small Cap as of 2015/01/01. 15 firms were delisted during the sampled period, three firms were acquired by another listed firm and five firms initially had, or during the period, adopted broken financial years. These firms were hence excluded from the study, leaving a sample of 74 companies between 2015 and 2019.

Board characteristics and director holdings were primarily collected manually through financial statements and corporate governance reports. The data was collected and separated by yearly observations and then transferred to excel where a profile was created for each individual company. Preparatory data handling was mainly performed in excel, and then finalized in Stata. Performance metrics, capital structure and other variables were retrieved and computed from Capital IQ.

Annual reports from the period 2015 to 2019 have been analyzed to obtain the actual director ownership in the most reliable way. The volume of shareholdings of each individual director at every annual report throughout the examined period has been recorded, excluding employee representatives. Director company dependency, age, election date, gender and remuneration has also been recorded to be able to conduct a company profile that captures changes and variability in any of the parameters over time. Other exposures and incentive components like options and warrant programs have been disregarded due to accounting inconsistencies. Furthermore, director ownership includes that of closest relatives, making shareholdings for a director at a specific date in time that of the director and his/her closest relatives. The ownership value of the board has been calculated with historical volumes of shares outstanding to adjust for splits and emissions to obtain a representative picture of the monetary value of previous ownership.

4.4 Empirical Model

The collected data for each year and company is designed to treat each company as a separate entity and to be analyzed in the designated time period. The panel data approach was selected to allow analysis over a consecutive time period of five years, rather than sampling individual years. Director ownership is recorded on a yearly basis, as per the company's annual report and assumed to not change during the year. Preparatory steps, regression analysis and tables were performed in Excel and Stata.

$$Y_{1,it} \& Y_{2,it} = \beta_{0,i} + x_1 \beta_{1,it} + x_2 \beta_{2,it} + x_3 \beta_{3,it} + x_4 \beta_{4,it} + x_5 \beta_{5,it} + x_6 \beta_{6,it} + x_7 \beta_{7,it} + x_8 \beta_{8,it} + \varepsilon_{it}$$
(5)

Table 1: Summary of variables included in the regression analysis

\mathbf{Y}_1	Return on Assets _{t+1}
\mathbf{Y}_2	Tobin's Q _{t+1}
x_1	Log of Median Non-Executive Stock Ownership
x_2	Log of Average Non-Executive Retainer
x ₃	Board Size
x_4	NED Ratio
x 5	Log of Sales
x ₆	Leverage
x_7	Log of Market Capitalization
x_8	Capex to Sales Ratio

To find the most appropriate model that best explain the potential correlation between regressors and unique error terms of the fixed and random effects models, we conducted the Hausman test. We regressed the models with clustered standard errors to control for potential heteroskedasticity. We further checked for multicollinearity with the VIF test (see table 9 in appendix) and for autocorrelation through the Woolridge test (see table 8 in appendix). The VIF-tests indicate no significant multicollinearity. The Woolridge test does, however, suggest that there is autocorrelation present. The short time interval of five years gives us reason to believe that autocorrelation will be a minor nuisance to the final model (Torres-Reyna, 2007).

4.5 Descriptive Statistics

Table 2 describes the sample statistics over the measured time period, in which 74 firms were recorded over a time period of five subsequent years (t), resulting in 370 observations (n). During the time period of 2015 to 2019, the average firm on the Stockholm Small Cap displayed a positive Return on Assets of 3.3% while the median firm showed a Return on Assets of 6.5%. Tobin's Q, which is measured as market capitalization plus the book value of assets minus the book value of common equity, divided by the book value of assets, is interpreted as a value metric that compares the relationship between market valuation and the intrinsic valuation in terms of replacement cost. The recorded average and median Tobin's Q - ratio over the time period was 2.3 and 1.5, respectively.

Variables	Obs	Mean	Median	Std. Dev.	Min	Max
Performance Metrics						
ROA	370	0.033	0.065	0.201	-1.488	0.395
Tobin's Q	370	2.272	1.465	2.259	0.353	21.458
Board Characteristics						
NEDO Median	370	2255953.7	233243.86	7927980.3	0	87616378
NED Retainer	370	220034.25	210416.66	83625.886	43000	614400
Board Size	370	5.616	6	1.089	3	10
NED Ratio	370	0.909	1	0.13	0.333	1
Firm Characteristics						
Sales Log	370	20.013	20.309	1.71	9.547	23.259
Capex to Sales	370	0.211	0.008	2.713	0	50.821
Leverage	370	0.463	0.475	0.197	0.001	0.959
Market Cap Log	370	20.379	20.481	1.116	16.951	22.923

Table 2: Summary of statistics

ROA is earnings before interests, depreciation and taxes over total book value of assets; Tobin's Q is the market capitalization plus the book value of assets minus the book value of common equity, divided by the book value of assets; NEDO Median is the median holding value of non-executive directors; NED Retainer is the cash retainer of non-executive directors; Board Size is the total number of directors on the board; NED Ratio is the ratio of non-executive directors; Sales is the natural logarithm of total revenue in SEK. Capex to Sales is the Capital expenditures divided by total revenue; Leverage is the total book value of liabilities divided by total book value of assets; Market Cap is the natural logarithm of equity market capitalization.

The median non-executive director holds shares of a value on *average* of 2 255 953:- SEK, while the *median* shareholding value is merely 233 243:- SEK. In some firms, the entrepreneur or wealthy individuals are large blockholders of shares, skewing the distribution. The distribution of median ownership levels in relation to market capitalization is presented in table 3. The average non-executive director cash retainer is 220 034:- SEK. The median board has 6 directors, while the average portion of non-executive directors on the board is 90.1%. The average and median firm had a leverage ratio of 46.3% and 47.5% respectively, as measured by total liabilities over total assets.

 Table 3: Distribution of median ownership levels



The boxplot diagram in table 3 illustrates total ownership levels of the non-executive directors in percentage of market capitalization. As depicted in the diagram, stock holding levels of the non-executive directors are on average a small portion of the outstanding shares each period, whilst there still exist some large outliers. The median non-executive shareholdings amounted to 2.7% of the firm's market capitalization between 2015 and 2019. The outliers in the diagram suggest that either the entrepreneur, or a few wealthy non-executive directors possess considerable 'skin in the game'. The change in ownership outliers as presented in the table can partially be explained by the turnover of directors holding a significant number of shares joining/leaving the board. Although it is intuitive, it is important to note that the greater the market capitalization is, the lower the ownership levels as a percentage of market capitalization is for the non-executive directors.

On the basis of previous discussions on how to improve corporate governance, we aim to test our hypotheses on a sample of firms listed on the Swedish stock exchange. The analysis therefore aims to unfold whether firms where the non-executive director holds substantial 'skin in the game' tend to perform better than corresponding firms with lower levels of ownership. The results may suggest how to best remunerate the non-executive directors to align their interests with the shareholders which they are supposed to represent.

Independent Variable	Dependent Variable						
	Fixed	Effects	Randor	n Effects			
	(1)	(2)	(3)	(4)			
	ROA _{t+1}	Tobin's Q _{t+1}	ROA _{t+1}	Tobin's Q t+1			
NEDO Median Log	0.0195***	0.0782	0.0200^{***}	0.0454			
	(3.78)	(0.88)	(3.94)	(0.61)			
NED Retainer Log	-0.0540	0.472	-0.0778^{*}	0.406			
205	(-1.12)	(0.97)	(-1.81)	(0.95)			
Board Size	0.00725	-0.0612	0.00311	-0.0207			
	(0.90)	(-0.58)	(0.46)	(-0.20)			
NED Ratio	-0.0993	-1.336	-0.103	-0.296			
	(-1.26)	(-1.42)	(-1.27)	(-0.31)			
Sales Log	-0.0253	-0.107	0.0241	-0.410**			
Log	(-1.36)	(-0.58)	(1.29)	(-2.51)			
Capex to Sales	-0.00580	-0.0828	0.0151*	-0.256***			
	(-0.57)	(-0.87)	(1.65)	(-2.95)			
Leverage	-0.0299	0.0886	-0.0421	-0 494			
Leverage	(-0.46)	(0.11)	(-0.71)	(-0.59)			
Market Can	0.0401*	0.365*	0.0320**	0 595***			
Market Cup Log	(1.94)	(1.75)	(2.09)	(3.65)			
N	327	327	328	328			

Table 4: Regression of fixed and random effects

t statistics in parentheses

* *p* < 0.1, ** *p* < 0.05, *** *p* < 0.01

 ROA_{t+1} is the next periods earnings before interests, depreciation and taxes divided by book value of assets; Tobin's Q_{t+1} is the next period market capitalization plus the book value of assets minus the book value of common equity, divided by the book value of assets; NEDO Median log is the natural logarithm of the median holding value of non-executive directors; NED Retainer log is the natural logarithm of average cash retainer of non-executive directors; Board Size is the total number of directors on the board; NED Ratio is the ratio of non-executive directors on the board; Sales is the natural logarithm of total revenue in SEK. Capex to Sales is the Capital expenditures divided by total revenue; Leverage is the total book value of liabilities divided by total book value of assets; Market Cap is the natural logarithm of equity market capitalization.

In table 4, we present the result of ROA_{t+1} and Tobin's Q_{t+1} as dependent variables using the fixed and random effects models.

The Hausman test indicates that the fixed effects models should be selected when testing for both ROA and Tobin's Q, similar to (Adams and Ferreira, 2009; Bhagat and Bolton, 2008; Linck *et al.*, 2008; Pucheta-Martínez and Gallego-Álvarez, 2020). After conducting the Hausman test and robustness checks, we proceeded with the fixed effects regression model.

The regression in table 5 indicates a positive significant relationship at the 1% level between median ownership and next year's return on assets. This result is in line with what Bhagat and Tookes (2011) report. An increase in the median non-executive ownership of one percentage point has an expected positive effect of about 0.02 percentage points on next year's return on assets, when holding everything else constant.

Independent Variable		Dependent Variable	
	(1)	Fixed Effects	(2)
	ROA_{t+1}		Tobin's Q t+1
NEDO Median Log	0.0195***		0.0782
	(3.78)		(0.88)
NED Retainer Log	-0.0540		0.472
-	(-1.12)		(0.97)
Board Size	0.00725		-0.0612
	(0.90)		(-0.58)
NED Ratio	-0.0993		-1.336
	(-1.26)		(-1.42)
Sales Log	-0.0253		-0.107
	(-1.36)		(-0.58)
Capex to Sales	-0.0058		-0.0828
	(-0.57)		(-0.87)
Leverage	-0.0299		0.0886
C	(-0.46)		(0.11)
Market Cap Log	0.0401*		0.365*
1 205	(1.94)		(1.75)
N	327		327

Table 5: Final fixed effects model

t statistics in parentheses

* p < 0.1, ** p < 0.05, *** p < 0.01

 ROA_{t+1} is the next periods earnings before interests, depreciation and taxes divided by book value of assets; Tobin's Q_{t+1} is the next period market capitalization plus the book value of assets minus the book value of common equity, divided by the book value of assets; NEDO Median log is the natural logarithm of the median holding value of non-executive directors; NED Retainer log is the natural logarithm of average cash retainer of non-executive directors; Board Size is the total number of directors on the board; NED Ratio is the ratio of non-executive directors on the board; Sales is the natural logarithm of total revenue in SEK. Capex to Sales is the Capital expenditures divided by total revenue; Leverage is the total book value of liabilities divided by total book value of assets; Market Cap is the natural logarithm of equity market capitalization.

The result further strengthened already existing research calling for directors and management to hold stocks in the company to align control and ownership (Jensen and Meckling, 1976; Habib and Ljungqvist, 2005; Lilienfeld-Toal and Ruenzi, 2014). Bhagat and Tookes (2011) investigates the difference between mandatory and voluntary stock ownership and report a positive significant relationship between performance and voluntary ownership. This study arguably incorporates the relationship between voluntary ownership and firm performance as all board of directors have invested without known enforcement from company guidelines, except possible peer pressure from fellow board members and shareholder expectations. We found the other measured board composition variables: retainment, board size and director independence to be insignificant and cannot conclude that these variables are expected to play a major role in influencing operative performance. We do, however, only record the positive effects of 'skin in the game' when measured in the accounting measure return on assets.

The result suggests that the agency problem is partly mitigated with higher board ownership levels, because the aligning of incentives improves corporate governance. Management in companies with high levels of director stakes are able to generate more value from its existing assets. This effect is likely due to the board of directors being more prone to care for its investments, as supported by previously cited agency theory. We are unable to suggest a significant relationship with Tobin's Q as the dependent variable. There are a multitude of factors including both internal and external that influence share prices. Caution should therefore be taken, and one should not blindly rely on these results. One should also take the earlier raised issues regarding endogeneity into account. The model serves as a means to statistically help explain ownership as an incentive aligning tool to drive operative firm performance. The result does, however, suggest that a focus on an incentivizing equity program that decreases the distance between ownership and control is preferable when designing the structure of board of directors, instead of a focus on the director's fee. Next year's ROA and Tobin's Q are significantly related with market capitalization on a 10% level. This is not a surprising result, since the market intuitively tends to value better performing firms higher. Furthermore, the market valuation is an element in Tobin's Q, where a higher market equity valuation also leads to higher Tobin's Q.

Previous literature regarding cash retainers for the non-executive directors suggests concentrating on high fees cause contradictory effects on corporate governance, mostly explained by "director satisfaction" (Brick *et al.*, 2006). If this is the case, the results would further underline the importance of an incentive-based remuneration scheme. Our model does not establish any significant relationship between retainer and firm performance; however, the coefficient in next year's ROA and cash retainer are consistently negative. Increasing board fees are supposed to increase the incentives of the director, yet our results do not suggest that this is the case. The fact that better performing and larger firms should afford to pay greater board fees does not contradict this statement. Our analysis still points to that incentive components and performance-based remuneration is the best tool to incentivize the director.

To gain a better understanding of independence and performance, we performed a supplemental regression analysis where we removed the ownership variable to account for the possibility that part of the explaining factor rests in director independence. This analysis aims to shed some light on whether director independence is worth its acknowledgement, or if shareholders and policymakers instead should put more emphasis on ownership. We present this regression analysis in table 6.

Independent Variable		Dependent Variable	
	(1)	Fixed Effects	(2)
	\mathbf{ROA}_{t+1}		Tobin's Q t+1
NED Retainer Log	-0.0485		0.173
	(-1.36)		(0.60)
Board Size	0.00786		-0.156*
	(1.13)		(-1.68)
NED Ratio	-0 144**		-1 /90*
NED Katto	(-2.06)		(-1.74)
	(2.00)		(1.7.1)
Sales Log	-0.0138		0.0624
·	(-1.23)		(0.69)
Capex to Sales	-0.000477		0.0199***
1	(-1.03)		(3.48)
Leverage	-0.0922		0 100
20.0000	(-1.51)		(0.15)
Market Cap Log	0.0460^{**}		0.318**
-	(2.34)		(2.01)
Ν	369		369

Table 6: Fixed effects model testing director independence

t statistics in parentheses

p < 0.1, p < 0.05, p < 0.01

 ROA_{t+1} is the next periods earnings before interests, depreciation and taxes divided by book value of assets; Tobin's Q_{t+1} is the next period market capitalization plus the book value of assets minus the book value of common equity, divided by the book value of assets; NED Retainer log is the natural logarithm of average cash retainer of non-executive directors; Board Size is the total number of directors on the board; NED Ratio is the ratio of non-executive directors; and total revenue in SEK. Capex to Sales is the Capital expenditures divided by total pook value of assets; Market Cap is the natural logarithm of equity market capitalization.

Excluding ownership levels from the model suggests that there are confounding effects between ownership and the independence ratio. Interpreting the results in table 6, we see that independence is negatively associated with both year ahead ROA and Tobin's Q. This result is in line with Bhagat and Bolton (2008) and Agrawal and Knoeber (1995), who all observed a negative relationship between independence and performance (measured as ROA & Tobin's Q). Interestingly, our result goes against the common belief that independence positively contributes to better corporate governance. The regression, consisting of OMX Small Cap companies, however, will potentially induce legislators and shareholders to instead put more emphasis on ownership, rather than on director independence. Neglecting the effects that follow with the non-executive director ownership, our results suggest that firms with higher levels of non-executive directors on the board actually tend to perform worse than its competitors with less firm-independent directors. We will, however, be careful to conclude that this negative relationship accounts for companies and time periods outside of this study. We also note that the sampled board data is heavily skewed towards independence, where the average board consists of 91% independent directors. The result aims to contribute to already existing literature on the topic and investigate what factors companies and shareholders should consider when designing the board structure to best stimulate corporate governance and performance. Furthermore, we do not account for co-opted boards as an additional explanatory variable, where Coles *et al.* (2014) suggest that directors appointed after the CEO took office is more prone of being influenced by the CEO, regardless of independence status.

6 Conclusion

This study contributes to existing literature supporting that director ownership helps reduce the gap between ownership and control. We find that non-executive director stock ownership positively contributes to corporate governance and performance as measured in next year's return on assets. This study suggests that the level of NED ownership can be used as an indicator of future firm performance as measured in ROA. The same cannot, however, be supported when measuring market performance through Tobin's Q. The result suggests that when holding company stocks, the board put in more effort to maximize the company's ability to utilize its currently held assets to perform its best. We do not record a statistical significance between firm performance, retainment or board size in our sampled data and time period. Most importantly, our findings suggest that shareholders and company legislators should put more emphasis on the director 'skin in the game' when designing its corporate governance retainment structure to decrease the gap between control and ownership. Although we do not record the market measure of Tobin's Q to be statistically significant, the results suggest the importance for the potential investor to consider the current board of directors' 'skin in the game' before investing.

The study is limited to the OMX Stockholm Small Cap (2015-2019). To strengthen the thesis, we invite further research on both Mid Cap and Large Cap companies. Since a continuous amount of research tends to provide evidence of the positive and incentivizing effects of director holdings, we invite further research to continue determining the optimal remuneration model to the non-executive directors based on firm environment. Growth strategies, capital structures, industry segments and risk-profiles could all potentially call for tailor-made solutions to optimize director incentives.

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9.1 Companies Included in the Research

Ortivus AB (publ) (OM:ORTI B) Semcon AB (publ) (OM:SEMC) BioInvent International AB (publ) (OM:BINV) MultiQ International AB (publ) (OM:MULQ) Stockwik Förvaltning AB (publ) (OM:STWK) TradeDoubler AB (publ) (OM:TRAD) Precise Biometrics AB (publ) (OM:PREC) CellaVision AB (publ) (OM:CEVI) Karo Pharma AB (publ) (OM:KARO) CTT Systems AB (OM:CTT) Studsvik AB (publ) (OM:SVIK) AB Traction (OM:TRAC B) Image Systems AB (OM:IS) Björn Borg AB (publ) (OM:BORG) RavSearch Laboratories AB (publ) (OM:RAY B) Concordia Maritime AB (publ) (OM:CCOR B) Rottneros AB (publ) (OM:RROS) SinterCast AB (publ) (OM:SINT) Enea AB (publ) (OM:ENEA) XANO Industri AB (publ) (OM:XANO B) Elanders AB (publ) (OM:ELAN B) Midway Holding AB (publ) (OM:MIDW B) Knowit AB (publ) (OM:KNOW) Pricer AB (publ) (OM:PRIC B) Addnode Group AB (publ) (OM:ANOD B) Proact IT Group AB (publ) (OM:PACT) Probi AB (publ) (OM:PROB) Lammhults Design Group AB (publ) (OM:LAMM B) Biotage AB (OM:BIOT) IAR Systems Group AB (publ) (OM:IAR B) Midsona AB (publ) (OM:MSON B) Prevas AB (OM:PREV B) Bong AB (publ) (OM:BONG) ProfilGruppen AB (publ) (OM:PROF B) Anoto Group AB (publ) (OM:ANOT) Viking Supply Ships AB (publ) (OM:VSSAB B) Trention AB (publ) Softronic AB (OM:SOF B) Poolia AB (publ) (OM:POOL B) Net Insight AB (publ) (OM:NETI B) Concejo AB (publ) (OM:CNCJO B) Elos Medtech AB (publ) (OM:ELOS B) Doro AB (publ) (OM:DORO) BTS Group AB (publ) (OM:BTS B) Rejlers AB (publ) (OM:REJL B) BE Group AB (publ) (OM:BEGR) Bulten AB (publ) (OM:BULTEN)

Beijer Electronics Group AB (publ) (OM:BELE) Sensys Gatso Group AB (publ) (OM:SENS) NOTE AB (publ) (OM:NOTE) Micro Systemation AB (publ) (OM:MSAB B) Empir Group AB (OM:EMPIR B) Vitec Software Group AB (publ) (OM:VIT B) Malmbergs Elektriska AB (publ) (OM:MEAB B) KABE Group AB (publ.) (OM:KABE B) Svedbergs i Dalstorp AB (publ) (OM:SVED B) Novotek AB (OM:NTEK B) Feelgood Svenska AB (publ) (OM:FEEL) Karolinska Development AB (publ) (OM:KDEV) Formpipe Software AB (publ) (OM:FPIP) Abliva AB (publ) (OM:ABLI) Ework Group AB (publ) (OM:EWRK) Electra Gruppen AB (publ) (OM:ELEC) Boule Diagnostics AB (publ) (OM:BOUL) GHP Specialty Care AB (publ) (OM:GHP) G5 Entertainment AB (publ) (OM:G5EN) Arise AB (publ) (OM:ARISE) Odd Molly International AB (publ) (OM:ODD) C-Rad AB (publ) (OM:CRAD B) Endomines AB (publ) (OM:ENDO) Moberg Pharma AB (publ) (OM:MOB) Dedicare AB (publ) (OM:DEDI) Episurf Medical AB (publ) (OM:EPIS B) Besqab AB (publ) (OM:BESQ)

9.2 Wooldridge Test: Autocorrelation

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Table 7: Woolridge test ROA

ROA _{t+1}					
Woolridge test for autocorrelation in panel dat H0: no first-order autocorrelation					
F(1,63)	23.582				
Prob > F	0.0000				
Table 8: Woolrid	ge test Tobin's Q				

Tobin's Q _{t+1}
100m 0 Q11

Woolridge test for autocorrelation in panel data H0: no first-order autocorrelation

F(1,63)	1.405

Prob > F 0.2403

9.3 VIF-Test: Multicollinearity

Table	9:	VIF-Tes
Table	9:	VIF-Tes

Variables	VIF - Test	1/VIF	
Sales	2.260	0.442	
MCap	2.100	0.476	
Leverage	1.780	0.561	
Board Size	1.260	0.795	
NEDO Median	1.260	0.797	
Capex to Sales	1.230	0.813	
Retainer	1.210	0.828	
NEDRatio	1.110	0.900	
Mean VIF	1.530		

9.4 Correlation Matrix

Table 10: Correlation Matrix

Variables	ROA _{t+1}	Tobin's Q _{t+1}	Median NEDO Log	NED Retainer Log	Board Size	NED Ratio	Sales Log	Capex to Sales	Leverage	Market Cap
ROA _{t+1}	1.000									
Tobin's Q _{t+1}	0.081	1.000								
NEDO Median Log	0.293	0.043	1.000							
NED Retainer Log	-0.039	0.019	-0.001	1.000						
Board Size	0.116	0.072	0.072	0.092	1.000					
NED Ratio	-0.082	0.042	-0.055	0.120	-0.141	1.000				
Sales Log	0.476	-0.239	0.220	0.246	0.284	-0.039	1.000			
Capex to Sales	-0.125	-0.043	-0.179	0.023	0.009	-0.007	-0.345	1.000		
Leverage	0.055	-0.328	0.178	0.074	0.017	0.197	0.455	-0.078	1.000	
Market Cap Log	0.377	0.265	0.314	0.321	0.411	-0.154	0.434	-0.069	-0.148	1.000

ROA is the next period earnings before interests, depreciation and taxes over total book value of assets; Tobin's Q is the next period market capitalization plus the book value of assets minus the book value of common equity, divided by the book value of assets; NEDO Median log is the natural logarithm of the median holding value of non-executive directors; NED Retainer log is the natural logarithm of average cash retainer of non-executive directors; Board Size is the total number of directors on the board; NED Ratio is the ratio of non-executive directors; Sales is the natural logarithm of total revenue in SEK. Capex to Sales is the Capital expenditures divided by total revenue; Leverage is the total book value of liabilities divided by total book value of assets; Market Cap is the natural logarithm of equity market capitalization.