Master Degree Project in Finance

The Link between Corporate Governance and Firm Performance in the Nordic Countries

David Flodberg and Dayan Nadjari

UNIVERSITY OF GOTHENBURG
SCHOOL OF BUSINESS, ECONOMICS AND LAW

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Abstract

This study aims to explain the link between corporate governance and firm performance in the Nordic countries. We construct a model for 190 Nordic firms with Tobin's Q as the dependent variable, Corporate Governance Index as the independent variable while controlling for Total Assets, Financial Risk, Systematic Risk, Unsystematic Risk and Growth to evaluate the impact upon firm performance during 2004-2011. We can show a positive relationship between Corporate Governance and Firm Performance as well as statistically significant control variables. Our findings suggest that corporate governance, even though implemented differently, seems to have the same effect on performance in the Nordic countries as it does in the U.S.

Supervisor:
Martin Holmén

Authors:
David Flodberg
Dayan Nadjari

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1. Introduction

In this paper, we investigate the effect corporate governance has on firm performance in the Nordic region. Corporate governance is the practice of monitoring the actions of management and directors and thereby minimizing the agency cost (Shleifer & Vishny, 1997). Agency problems are reduced when the managers' interest corresponds to the ones of the owners, which is done by using monitor or incentive contracts. One theory of agency risk is built upon the belief that managers do have the incentive to take on projects with a negative net present value if they were to receive personal benefits (Jensen & Mecklin, 1976). Another theory is the separation of management and finance, where the fundamental question is how to assure that financiers get a return on their investment (Shleifer & Vishny, 1997). This caused an interest to investigate if this relationship can help owners to create value by changing governance structure. Another interesting aspect of this study is to see the differences from other studies conducted on different markets. Most of the previous research has been conducted on the U.S. market, which provides us with an opportunity the present the study from a Nordic perspective. We use a Corporate Governance Index (CGQ) to evaluate the combined effect corporate governance has on performance.

The subject received much needed attention in the aftermath of the Enron, WorldCom and Adelphia scandals. Together with the increased level of hostile take-overs in the 1980s, corporate governance was due to be a subject of much research. The vast majority of studies were made on the effects the increased level of governance would have on a firm. To see if governance could increase the value of a firm became one of the center points within the field. From a theoretic perspective, there is no obvious answer what is the ideal balance of power. Two different points of views have been used. The first view is called the "disequilibrium phenomenon" and argues that firm governance is related to performance; hence increasing corporate governance would be value enhancing. The other view is the "equilibrium phenomenon" and argues that corporate governance is unrelated to performance (Demsetz, 1983). A firm is assumed to already hold an optimal governance structure. Hence, a change will not increase the value of a firm.

Morck, Shleifer, & Vishny (1988) and McConnell & Servaes (1990) investigate how a different type of ownerships does contribute to firm value. Together with Brown & Caylor (2004) whose findings also supports the disequilibrium theory, a study that uses a corporate governance index.

However, Demsetz & Lehn (1985) present findings to support the equilibrium theory. Agrawal & Knoeber (1996) did also support the equilibrium theory when investigating the relationship between governance and firm value. Together with Moore & Porter (2007) who found similar results using a corporate governance index. It is important to note that these findings do not suggest that corporate governance is unrelated to firm performance, but rather using different combinations of corporate governance can increase value, but not necessarily increasing governance as a whole.

Research has been conducted to investigate the differences in governance between countries. Shleifer & Vishny (1997) show that successful corporate governance systems such as USA, Germany, and Japan have significant legal protection. La Porta, Lopez-de-Silane, Shleifer & Vishny (1999) extend this statement by saying that corporate governance depends on the legal framework of the country. When ownership is widespread the laws to protect minority shareholders have great influences in the U.S, meanwhile these laws are looser in Sweden (Oreland, 2005). Furthermore, the focus lies on incentive methods in the U.S., while in the Nordic countries monitoring methods are used to limit the agency problem (Shleifer & Vishny, 1997). Due to these differences, it is interesting to investigate the effects governance has on performance in the Nordic counties, and compare this to the previously mentioned studies made in the United States.

This paper aims to clarify the link between corporate governance and firm value in the Nordic countries. Further, our paper is designed to explain how the level of corporate governance affects corporate performance.

Does corporate governance impact firm performance in the Nordic countries?

When regressing CGQ on Tobin's Q, controlling for total assets, financial risk, systematic variance, growth, year and industry the coefficient for CGQ is 0,024. This means that investors value governance, decreasing the discount rate; hence increase the expected future cash flows of the firm. We can see that our results corresponds to a similar study conducted in the U.S. made by Brown & Caylor (2004) who argued that owners can increase value by enhancing governance.

We contribute to a further understanding in the relationship between corporate governance and performance that can be used for academics as well as professionals. We also explain this relationship in the Nordic countries using a corporate governance index, something that hasn't been done before.

2. Theory and Related Literature

The Agency Problem

Owners' strive for larger net income, and consequently a higher stock price. However, they can't directly affect profits since they don't operate the firm. Managers do not have any interest in increasing profits since their compensation is tied to a salary, not actual performance. This causes managers to enjoy private benefits, instead of using their time in a value-creating manner (Demsetz, 1983). Private benefits can include private jets, not working hard, and other miss use of corporate assets. While managers are enjoying the private benefits, it affects owners negative by decreasing profits. This is the agency risk, where the incentives of the two parties are not aligned (Demsetz, 1983).

Owners can address the agency problem by incentives or monitoring. When using the incentive method, the owners will make the managers partial owners. In this way the managers will still use some private benefits, but will now have to pay some of the costs of doing so. The managers' compensation will now depend on performance, share price or other indications of value enhancing activities. More

inside ownership will align the incentives of owners and managers, hence decreasing the agency cost (Jensen & Meckling, 1976). However, using this system will create a diffuse link between compensation and manager performance. A vast increase in share price could have been due to overall market changes, or other factors that the manager cannot control over. This increases the managers' incentives to use private benefits. Another drawback of incentives also includes the increased variation in management compensation. This will lead to, since managers are risk-averse, an increased required compensation (Agrawal & Knoeber, 1996).

When monitoring, owners try to measure the managers' specific contribution. Owners then penalize or reward the manager depending on their results. The advantage of using this approach is that the managers' specific contributions are measured, instead of the result being influenced by other factors, as is the case when using incentive methods. It also decreases the risk the manager is exposed to. However, the disadvantage is that it is expensive to monitor. Neither using incentives nor monitoring to reduce agency risk is perfect, but both are widely used today and are the best options available (Agrawal & Knoeber, 1996).

Equilibrium Phenomenon

Researchers have been divided into two views regarding the effect corporate governance has on performance. The two theories are the disequilibrium phenomenon and equilibrium phenomenon, and were create by Demsetz (1983). The disequilibrium phenomenon theory argues that a firm could change its value by changing the level of corporate governance. When decreasing agency cost, a manager will for example have less opportunity to take on bad investments and therefore increase firm-performance (Free cash-flow hypothesis). Contrary, the equilibrium phenomena explain that a possible change in value due to an increase in corporate governance would be explained by an outside factor. In other words, a firm's performance is unrelated to governance. Empirical results that support the disequilibrium view are Morck, Shleifer, & Vishny (1988), McConnell & Servaes (1990) and Core & Larcker (2002), who all find evidence that corporate governance in fact does have an effect on firm value. Their conclusions are based on statistically

significant results and sound financial theory. On the other hand, Demsetz & Lehn (1985) and Agrawal & Knoeber (1996) shows that each firm select a governance structure that maximizes value, not necessarily that a higher level of governance is better.

Earlier Empirical Studies

The different approaches scholars have had in order to examine if corporate governance contributes to firm performance could be brought forward from a historic perspective. Berle & Means (1932) started by examining whether managers whose compensation is not tied to performance have stronger incentives to exercise control rights to benefit. Morck, Shleifer & Vishny (1988) further examined the Berle & Means hypothesis, which concluded that ownership stake of board members, is related to value creation. McConnell & Servaes (1990) investigated the relationship between performance and insider ownership. Neither of the previously mentioned papers did account for endogeneity on their models.

Demsetz & Lehn (1985) investigated how the structure of corporate governance corresponds to value maximization. Agrawal & Knoeber (1996) broaden the investigation by studying the variation in corporate governance in regards to both agency cost and performance, accounting for endogeneity in the model. Both these studies were conducted on a model that was based on multiple corporate governance measures. This presented the problem of a long list of variables, many being correlated, leading to statistical issues with the model. Together with the desire to measure corporate governance as a whole, researchers began to incorporate a corporate governance index in their models to more properly determine its impact on value creation. Gompers, Ishii & Metrick (2003) created an index, to reflect the shareholders rights, by computing data provided from the Investor Responsibility Research Centre, concluding that there is a positive relationship between governance and stock returns.

Shleifer & Vishny (1997) presented a study focusing on differences in corporate governance around the world. La Porta, Lopez-de-Silane, Shleifer & Vishny, (1997)

investigated investor protections, measured by legal rules and the quality of enforcements. They conclude that common law countries (USA, Australia, Canada and more) had the highest, German and Scandinavian civil law countries located in the middle, while French civil law countries had the weakest corporate governance.

Brown & Caylor (2004) uses Pearson and Spearman correlations to estimate the relationship between performance and corporate governance in the United States. They use an index named 'Gov-score'. It is using 51 governance variables, in other words very much like the CGQ index. Brown & Caylor (2004) tested Gov-score against Return on Equity, Net profit Margin, Sales Growth, Dividend Yield, Stock Repurchase, & Tobin's Q. They did not control for endogeneity. Brown concluded that there is a positive correlation between performance and governance in the United States.

Our study is conducted to see the effect corporate governance has on performance. We used a corporate governance index (CGQ) containing the 51 most important governance determinants. Hence, it gives us an opportunity to study the affect the overall corporate governance has on performance. This research is made on the Nordic countries (Sweden, Norway, Denmark, and Finland), where such study hasn't been done before (to our knowledge).

3. Descriptive Statistics and Methodology

Descriptive Statistics

We collect all components of the data for 6 of our variables from Bloomberg Finance, whereas the 7th and last variable is an index prepared by the Institutional Shareholder Services (ISS). The corporate governance index sample contains 1079 observations over 190 firms. These are all large listed firms, representing different sectors. The collected data is from 2004 to 2011. The mean number of years investigated per firm is 4. Table 1 below presents the variable descriptions for the unaltered raw data. The dependent variable Tobin's Q represents firm performance over the stated period above. Tobin's Q has 942 observations with a mean of 1.68.

The characteristics of the independent variables can be observed below.

Table 1

Summery Statistics					
Variable	Obs.	Mean	SD	Min	Max
Tobin's Q	942	1,67	1,05	0,56	9,79
CGQ	1079	0,40	0,26	0,01	0,99
Debt to Assets	756	0,27	0,29	0,00	5,02
Total Assets	791	$1,70 * 10^7$	$5,99 * 10^7$	16013	$5,49 * 10^8$
Systematic Risk	940	0,06	0,07	0,001	0,69
Unsystematic Risk	911	0,11	0,07	0,001	2,07
Growth	638	0,07	0,76	-13,3	10,6

This table reports the unaltered summery statistics for the 190 Nordic firms listed at stock exchanges in Stockholm, Helsinki, Copenhagen and Oslo during the years of 2004-2011. The table presents the number of observations; mean value, standard deviation, the minimum and maximum value of the all the variables.

Variable Preparation & Detailed Explanation

The Dependant Variable / Tobin's Q

The preparation of the dependent variable Tobin's Q includes redistributing the raw data into a logarithmic form to acquire a normal distribution needed for statistical testing. The logarithmic distribution will apply for all variables presented below except Growth and CGQ.

Tobin's Q ratio will play a key role in our study of corporate governance role upon on firm value. We will use the Tobin's Q ratio as a symbol of firm performance. The Tobin's Q ratio states the market value of a firm against the value of total assets as a proxy for replacement cost of the firm's assets, thus making it a suitable measure of firm performance. Demsetz & Lehn (1985), Agrawal & Knoeber, (1998), Gompers, Ishii & Metrick (2003) and Brown & Caylor (2004) amongst others have used Tobin's Q as a measure for firm performance. The hypothesis of the Tobin's Q ratio is the idea that the long run value of a firm should equal, or roughly equal, the cost of replacing the firm's assets, which would mean a value around 1. Values above 1 are derived from firms which have greater value in the numerator (Equation 1), meaning that market value of the firm is relatively greater than the firm's assets in place (or cost of replacing them). It is important to emphasize that values above one includes

assets who are not calculable or recordable. Vice versa, values below 1 arise when the replacement value is greater than the market value (Tobin & Brainard, 1977).

Equation 1

$$Tobin's\ Q= \frac{(Market\ Cap+Liabilities+Preferred\ Equity+Minority\ Interest)}{Total\ Assets}$$

(Bloomberg.com)

Independent Variable / Corporate Governance Quotation

In our research we use the logit version of the CGQ as it is a string variable. The logit distribution enables the usage weighing the variable in a linear regression. In detail, the logit redistributes the original score, between 0 and 1, where the firms with best corporate governance (top 50%) are given positive scores according to their original score, and vice versa (for the bottom 50%), as seen in graph 1. The same method has also been used by Moore & Porter (2007).

Graph 1
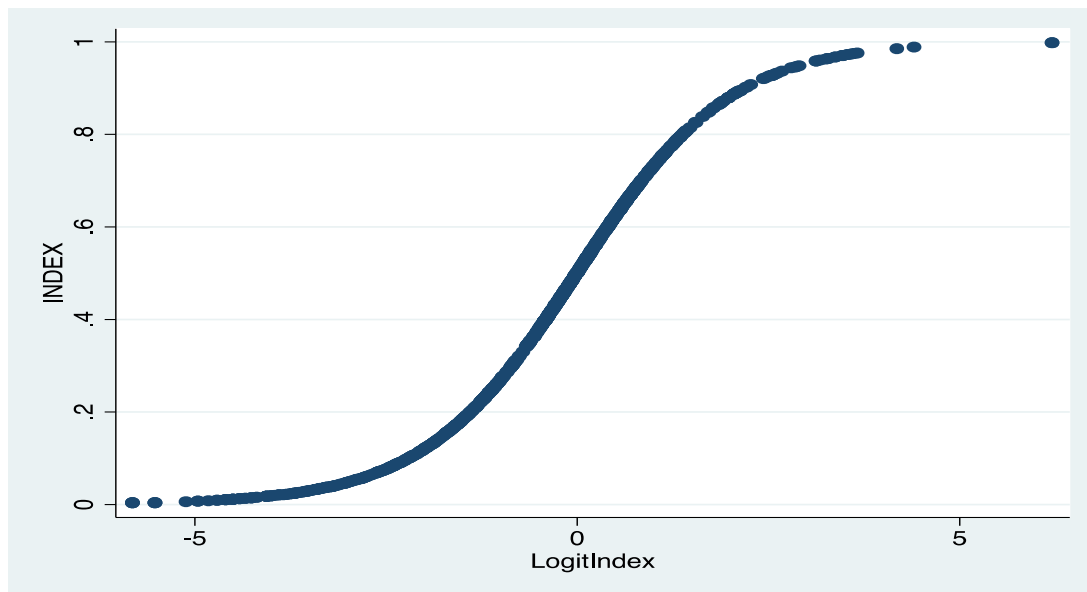
This graph shows the logit distribution of the CGQ variable. The top (50%) performing firms receive positive values between 0 and 6 and the worse (50%) performing firms receive values between 0 and -6 with the redistribution.

The Corporate Governance Quotient (CGQ) is a tool used to evaluate the quality of the corporate governance for a firm and how it might affect firm performance. The original CGQ was made by Institutional Shareholder Services (ISS) on the American market (Moore & Porter, 2007). The ranking now consists of over 7500 companies

worldwide, and is updated on consistent basis. A CGQ score is determined using 61 issues in the following categories: Board, Audit, Charter/Bylaws, State of Incorporation, Ownership, Compensation, Progressive Practices, and Director Education.

A more comprehensive explanation of the categories is described on the current (2013-04-07) web site (http://www.issproxy.com). Some variables are evaluated alone, whilst some are evaluated as a combination of each other. The variables are then assigned a weight depending on its importance within each category. These combined scores give an index ranking. An index ranking of 90% indicates a firm whose corporate governance outperforms 90% of the companies within their index. The CGQ has been to great use for academics and investors, and in 2005 Yahoo finance ratified free public access to company CGQ.

Today there exist a Nordic version of the CGQ; it rates 190 companies in the Nordic market using 51 variables determining corporate governance rating. This was made to compare corporate governance and its effects on firm characteristics, in the different regions. Our hypothesis, in regards to the effects CGQ has on Tobin's Q, varies given the different perspectives provided by the past research. If the market believes that the optimal governance structure already is implemented within the firms, we expect a statistically insignificant result for CGQ. On the other hand, we believe CGQ to be positive and statistically significant if an increase in value is possible when increasing the level of governance, in line with the disequilibrium theory (Demsetz, 1983).

Control Variables
Similarly to Demsetz & Lehn (1985) we control for other factors that is expected to have an impact on firm performance, including a measure of financial risk as well as controlling for industry and year dummies. We also include, like Moore & Porter (2007), control variables such as total assets, growth, market risk and firm risk.

Total Assets

Total Assets is used in our model to reflect the firm size, as well as to emphasise the ability of the firm to generate value by the assets in use. Theoretically we can state that growth potential of a firm declines with time, as the ability to exploit revenues from the initial business idea diminishes (Mueller, 1972). Hand in hand with this theory our hypothesis states that 'Total Assets' will have a negative impact upon Tobin's Q, as we believe firms will have exhausted growth potential with growth.

Financial Risk

We use the debt to asset ratio as a measure to capture the firm's financial risk. The debt to asset ratio is easily calculated by taking total debt over total assets.

Equation 2

$$Debt\ to\ Asset\ Ratio = \frac{Total\ Debt}{Total\ Assets}$$

According to the Pecking Order theory profitable firms are less leveraged. Thus, there should be a negative relation between Tobin's Q and Financial Risk (Myers & Majluf, 1985). However, higher financial risk could also have a positive relationship with performance due to the value of the tax shield a firm sustains when incorporating debt financing explained by Modigliani & Miller (1958).

Growth

Our control variable for growth is derived from the year-to-year increase in net sales for each firm. We believe the hypothesis of increased Tobin's Q with as a result of increased net sales to be logical.

Risk Measures

Equation 3 states that total risk is derived when subtracting firm risk from beta square multiplied by the market risk variance according to the CAPM. We can manipulate the equation to bring forward both the firm specific and systematic risk. It is common to account for systematic risk in regression models, see e.g. Moore & Porter (2007) and Demsetz & Villalonga (2001). It is aimed to control for the exposure to the regular variance in the economy. Firm specific variance, or firm risk, on the other hand needs a more proper motivation. Moore & Porter (2007) believe that unsystematic risk to be positively related to Tobin's Q as "it increases the value of a firms' growth option". This is supported by Shin & Stulz (2000) where they state

that the increase in Tobin's Q is a result of the shrinking diversification discount (Shin & Stulz, 2000).

Equation 3

$$\sigma^2_{Total\ Risk} = \beta^2_{Firm}\sigma^2_{Market\ Risk} - \sigma^2_{Firm\ Risk}$$

Model Description

We believe the value of the firm to be an dependent variable determined by a row of factors, such as the efficiency of corporate governance; indicating the competence of the firm to use its assets in place to generate value by governing factors as capital expenditure, sales levels, sensitivity to market profitability and more (Black, Kim, Jang & Park 2008). This laid the groundwork for the construction of our primary model with Tobin's Q Ratio as a dependent variable against a corporate governance index, and other variables presented above, to evaluate the impact of these upon firm performance. Our structured econometric model based on the provided theory presented below:

Equation 4

$$
\begin{aligned}
\ln(Tobin's\ Q\ Ratio) &= \alpha + \beta_1\text{logit(CGQ Index)} + \beta_2\ln(\text{Total Assets}) + \beta_3\ln(\text{Financial Risk}) \\
&+ \beta_4\ln(\text{Systematic Risk}) + \beta_5\ln(\text{Unsystematic Risk}) + \beta_6\text{Growth} \\
&+ \text{Industry Dummy} + \text{Year} + \varepsilon
\end{aligned}
$$

The model is aimed to explain how the variations in the independent variables affect the variation in firm value.

Equation 4 will be examined using panel data estimation techniques, as the model expresses characteristics from both cross-sectional data and times data. Panel data is structured to enable us to pool all cross-sectional data together and run simple OLS regressions. However, this simplicity comes at certain costs. The main concern will be the average values of the explanatory values, which is assumed to be constant over time as well as the same over all the cross-sectional data in the sample (Brooks, 2008). Isolating and estimating the different time-series regressions individually may deal with this problem. However, this would not be an optimal process, as we will lose possible common structures from the time-series

estimations (Croissant & Millo, 2008). The main strengths of using panel data, against unadulterated time-series data, is the ability to examine changes in variations over time with smaller data sets, more degrees of freedom, hence more powerful tests as a result of the teamwork between cross-sectional and time-series data. We have less reason to worry about multicollinearity and some omitted variable bias can be removed in the results of the panel data regression. On the other hand, relating to omitted variables is the most important drawback of the random effects model. The new constructed error term has to be uncorrelated with all the explanatory variables in order for the random effects model to be valid.

Furthermore, the Wald chi2-test, better known as the Joint F-test states that our predictors are jointly different from zero, with a p-value of 0,000. Thus, indicating that our model is appropriate.

Table 2 presents the covariance matrix for the varaibles used in the model. One can see that the varaibles have overall low correlation, hence shows how multicollionarity is not a probem. The highest correlation is found between unsystematic and systematic risk.

Table 2

	ln(Tobin's Q)	Logit(CGQ)	ln(Fin. Risk)	ln(Total Assets)	ln(SysRisk)	ln(Unsys. Risk)	Growth
ln(Tobin's Q)	1						
	(942)						
logit(CGQ)	0,0393	1					
	(942)	(1079)					
ln(Financial Risk)	0,0946	0,0071	1				
	**	(756)	(756)				
	(663)						
ln(Total Assets)	-0,0555	0,1214	0,2515	1			
	(692)	***	***	(791)			
		(791)	(756)				
ln(Systematic Risk)	-0,2133	0,0087	0,0114	0,0412	1		
	***	(940)	(660)	(689)	(940)		
	(922)						
ln(Unsystematic Risk)	-0,1210	0,0051	0,0806	0,0998	0,3751	1	
	***	(911)	**	***	***	(911)	
	(904)		(638)	(667)	(911)		
Growth	0,0355	-0,0646	-0,0645	-0,0238	-0,0653	-0,0265	1
	(555)	(638)	(611)	(638)	(552)	(533)	(638)

This table reports the correlation coefficients between the distribution-adjusted variables. The numbers within brackets are the number of observations used to calculate the correlation coefficient. *, ** and *** represent the significance levels of 10%, 5% and 1% respectively.

Endogeneity

Endogeneity is when there is a correlation between an explanatory variable and the error term. It is a result of either a measurement error, autoregression with autocorrelated errors, or simultaneity and omitted variables. Endogeneity leads to biased results, causing researchers to see a relationship that doesn't exist, or fail to find a relationship that does exist (Brooks, 2008). Early empirical work within the relationship between governance and performance assumes corporate governance to be exogenous, as factors that explain governance are likely to impact performance. Agrawal & Knoeber (1996), Demsetz & Lehn (1985), Moore & Porter (2007), amongst others have made an attempt to investigate the effects of governance, when taken endogeneity into account. One way the authors have done this is by introducing instrumental variables. The motivations for the variables are based on intuition, as one cannot test for validity, only relevance. In our model, the governance variable is contained by (61) sub-factors, which make this task of using an instrumental variable approach very hard, or maybe even impossible.

Causality

In our paper, we investigate if governance impact performance. This would denote governance as the effect and performance as the cause. However, we know that we cannot rule out that performance affects the level of governance. Börsch-Supan & Köke (2002) have argued that the causality runs from performance to governance. For example, insider information may cause managers to change their holdings due to new expectations. Higher expected performance could therefore lead to higher governance. Kaufmann & Kraay (2003) conducted a study on Governance and Growth to investigate the direction of causality. They found that governance affected growth, and in the opposite direction they found no other proof than "conventional wisdom", once again proving the difficulty of rooting the source of cause and effect.

Statistical Testing and Diagnostics

Hausman Test

Deciding whether to use a fixed - or random effects model can be simplified in terms of size and share of the sample. We mentioned earlier that panel data might be

pooled together and run with OLS. This is not true in our case as we reject the null hypothesis that all individual effects are equal to each other (Brooks, 2008). The Hausman test presented below (Table 3) gives a Chi2 value of 4,71 and consequently a p-value below the 95% significance level. Thus, by not rejecting the null hypothesis can state that both random effects and fixed effects are constant, where a random effect is the efficient estimator.

Equation 5

$$Hausman\ Chi^2 = (b - B)'[(V_b - V_B)^{-1}](b - B)$$

Table 3

Hausman Test			
	Coefficients		
	FE (b)	RE (B)	Standard Error $(\sqrt{Diag\ (V_b - V_B)})$
Logit(CGQ)	0,0286	0,0234	0,0050
ln(Total Assets)	0,0450	-0,0181	0,0763
ln(Fin. Risk)	0,0457	0,0517	0,0247
ln(Sys. Var)	-0,0896	-0,0883	0,0077
ln(Unsys. Var)	-0,0585	-0,0498	0,0102
Growth	0,0075	0,0116	0,0063

This table shows the coefficients for our natural logarithmic variables (except growth), both for the fixed effects and random effects model. The letters under the coefficients, together with the calculation under the standard error, give all the components of equation 3. The chi2 value of the test is 4,75 and the p-value is 0,5759. The null-hypothesis can therefore not be rejected, and the Random Effects model is preferred.

Breusch-Pegan Lagrange Multiplier

A second justification of the random effects usage comes with the Breusch-Pegan LM test. The null hypothesis states that the random effects model is not appropriate, and Ordinary Least Squares would be consistent (Brooks, 2008). The test construction (equation 6) and results (table 4) are shown below. Equation 6 gives a p-value of 0,000 and the null-hypothesis is rejected. Random effects model is thus to be preferred.

Equation 6

$$Tobin's\ Q\ [Firms, t] = Xb + u[Firms] + e[Firms, t]$$

Table 4

Breusch-Pegan LM Test		
	Variance	Standard Dev.
ln(Tobin's Q)	0,206	0,454
e	0,084	0,289
u	0,105	0,324

This table shows the Variance and Standard Deviation for our dependent variable Tobin's Q and the Breusch-Pegan (table 4) components 'e' and 'u'. The chi2 value of the test is 177,74. The test statistic states that the variance of 'u' is 0, and thus the p-value is 0,000. Once again the Random Effects model is preferred.

4. Results

Table 5 presents the results of the estimation model. Interestingly the coefficient for CGQ is slightly positive (0,029), and is significantly different from zero at a 95% confidence level. Our model states that a one per cent increase CGQ index score would lead to a 0,029 per cent increase in Tobin's Q, holding all else constant. This would indicate that the level of corporate governance has a small positive effect on Tobin's Q. This increase takes into account the costs of the implementation of the change in governance structure, hence presenting the overall increase in value. The R-squared is 0.244 which shows that 24.4% of the variation in the variable is explained by our model. The increase in Tobin's Q tells you that investors values the strength in corporate governance as something positive and therefor increases its market value, even though slightly.

Further analysing the model, one can see that the variables for total assets are statistically insignificant. We can conclude that the variables Financial Leverage, Growth, Systematic- and Unsystematic Variance are significantly different from zero at a 5% (10% for Financial Leverage) significance level. According to our model, a one per cent increase in Financial Risk would lead to a 0,044 per cent increase in Tobin's Q at a 90% significance level, showing that Financial Leverage has an effect on Tobin's Q. A one per cent increase in Systematic Variance would lead to a 0,078 per cent decrease in Tobin's Q at a 99% confidence level, meaning that as the market risk increases a firm's 'future expected growth' decreases. As for the unsystematic

risk, we see a negative relation to firm performance. When the unsystematic risk increases by one per cent then Tobin's Q will decrease by 0,063 per cent, with a 95% confidence level. As expected, the value of a firm will decrease when the unsystematic risk increases, holding all else constant. Lastly, growth has a positive relation to Tobin's Q, where performance increases by 0,018 per cent as a response to year-to-year increase in net sales.

Table 5

Robust Random Effects Regression with Tobin's Q as Dependent Variable			
	Coefficient	Robust Std. Error	Z-Values
Logit(CGQ)	0,028**	0,013	2,15
ln(Financial Risk)	0,044*	0,023	1,89
ln(Total Assets)	-0,015	0,019	-0,79
ln(Systematic Var.)	-0,078***	0,022	-3,56
ln(Unsystematic Var.)	-0,063**	0,027	-2,36
Growth	0,018***	0,007	2,64
Year Dummies	Yes †		
Industry Dummies	Yes Ω		
R^2 Overall:	0,244		

This table displays the Coefficients and the Robust Standard Error as well as the z-values for our 7 independent variables. The calculations are based on 507 observations, where there were on average 4 years of observations per firm. The Index (CGQ) is logit distributed and the rest is distributed by the natural logarithm (except growth). *, ** and * represent the significance levels of 10%, 5% and 1% respectively. The year dummies control for each whole year from 2004-2011, whilst the Industry dummy controls for industries such as; Transport, Finance, Consumer Goods, Health, IT and Energy. † All year dummies are significant at 95% significance level. Ω Health industry dummy is significant at a 95% significance level. The table also presents the R^2 of the model in the bottom left.**

In comparison to other studies, we can see that our results are in line with Morck, Shleifer, & Vishny (1988), McConnell & Servaes (1990) as well as Brown & Caylor (2004). They all found a positive link between corporate governance and firm performance. Moreover, Gompers, Ishii & Metrick (2003) were the first to include a governance index when investigating the relationship between firm performance and corporate governance. The positive link they found between the index and stock returns had a coefficient of 0,009. Accordingly, Brown & Caylor (2004) also used a corporate governance index as a measuring factor, where they found a coefficient of 0,02054 at a 95% significance level. The result of Brown & Caylor (2004) is very similar to our coefficient of 0,028, which is also significant at 95% significance level.

The deviations whilst constructing the model are not presented in this thesis as their results were insignificant and/or not of interest for the purposes of this study. Examples of such model variations include the usage of the CGQ index as the dependent variable in order to investigate the direction of causality, using a 2SLS approach. We found our control variables to be statistically insignificant. Moreover, we investigated the same regression model but with Capital Expenditure as the dependent variable. The model was not included since we weren't able to find a model constructed on sound economic theory. There were some variations concerning the control variables in the model used. When controlling for the size of the firms we firstly used the natural logarithm of the Market Value. We found the variable to be insignificant and unrelated to performance. This was accounted for when introducing Total Assets as the control variable for size.

5. Discussion

The evidence mentioned in section 4 must be read with carefulness. A problem with the analysis is the possibility of an omitted-variable biased, where CGQ would be correlated with the error term. This can for example include immeasurable firm characteristics such as corporate culture. This could be a case where the management behaviour is affected by specific cultural norms, hence causing CGQ to be a symptom, not the cause (Gompers, Ishii & Metrick, 2003). Even when satisfied with our model we need to have the possibility of misspecification in mind and therefore be cautions when presenting our findings.

Furthermore, we also need to be careful regarding to the uncertainties concerning causality. We find evidence of a correlation between CGQ and performance. However, we have not been able to prove that our independent variables are exogenous. Due to the complexity of the CGQ index it is hard, if not impossible, to control for possible endogeneity in the model by using an instrumental variable approach. This leaves the issue of endogeneity unsolved and something we have to keep in mind when interpreting our results.

Neither can we show that one variable causes the other. Our view and statistical results indicate that investors react positively to an increase in governance. This is due to the decrease in agency cost, which causes investors to increase their expectations for a firm's future performance. However, like Kaufmann & Kraay we cannot disprove the reverse causality being incorrect. It is possible that a firm with better performance realize the importance to increasing its governance to control for possible value destroying behaviour by management.

Our evidence supports the disequilibrium phenomenon. We can say, with statistically sufficient results, that CGQ and Tobin's Q are positively correlated. This suggests that an owner can increase value by improving its governance. However, looking at our results from an equilibrium phenomenon perspective, one can argue that the increase in performance made by CGQ is due to another variable, not specified in the model, but correlated with CGQ. Even though this is a possibility we believe that our results support the disequilibrium view due to the highly significant coefficient for CGQ, and the theoretical background of the result.

Our findings also support the theory that CGQ has a positive effect on performance. Thus, a firm with relatively low governance can increase its value by changing governance structure. Therefore a firm with low governance has the opportunity to increase its value, but after the market has adjusted to the new information, no more abnormal returns will be expected.

6. Conclusion

We have found empirical support to the disequilibrium theory first presented by Demsetz (1983). Our corporate governance variable (CGQ) is in fact positively correlated with performance (Tobin's Q) in the Nordic region. Hence, indicating that a firm can enhance its value by changing governance structure. An increase in governance is causing market expectations to believe in higher future earnings to the firm, and therefor increasing the price. One can therefor see that a future change in governance is not fully incorporated in today's price.

Our findings suggest that corporate governance, even though implemented differently, seems to have the same effect on performance in the Nordic countries as it does in the U.S. When not controlling for endogeneity the results tend to support a positive relationship between performance and corporate governance, which is consistent with our results. Suggesting one can use the CGQ index to investigate corporate governance in the Nordic region, even though the index was constructed for the U.S. market.

Further research to investigate the relationship between corporate governance and performance can be to use a similar model as have been presented, but to account for endogeneity. A model that uses the CGQ index and accounts for endogeneity has not been presented for the Nordic region, and could be to great use. Also, a modification of the CGQ index could be conducted, to better fit the Nordic region. The CGQ index used in this study was created to fit an American market, hence gives incentive methods much weighting. An index used to evaluate governance in the Nordic region should have a higher focus on monitoring, which gives one an opportunity to further improve the research within the field.

7. References

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