

Ownership structure and firm performance: Evidence from the Netherlands

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ABSTRACT

In this paper the effect of total ownership concentration and insider ownership concentration on two measures of firm performance is investigated. With a data sample of two annual observations of 2011 and 2012 at 80 Dutch listed companies, significant empirical evidence is found for a quadratic effect of total ownership concentration on firm performance measured by the ROA-ratio. The firm performance first improves when total ownership concentration increases. After a certain point (around 48% of total ownership concentration) firm performance decreases. For the effect of insider ownership concentration on firm performance the results were less convincing, but also statistically significant evidence is found. At first firm performance measured by the ROA-ratio increases when insider ownership concentration increases. After a certain point firm performance decreases, and later on again increases. However, this result on insider ownership concentration is inconclusive in this paper, since just one of the seven sub sample distributions did show this hypothesized effect of insider ownership concentration on firm performance.

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Keywords

Ownership structure, total ownership concentration, insider ownership concentration, firm performance

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1. INTRODUCTION

Many large companies are not run by the people who own them. This separation of ownership and control of modern corporations naturally reduces management incentives to maximize corporate efficiency according to Berle and Means (1932) and leads to a conflict of interests between corporate insiders (managers) and outside investors (Lemmon and Lins, 2003). Jensen and Meckling (1976) referred to this as 'agency theory', a theory of the corporate ownership structure. The central premise of this theory is that managers can act in their own short-term and financial interest. The potential behavior of the managers may not be consistent with maximizing value of the owners (shareholders). This process of using control power to maximize own benefits and therefore redistributing wealth from others is referred to as expropriation of minority shareholders by Claessens, Djankov, Fan, and Lang (2000). Counteracting this is the main goal of corporate governance. The above suggests that ownership structure may be an important determinants for agency problems.

This study aims at providing empirical evidence on whether and how corporate ownership structure influences the performance of Dutch listed firms. In other words, to see if ownership structure is related to the fact that some firms perform worse than others. It focuses on the role of (large) shareholders. The corresponding research question for this study is as follows: "What is the effect of ownership structure on performance of Dutch listed firms?" In particular the role of ownership concentration and ownership identity is examined. In this study total ownership concentration is about the presence of large shareholders. In the literature there are several distinctions of different types of owners. Here the distinction made for ownership identity is between insider and outsider ownership, because this can result in interesting findings besides the relationship between total ownership concentration and firm performance. So besides total ownership concentration in general, the effect of insider ownership concentration on firm performance is examined. The concept insiders refers to all managers, directors and board members. The investigation is performed using a dataset of 80 Dutch listed companies. The relationship between firm performance and corporate ownership structure is examined by regressing P/B-ratio and ROA-ratio measures (following the existing literature e.g. Thomsen & Pedersen, 2000, Claessens, Simeon et al., 2002, Morck et al., 1988 etc.) on measures of corporate ownership structure and control variables. These ratios are explained more in depth in chapter 3.

Although the effect of ownership structure on firm performance has been the subject of research in numerous studies, few studies investigate how corporate ownership structure affects firm performance in the Netherlands. This paper intends to fill this research gap, by examining the effect of corporate ownership structure on firm performance. Hu and Izumida (2008) state the ownership-performance relationship varies across countries and over time. For this reason this paper is theoretically relevant. The practical relevance of the study is associated with firm performance, because for firms it can be interesting too to know whether or not ownership structure is an efficient corporate governance strategy.

The paper proceeds as follows. Section 2 presents a literature overview together with hypotheses, while in Section 3 the data collection method and the data itself are described. Section 4 explains the results from the data. Section 5 summarizes and concludes the paper.

2. LITERATURE OVERVIEW

The effect of ownership structure on firm performance has been the subject of research in numerous studies. For both the effect of total ownership concentration on firm performance and the effect of insider ownership concentration on firm performance, two main arguments arise from previous literature. All four arguments are discussed below on which hypotheses for this study are drawn.

2.1 Total ownership concentration and firm performance

When discussing the effect of total ownership concentration on firm performance, the '*monitoring argument*' is a frequent argument. It says that large owners may be more capable of monitoring and controlling the management, and thereby perhaps contributing to a better corporate performance (Schleifer&Vishny, 1997). Thereby, for shareholders owning a large share of the company's equity there are (more) incentives to monitor management and influence decision-making within the firm, because they may be more affected by the actions of management and partly benefiting more from their own monitoring effort than shareholders owning just a little share of the company's equity (Huddart, 1993, Dennis&McConnell, 2003, Grossman&Hart, 1986, Schleifer&Vishny, 1997). Methods used by these large shareholders for monitoring and intervening range from informal conversations with management to formal proxy contests according to Schleifer and Vishny (1986, 1997). In this way large shareholders address the agency problem mentioned in the introduction, because they have both general interests in maximization of profits and enough voting control to put pressure on management to have their interests respected (Schleifer&Vishny, 1997). Addressing the agency problem can result in better firm performance, because of lower agency costs.

Besides the monitoring argument a second important argument can be derived from the literature. The '*expropriation-of-minority-shareholders argument*' states that concentrated ownership may permit large shareholders to expropriate minority shareholders. In this way these dominant shareholders can act in their own best interest and exert their power to benefit themselves at the expense of minority shareholders by redistributing wealth from them (Kapelyshnikov et al. 2001, Schleifer&Vishny, 1997, Dennis&McConnell, 2003). Pursuing the private benefits from large and dominant shareholders may lead to worse firm performance, because private shareholder interests and firm interests may be different.

These two argument give rise to a non-linear relationship between total ownership concentration and firm performance. Thomsen and Pedersen (2010) found in their study that at first there is an increasing effect of ownership concentration on firm performance and then a decreasing effect of ownership concentration on firm performance. Claessens, Simeon et al. (2002) found the same pattern. Liu, Uchida and Yang (2012) also found that large shareholders' ownership has a U-shaped relation to crisis-period performance. Morck, Schleifer and Vishny (1988) describe that performance improves at first with more concentrated ownership but beyond a certain point of ownership concentration firm performance decreases, because from this point shareholders gain so much control (by voting power) that they can use their votes to maximize their own welfare. Stulz (1988) presents a model of this relation which was confirmed and corroborated by others (e.g. McConnell&Servaes, 1990).

Based on this literature the first hypothesis for this study is as follows:

Hypothesis 1: Total ownership concentration has a quadratic relation to firm performance.

2.2 Insider ownership and firm performance

The effect of ownership identity and firm performance is also not so easily explained, because on this subject too there are two main views stemming from the literature.

The first important argument is the ‘*incentive alignment argument*’. This argument says that more insider ownership may increase firm performance, because it means better alignment of insider (managerial) and shareholder interests (Jensen and Meckling, 1976). The positive effect of insider ownership on firm performance thus stems from the level of alignment between owners (shareholders) and controllers (managers). Insider ownership partly mitigates the agency problem, where conflicts arise because the separation of ownership and control. Insiders who also own a share of the company’s equity will act to maximize firm and shareholder value in that case due to their own interests. This argument is also followed by many other authors. Studies from for example McConnell and Servaes (1990, 1995), Dennis and McConnell (2003) and Morck et al. (1988) have shown that insider ownership can have a positive effect on firm performance. Williamson (1964) was also a early founder of this effect. He proposed that non-owner insiders can prefer their own interests over that of shareholder, which causes non-owner managed firms to be less efficient than owner-managed firms. Thereby, insider ownership is found positively related with firm performance in crisis by Liu et al. (2012).

The other argument addressed in literature on insider ownership is the ‘*entrenchment argument*’, which says that more insider ownership may decrease firm performance, because when insiders have a large ownership stake, they might be so powerful so that they do not need to consider other shareholders. For this reason they also can be so wealthy that they do not intend to maximize profits any more (Morck, Shleifer & Vishny, 1988). When insiders own a substantial fraction of the firms’ equity they have greater freedom to pursue their own best interests. In other words; insiders get entrenched at some point (Demsetz, 1983, Dennis & McConnell, 2003). Schleifer and Vishny (1997) discuss ways by which owner-insiders can divert funds: outright theft, dilution of outside investors through share issues to insiders, excessive salaries, asset sales to themselves or other corporations they control at favorable prices, or transfer pricing with other corporations they control. When insiders do not follow the firm’s best interests, firms may perform worse. Lauterback and Vaninsky (1999) also found that insider ownership makes firms less efficient in generating net income compared to non-owner managed firms.

These two arguments are not completely each other’s opposite according to Morck et al. (1988), but they can be taken together. They found that the entrenchment argument will dominate only for medium concentrated levels of insider ownership. When insiders just have a small piece of ownership, they might be not so entrenched because the stake is too small to give the manager enough control. And also for the high levels of insider ownership the argument does not hold according to Morck et al. (1988). The conditions that are necessary for entrenchment are not much different for firms with insider ownership concentration from about 25-30% and firms with more than 30% of insider ownership concentration. For this reason the effect of the entrenchment argument is expected to only act to a

certain point. The incentive alignment argument on the other hand, operates throughout the whole range of insider ownership concentration according to Morck et al. (1988). McConnell and Servaes (1990), McConnell et al. (2008) basically find the same pattern as Morck et al. (1988). Their results suggest that the incentive alignment argument is more important at both low and high levels of insider ownership, and that the entrenchment argument is more important at the medium levels of insider ownership.

Based on the literature the second hypothesis for this study is as follows:

Hypothesis 2: Insider ownership concentration has the following relationship to firm performance: at first performance will increase with insider ownership, after a certain point will decrease and later on again will increase.

3. METHODOLOGY AND DATA

Section 3.1. gives an overview of the model and method which are used throughout the whole study. After this in section 3.2 the variables of interest are presented. Section 3.3 gives an overview and explanation for the chosen data sample. Thereafter the descriptive statistics of the data sample are given and discussed in order to give a first impression of this data sample

3.1 Model and method

3.1.1 Total ownership concentration on firm performance

Stemming from the first hypothesis the effect of total ownership concentration on firm performance is expected to be a quadratic effect, because of the expected bend in the regression line. According to the ‘*monitoring argument*’, firm performance at first will increase with total ownership concentration. After a certain point the ‘*expropriation of minority shareholders argument*’ becomes important which says that firm performance will decrease when total ownership concentration increases.

The first part of the model which specifies the first hypothesis is:

$$\text{Firm performance} = \alpha + \beta_1 * TOC + \beta_2 * TOC^2 + \beta_3 Z + \epsilon$$

This relation is measured by involving the squared term of TOC in the analysis. This squared variable represents the expected bend in the regression line. In this paper often the abbreviation ‘*tot_sq*’ will be used (mostly in tables). At first a correlation analysis is performed to see how the dependent and independent variable are related. The control variable for firm size is also included in the correlation analysis. Hereafter multiple regression analyzes are performed to see whether the expected model is actually a significant model in this study’s sample and to find out the coefficients we are especially interested in. In first instance only the dependent and the independent variables are included in the model. After that the regression analysis is performed again, but this time the control variables are included too. In this way the predictors’ impact on the firm performance is measured after controlling for industry and firm size effects. Tables are composed to present the results from the regression analysis. In these tables the coefficients for all variables are presented. Also the adjusted R-squared value is presented in the table. R-square is the percentage of variability in the overall firm performance that is accounted for by the model’s independent variables. However, the adjusted R-squared value is a better measure here, because R squared can be misleading.

Every time a new predictor is added to the model, the R-squared value increases. It never decreases. Consequently, the R-squared value cannot tell whether the model's explaining capacity is really bigger, because a higher value may simply arise from more terms included. The adjusted R-squared value is the solution for this, because it is adjusted for the number of predictors. If the adjusted R-squared increases the model's explaining capacity is higher. If the adjusted R-squared decreases, the addition of more predictors worsens the model's explaining capacity.

3.1.2 Insider ownership concentration on firm performance

For the effect of insider ownership concentration on firm performance a slightly different approach is used. Hypothesis 2 shows that a non-monotonic relationship is expected, where at first performance will increase, after a certain point will decrease and later on again will increase when insider ownership concentration rises. To test this relation three subsamples are made to capture all three parts of the expected relationship. The piecewise linear regression tests the following linear model. This is the second part of the model that tests the second hypothesis:

$$\text{Firm performance} = \alpha + \beta_4 * IOC + \beta_5 Z + \varepsilon$$

Stemming from the second hypothesis, β_4 is expected to be positive in the first sub sample, negative in the second sub sample and positive again in the third sub sample.

To test this relation also correlation analyses are done first and thereafter also multiple regression analyses are performed for both measures of firm performance. Once again for clarification; the difference with the analysis of the first hypothesis is that these regression analyses are performed in three sub samples.

3.2 Variables

The research goal of this study is to see whether or not corporate ownership structure has an effect on performance of Dutch listed firms. Stemming from the research question the dependent variable is firm performance. The independent variable is ownership structure. Ownership structure can be divided into two independent variables: ownership concentration and ownership identity. At first the effect of ownership concentration on firm performance will be examined. In the literature there are several distinction of different types of owner. As stated earlier, here the distinction made for ownership identity is between insider and outsider ownership. So besides ownership concentration in general, the effect of insider ownership concentration on firm performance is examined. The two independent variables thus are; total ownership concentration and insider ownership concentration.

3.2.1 Dependent variable

The dependent variable of interest is firm performance. There are several ways to measure firm performance. Two main types are financial accounting data (e.g. ROA and ROE etc.) and stock market based data such as market-to-book ratios. In this study these two main types are included by including two key measures of firm performance.

The first key measure of firm performance is the price-to-book ratio (also called market-to-book value). This variable compares the stock's market value to its book value, so the ratio between the price at which the share of common stock is issued on the balance sheet of a firm and the price the market is willing to pay

for it at that moment in time. A higher P/B-ratio indicates a more efficient use of equity by reflecting the current market's expectation of future firm performance. For this reasons the P/B-ratio seems a good proxy for firm performance. Market-to-book ratios are also widely used by authors of related literature as a variable for firm performance (e.g. Thomsen & Pedersen, 2000, Cleassens, Simeon et al., 2002, Morck et al., 1988 etc.). The price-to-book ratio data used are the average of the high and low values of this ratio in a specific year. This average ratio seems to be more appropriate to represent a whole year than for example only the closing value at the year end. From the database of ORBIS this P/B-ratio can be extracted. In this paper often the abbreviation 'PB' will be used for the P/B-ratio.

On the other hand, financial accounting data is included because the price-to-book ratio is about expectations for future performance. For this reason it might be better not to rely on just one variable. The second measure on firm performance included in this study, is the widely used return on assets ratio (ROA), used to indicate past performance. This ratio is an indicator of how profitable a company is relative to its assets. It gives an idea of how efficient the management handles the companies' assets in order to generate earnings. It is measured by dividing earnings before interests and taxes by total assets. Thus, a higher ROA-ratio means the firm makes more profits based on the same amount assets. For this study a higher ROA-ratio thus means that a company is performing better. The ROA-ratio can also be extracted from the database of ORBIS. In this paper often the abbreviation 'ROA' will be used to denote the ROA-ratio.

3.2.2 Independent variables

The independent variable of interest is ownership structure. This variable is divided into two independent variables, namely total ownership concentration and insider ownership concentration. Data on these variables is mostly obtained from the individual company reports. There are two types of ownership within companies: direct and total ownership. Direct ownership means that the shareholder directly owns a share of the stock of a firm. Total ownership is the sum of direct and indirect ownership, whereas indirect ownership means that an entity is not directly linked towards the firm, but that it owns a part of another entity, that in turn owns a part of the firm in the sample. In the study is chosen to take the total ownership data of the sample, because indirect ownership may contribute to the theories here too (e.g. entrenchment argument, incentive alignment argument etc.). ORBIS reports the number for both the direct and total ownership. Total ownership number are taken from the database, and where necessary supplemented by information from the individual annual reports.

Total ownership concentration (TOC in the model) is measured by the sum of all major shareholdings in the Dutch listed firms. To be more precise; the sum of all shareholders owning 5% or more in the firm. Pursuant to the Financial Supervision Act, a shareholding of 5% or more in a Dutch company must be disclosed. Since AFM in the Netherlands perceives the share of 5% as a substantial number of ownership, this number is followed in this research. The fact that firms must disclose shareholdings of 5% or more also ensures that the data on total ownership concentration could be easily obtained by reading annual reports.

Insider ownership concentration (IOC in the model) is examined in a different way. Since insider ownership shares can be very small, but still have an impact on the behavior and incentives of insiders and thus on firm performance, also these small shares are interesting. For this reason insider ownership

concentration is the total sum of all insider ownership shares (insider shares divided by the total shares of a firm). ‘Insider’ refers to all managers, members of boards and other employees.

3.2.3 Control variables

Firm size and firm industry are control variables. In the models above these control variables are named Z. These control variables are included because they might affect the relationship between total ownership concentration and firm performance or either affect the relationship between insider ownership concentration and firm performance. Main pieces of literature on this subject also include those to control variables (e.g. Thomsen & Pedersen, 2000, Cleassens, Simeon et al., 2002, Morck et al., 1988 etc.). Firm size is measured by the value of total assets in thousands of Euros. It controls whether firm performance is influenced by the size of the firm or not. For the statistical analysis the log of the total assets is used, because for a good measurement the values have to be normalized. This is possible with the addition of a logarithm. Different kinds of industry types are included as well in order to control for the effect of specific industries. The different industry types are presented with NACE rev. 2 main section typology (4 digit). To incorporate this last control variable 6 industry dummies are made which represent 6 industry categories.

3.3 Data sample

In first instance a dataset of 123 Dutch listed companies is used for the analysis. A number of companies was removed from this set, because not all data needed was accessible and valid. Eventually there remained a sample of 80 Dutch listed companies. The choice for Dutch firms stems from the theoretical relevance of this study; there is a research gap on this subject in the Netherlands. There is chosen to study listed firm, because these firms do have shareholders, and thereby agency problems, and a good range of insiders. SMEs for instance are much smaller, as their shareholders are smaller and less insiders are present. Therefore listed firms are likely to be better sample units. Two annual observations on the variables are included; 2011 and 2012. This sample period was chosen because most recent data was available for this period. All data on measures of firm performance, as well as data for the control variables are obtained from the database of ORBIS. This is a database provided by Bureau van Dijk. It contains among others financial and ownership data over the last 10 years over 79 million public and private firms worldwide. The ownership data that the database holds is not sufficient for this research. Therefore, all other additional information is extracted from the annual reports of the respective companies in the sample. Outliners are removed from the sample (6 observations for both measures of firm performance).

The first part of the model that tests the first hypothesis uses the whole data sample of 154 observations. More information on this sample is provided in section 3.4. For the second part of the model which tests the second hypothesis, a non-monotonic relationship is expected. As explained above, this relationship is tested by dividing the whole data sample into three subsamples. In this way it becomes possible to study the expected relationship, by allowing slopes to change at two points. Morck et al. (1988) allowed slopes to change at 5% and 25% of insider ownership concentration. Thereby they state that the theoretical justification for these numbers is not very strong. The 0 to 5% range in the first subsample is chosen by referring to Herman (1981). The 5% ownership level is used by him as “focal stake beyond which ownership is no longer negligible and by the SEC as a point of mandatory public disclosure of ownership”

(Morck et al., 1988). The breakpoint at 25% is based on the motivation of Weston (1979). According to Morck et al. (1988) he suggests that “the 20 to 30% range is a range beyond which a hostile bid for the firm cannot succeed”. Since this theoretical justification is not very strong, several robustness checks are performed for several other sub samples.

3.4 Descriptive statistics

Descriptive statistics are presented in table 1. It shows the descriptive statistics for the total sample, but also for the three sub samples that are used for the second part of the model (hypothesis 2). As can be seen in the table, the mean percentage of total shareholdings by shareholders owning more than 5% of the shares of a firm in the total sample is around 49% with a standard deviation of around the 22%. For insiders these percentages are respectively 9% and 16%. The insiders concentration level is the sum of all relative shareholdings of insiders. The dependent variable is measured with the P/B-ratio and the ROA-ratio. The means of these ratios in the total sample are respectively around 1.7 and 3.1. The standard deviations of these measures are respectively around 1.2 and 8.05. The number of observations in this sample is smaller than the N in previous studies in literature (e.g. Morck et al., 1988, Lemmon&Lins, 2003, Lauterback&Vaninsky, 1999).

From the descriptive statistics of the sub samples already a pattern should be seen from the mean values of the ROA- and P/B-ratio. But here this is not the case. For both ratios the mean value for insider ownership concentration in the second sub sample is expected to be lower than in the first and the third subsample. For both the ROA-ratio and the P/B-ratio measure this is not the case. The next section will investigate in depth if this is really correct and if the presumed relationships are present.

Table 1. Descriptive statistics

	N	Min	Max	Mean	Std. Dev
Total sample					
ROA (%)	154	-26.69	22.37	3.14	8.05
PB (%)	154	.19	7.22	1.70	1.18
TOC (%)	154	5.06	89.90	48.91	22.10
IOC (%)	154	.00	77.84	8.97	15.80
Ln_TA	154	8.56	18.62	13.72	2.01
Sub sample 1					
ROA (%)	31	-14.93	11.15	2.74	6.24
PB (%)	31	.70	2.81	1.68	.55
IOC (%)	31	.56	3.98	1.81	1.21
Ln_TA	31	10.40	18.62	14.45	1.70
Sub sample 2					
ROA (%)	40	-9.29	16.39	4.64	6.34
PB (%)	40	.26	2.79	1.35	.66
IOC (%)	40	5.06	21.98	11.59	4.99
Ln_TA	40	9.95	15.68	13.39	1.61
Sub sample 3					
ROA (%)	19	-9.59	15.78	2.52	6.29
PB (%)	19	.19	2.33	1.17	.62
IOC (%)	19	25.47	77.84	46.99	18.01
Ln_TA	19	8.56	15.54	12.40	1.97

Table 2 gives the frequencies of the sample data on total ownership concentration. From this table it can be seen that from the perspective of total ownership concentration the sample can be considered as a proper sample, based on the fact that the observation are relative equally spread across the categories.

Table 2. Frequencies: TOC

Ownership share	Total (%)
0-10%	4 (2.60%)
10-20%	12 (7.79%)
20-30%	23 (14.94%)
30-40%	24 (15.58%)
40-50%	16 (10.39%)
50-60%	21 (13.64%)
60-70%	25 (16.23%)
70-80%	22 (14.29%)
80-90%	7 (4.54%)
90-100%	0 (0%)
N = 154 (100%)	

Table 3. Frequencies: IOC

Ownership share	Total (%)
0-0.5%	64 (41.56%)
0.5-1%	12 (7.79%)
1-5%	18 (11.70%)
5-10%	20 (12.99%)
10-20%	16 (10.39%)
20-30%	8 (5.19%)
30-40%	7 (4.54%)
40-100%	9 (5.84%)
N = 154 (100%)	

From table 3, which shows the frequencies of the sample data on insider ownership concentration, it can be seen that the sample is not ideal. The sample as a whole is concentrated for the smaller ownership shares. There is not much data on the bigger ownership shares, thus the sample is skewed to the left. Because this data sample will be divided into three subsamples, where the third subsamples represents insider ownership shares from 25% to 100%, this is not ideal because it results in a small third sub sample. In literature this left skewed sample is also present (e.g. Morck et al., 1998), and not considered as problematic.

Values below 0.5% of insider ownership concentration are considered negligible, following the main piece of literature used here (Morck et al., 1988). Morck et al. (1988) use a slightly different standard for this negligible range of 0% to 0.2%. In this study is chosen to use the negligible range of 0% to 0.5%. The effect of this piece of increase in insider ownership concentration on firm performance is negligible, because of evidence from the scatter plot. The values from 0 to 0.5% of insider ownership appear to correspond to a wide variety of values for firm performance. Values for the ROA-ratio for example vary from -27 up to 44 within this range, with a mean of 3.15 and a standard deviation of 11.75. The correlation between insider ownership and the both measures of firm performance is very small and not significant: -0.008 for the ROA-ratio measure and .003 for the P/B-ratio measure. For this reason, the negligible values (0-0.5%) are not included in the sub samples on insider ownership concentration.

4. RESULTS

In this section the results will be presented together with explanations and interpretations of these results.

4.1 Total ownership concentration

4.1.1 ROA-ratio

The Pearson coefficient observes whether there exist a correlation between the variables included in the model. Table 4 shows these coefficients for the total data sample of total ownership concentration. The correlation between total ownership concentration and the ROA-ratio and between the

squared term of TOC (tot_sq) and the ROA-ratio are both small and insignificant. Despite the fact that these values are low and not significant, these values do already give an indication of the relationship. The positive value of the linear part in the model (TOC) indicates that at first there is a positive relationship. The negative value of the quadratic component in the correlation analysis indicates that after a while a negative bend occurs in the regression line. The estimated coefficients and their standard errors from the regression analysis are shown in the second column of table 5. For comparison, the first column presents the regression without control variables. From the regression analysis it can be seen that indeed the coefficient of the linear component in the model has a significant positive value and the quadratic component in the model has a significant negative value, which represents the negative bend in the regression line. So the impact of the independent variables is in line with the expectation after controlling for firm size and industry effects. The coefficients for total ownership concentration and tot_sq are respectively 0.369 and -0.004. As stated before, the negative value of tot_sq indicates the negative bend in the regression line. The ROA-ratio starts to decline from a point around the 48 percent of total ownership concentration. The whole model is significant at a 99.9% percent confidence level. The adjusted R squared value in the second column shows the included variables significantly account for 18.1 percent of variability in the ROA-ratio.

Table 4. Correlation: TOC

	ROA	PB	TOC	Ln_TA	Tot_sq
ROA	1				
PB	.366***	1			
TOC	.004	-.155**	1		
Ln_TA	.096	.279***	-.363***	1	
Tot_sq	-.044	.179**	.977***	.384***	1

significant at * 90% ** 95% *** 99%

Table 5. Regression: TOC

	Dependent variable			
	ROA	ROA	PB	PB
TOC	0.386*** (0.138)	0.351** (0.146)	0.018 (0.015)	0.011 (0.015)
Tot_Sq	-0.004*** (0.001)	-0.004** (0.002)	0.000 (0.00)	0.000 (0.00)
Ln_TA	-	.374 (.360)	-	.151*** (.037)
Industry dummies	no	yes	no	yes
Adj. R ²	0.039**	0.181***	0.028**	0.230***
N	154	154	154	154

significant at * 90% ** 95% *** 99%

4.1.2 P/B-ratio

The Pearson coefficients observed for the relationship between the P/B-ratio and total ownership concentration are also presented in table 4. It shows there is a substantial correlation between both the P/B-ratio and the linear component (total ownership concentration) and the P/B-ratio and the quadratic component (tot_sq) in the model. But the values of these correlation are not as expected, namely the linear component is negative (where a positive correlation was expected) and the quadratic component is positive (where a negative correlation was expected). The results from the regression analysis are presented in the third and fourth column of table 5. In the third column the control variables are excluded from the model. There are no significant coefficients present in this case in the model. The model on its own is significant but only has a small

explaining capacity stemming from the adjusted R square value. When the control variables are added to the model (column 4 table 5) this adjusted R squared value does increase and the overall model is again statistically significant, but there are still no substantial and statistically significant coefficients in the model for the variables of interest; total ownership concentration and the squared term of total ownership concentration. This all means that the linear and quadratic combination is not a unique predictor of firm performance when firm performance is measured by the P/B-ratio.

These findings are not consistent over the two measures of firm performance. For the ROA-ratio measure evidence is found for the first part of the model stemming from the first hypothesis.

4.2 Insider ownership concentration

4.2.1 Sub 1: IOC from 0.5-13%

4.2.1.1 ROA-ratio

The Pearson correlation analysis results are shown in table 6. It shows a substantial but not statistically significant negative correlation between insider ownership concentration and the ROA-ratio for the first sub sample. The estimated coefficients and their standard errors stemming from the regression analysis of the first subsample are shown in the second column of table 7 (for comparison, the first column presents the regression without control variables). It shows a statistically significant (90 percent confidence level) negative relationship after controlling for industry and size effects. For each 1 percent increase in insider ownership concentration between 0.5% and 5%, the ROA-ratio decreases by an average of 0.019. This coefficient is statistically significant at a 90 percent confidence level. This result is not in line with the hypothesis; the regression line in the first subsample was expected to increase.

Table 6. Correlation: IOC Sub 1

	ROA	PB	IOC	Ln_TA
ROA	1			
PB	.054	1		
IOC	-1.62	-.325*	1	
Ln_TA	.122	.512***	.026	1

significant at * 90% ** 95% *** 99%

Table 7. Regression: IOC Sub 1

	Dependent variable			
	ROA	ROA	PB	PB
IOC	-.831 (.911)	-1.891* (.976)	-.151* (.080)	-.054* (.057)
Ln_TA	-	.743 (.650)	-	.155*** (.037)
Industry dummies	no	yes	no	yes
Adj. R ²	.026	.068	.105*	.625***
N	31	31	31	31

significant at * 90% ** 95% *** 99%

4.2.1.2 P/B-ratio

From the correlation analysis (table 6) it appeared that there is a significant negative correlation between insider ownership concentration and the P/B-ratio in the first subsample. This correlation was expected to be positive. The results from the regression analysis (third and fourth column table 7) show the same relationship; a statistically significant negative coefficient for insider ownership concentration in the model. The adjusted R squared value shows that 62.5 percent of the variability in the

overall P/B-ratio in this subsample is being accounted for by insider ownership concentration together with the control variables. The overall model is significant at a 99 percent confidence level. So, the impact of insider ownership concentration and the P/B-ratio is significant (also when controlling for size and industry effects), but it is significant negative. This result is also not in line with the hypothesis; the regression line in the first subsample was expected to increase.

4.2.2 Sub 2: IOC from 13-33%

4.2.2.1 ROA-ratio

The Pearson correlation coefficients for the second sub sample (table 8) indicate no substantial or statistically significant correlation between insider ownership concentration and the ROA-ratio. The results from the multiple regression analysis (second column table 9) shows the same; no significant coefficient of insider ownership concentration in the model for the second sub sample. The coefficient is even positive instead of a expected negative coefficient. The adjusted R square value is also very low. It shows that only 8.9 percent of the variability in the overall ROA-ratio in this subsample is being accounted for by insider ownership concentration together with the control variables. The overall model is in turn also not significant.

Table 8. Correlation: IOC Sub 2

	ROA	PB	IOC	Ln_TA
ROA	1			
PB	.489***	1		
IOC	.075	-.021	1	
Ln_TA	-.009	.127	.246	1

significant at * 90% ** 95% *** 99%

Table 9. Regression: IOC Sub 2

	Dependent variable			
	ROA	ROA	PB	PB
IOC	.095 (.214)	.435 (.293)	-.003 (.020)	-.011 (.030)
Ln_TA	-	.127 (.716)	-	.102 (.077)
Industry dummies	no	yes	no	yes
Adj. R ²	.006	.089	.001	.011
N	40	40	40	40

significant at * 90% ** 95% *** 99%

4.2.2.2 P/B-ratio

Table 8 reveals a negative, but not significant correlation between insider ownership concentration and the P/B-ratio for the second sub sample. The regression analysis (third and fourth column table 9) also resulted in a negative coefficient for insider ownership concentration in the model. This negative effect is bigger when controlling for industry and size effects, but is still not big. The negative coefficient for insider ownership concentration is not significant present in this model. The overall model for this subsample is also not statistically significant. The result (negative coefficient) is in line with the expectations, because the regression line was expected to fall in the second subsample, but this is not supported with a statistically significant value.

4.2.3 Sub 3: IOC over 33%

For the third sub sample again no convincing evidence was found. The correlation analysis in table 10 does not show any significant correlations between insider ownership concentration and firm performance measured by both the

ROA-ratio and the P/B-ratio. Although the correlations are not significant, they tell that for ROA-ratio measure the relationship is positive (as expected) and for the P/B-ratio measure it is negative. The regression analysis shows (table 11) the same; a small positive but not significant coefficient at the ROA-ratio measure and a small negative and also not significant coefficient at the P/B-ratio measure. The overall model is only significant on a 90 percent confidence level for the P/B-ratio measure. Adjusted R squared values become big when controlling for industry and size effects. But since the independent variable is not a unique predictor in the model it may be that the control variables are carrying all the weight in the model's predictive capacity. So the result for the ROA-ratio measure is in line with the hypothesis, because the regression line was expected to increase in the third sub sample. But this result is not significant. The results for the P/B-ratio measure are not in line with the hypothesis (and also not significant), because the regression line was expected to increase in the third sub sample, but the results show the opposite effect.

Table 10. Correlation: IOC Sub 3

	ROA	PB	IOC	Ln_TA
ROA	1			
PB	-.176	1		
IOC	.261	-.394	1	
Ln_TA	-.428	-.194	.389	1

significant at * 90% ** 95% *** 99%

Table 11. Regression: IOC Sub 3

	Dependent variable			
	ROA	ROA	PB	PB
IOC	.091 (.087)	.088 (.244)	-.014 (0.008)	-.013 (.023)
Ln_TA	-	.113 (1.601)	-	.078 (.148)
Industry dummies	no	yes	no	yes
Adj. R ²	.006	.324	.102	.411*
N	19	19	19	19

significant at * 90% ** 95% *** 99%

4.2.4 Robustness checks

The results on insider ownership concentration are far from illuminating in this study. This is also the reason why the second hypothesis may be questioned. With the current data sub samples hardly no convincing results are found. As stated in section 3.3 the theoretical justification for those sub samples is not very strong. For that reason here below the results of several

other sub sample distributions are reported. Table 12 shows the results of these robustness checks. It presents the coefficients for the effect of insider ownership concentration on both measures of firm performance, after controlling for industry and size effects.

For the first five robustness checks five different sub sample distributions are used to test the relationship of insider ownership concentration on firm performance, based on the main piece of literature on this subject (Morck et al., 1988). All five robustness checks show again no convincing empirical evidence with respect to the second hypothesis. Concerning the first five robustness checks, table 12 shows no statistically significant positive coefficients for insider ownership concentration in the first sub sample checks, no statistically significant negative coefficients in the second sub sample checks and also no statistically significant positive coefficients in the third sub sample checks (after controlling for industry and size effects).

Despite the fact that these first robustness checks thus show no convincing evidence that can confirm the second hypothesis, another robustness check is added to table 12. This sixth robustness check is added, because of a pattern that can be derived from the scatter plot (figure 1) of insider ownership concentration on the ROA-ratio. From 0.5 till approximately 13% of insider ownership concentration, the ROA-ratio seems to increase. After 13% till approximately 33% a negative pattern seems to be present. After 33% of insider ownership concentration, the ROA-ratio seems to rise again.

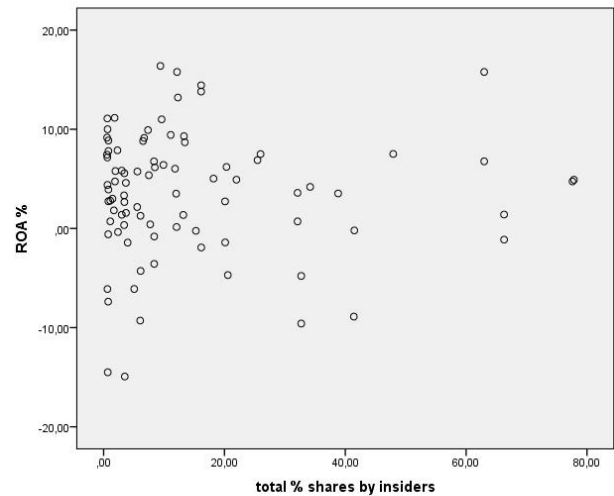


Figure 1. Scatter plot: IOC on ROA

Table 12. Robustness checks; alternative sub samples

Check nr.	Dependent variable		Dependent variable		Dependent variable	
	PB	ROA	PB	ROA	PB	ROA
1.	Sub 1: 0.5-2.5% of IOC		Sub 2: 2.5-25% of IOC		Sub 3: Over 25% of IOC	
	.059	4.160	-.005	.329*	-.013	-.088
2.	Sub 1: 0.5-7.5% of IOC		Sub 2: 7.5-25% of IOC		Sub 3: Over 25% of IOC	
	-.030	.068	.157***	.908*	-.013	-.088
3.	Sub 1: 0.5-5% of IOC		Sub 2: 5-15% of IOC		Sub 3: Over 15% of IOC	
	-.054	-1.891*	.175**	1.201	-.011	-.086
4.	Sub 1: 0.5-5% of IOC		Sub 2: 5-20% of IOC		Sub 3: Over 20% of IOC	
	-.054	-1.891*	.009	.436	-.012	-.039
5.	Sub 1: 0.5-5% of IOC		Sub 2: 5-30% of IOC		Sub 3: Over 30% of IOC	
	-.054	-1.891*	.025	.442*	-.013	0.089
6.	Sub 1: 0.5-13% of IOC		Sub 2: 13-33% of IOC		Sub 3: Over 33% of IOC	
	-.035*	.435**	.041**	-.583***	-.010	.150

significant at * 90% ** 95% *** 99%

The regression tests performed for these sub samples show indeed a significant positive coefficient for insider ownership concentration in the model for the first sub sample after controlling for industry and size effects. For each 1 percent increase in insider ownership concentration between 0.5% and 13%, the ROA-ratio rises by an average 0.0044. This coefficient is statistically significant at a 95% confidence level. This result is in line with the second hypothesis; the regression line in the first sub sample was expected to increase. The regression result of the second sub sample in this robustness check shows a statistically significant negative coefficient for insider ownership concentration in the model (when including control variables). For each 1 percent increase in insider ownership concentration between 13% and 33%, the ROA-ratio decreases by an average 0.0058. This result is in line with the second hypothesis; the regression line in the second subsample was expected to decrease. The regression test for the last sub sample in this robustness check shows a positive though not significant coefficient for insider ownership concentration in the model. Though the result is not significant, the positivity of the coefficient is in line with expectations.

This last robustness check gives empirical evidence which can confirm the second hypothesis. A first side note to these results, is the fact that these results are only present for the ROA-ratio measure of firm performance. The second side note is that this evidence is far from convincing since all other sub sample distributions do not show the same hypothesized effect of insider ownership concentration on firm performance.

5. CONCLUSIONS

This study aimed at providing empirical evidence on whether, and how corporate ownership structure influences the performance of Dutch listed firms. In particular the impact of total ownership concentration and insider ownership concentration on corporate firm performance is examined by regressing P/B-ratio and ROA-ratio on these corporate ownership measures. Total ownership concentration in this study is defined as the sum of all shareholders owning 5% or more in the firm. Insider ownership concentration thereby is measured as the total sum of all insider ownership shares.

The first part of the model analyses the impact of total ownership concentration on firm performance. A quadratic relationship was expected (first hypothesis), because of two related arguments in the literature. The first argument is the '*monitoring argument*', which says that large owners may be more capable of monitoring and controlling the management. For the larger owner there are more incentives to monitor and influence the management, because they will be more effected by decisions of the management. The agency problem is getting smaller in this case, because interests of agents and principles will be more aligned. Lower agency costs can result in better performance according to this argument. The second argument is the '*expropriation-of-minority-shareholders argument*', which states that larger owners can become dominant when their stakes grows. In this way they can act in their own best interest and exert their power to benefit themselves at the expense of minority shareholders by redistributing wealth from them. This may lead to worse firm performance, because private shareholder interests and firm interests may be different. These two argument give rise to a expected non-linear relationship, where at first firm performance is expected to increase when total ownership concentration increases, and later on is expected to decrease. This relationship (first part of the model) was tested with a regression on a linear and quadratic component of the model, which represents the expected bend in

the regression line. The regression analysis resulted in a statistically significant positive coefficient for the linear component of total ownership concentration in the model and a statistically significant negative coefficient for the quadratic component of total ownership concentration in the model, when firm performance is measured by the ROA-ratio. This result is in line with the first hypothesis. When firm performance is measured by the P/B-ratio on the other hand, the results reveal something different. No statistically significant coefficients were present in the model for both the linear and quadratic component of total ownership concentration in the model.

The second part of the model analysis the impact of insider ownership concentration on firm performance. A non-monotonic relationship is expected here (hypothesis 2), where at first firm performance is expected to increase with insider ownership concentration, after a certain point will decrease, and later on again will increase. This expected relationship also stems from two arguments from literature. The first argument is the '*incentive alignment argument*', which says that more insider ownership may increase firm performance, because it means better alignment of insider (managerial) and shareholder interests. Insiders who also own a share of the company's equity will act to maximize firm and shareholder value in that case due to their own interests. The second argument is the '*entrenchment argument*', which says that more insider ownership may decrease firm performance, because when insiders have a large ownership stake, they might be so powerful so that they do not need to consider other shareholders. When insiders own a substantial fraction of the firms' equity they have greater freedom to pursue their own best interests and they become entrenched. When insiders do not follow the firm's best interests, firms may perform worse. These two arguments are expected to give rise to a non-monotonic relationship, because the entrenchment argument will dominate only for medium concentrated levels of insider ownership. When insiders just have a small piece of ownership, they might be not so entrenched because the stake is too small to give the manager enough control. Also for the high levels of insider ownership the argument may not hold, because conditions that are necessary for entrenchment are not much different for firms with insider ownership concentration from about 25-30% and firms with more than 30% of insider ownership concentration. The incentive alignment argument on the other hand, is expected to operate throughout the whole range of insider ownership concentration. This expected relationship is tested by running three regression analyses for three subsamples. When the sub sample distribution of the main piece of literature here (Morck et al., 1988) is followed, results for both the ROA-ratio and the P/B-ratio measure were not convincing. In none of the sub samples (on both measures of firm performance) any significant coefficients appeared to be present that are in line with the second hypothesis. Even five robustness checks that were also addressed by Morck et al., (1988) did not give any statistically significant evidence which could confirm the second hypothesis. A last robustness check on the other did actually give evidence that was in line with the expectations. Here the results for the ROA-ratio measure were convincing. In the first sub sample (0.5-13% IOC) a statistically significant positive coefficient for insider ownership concentration was found. In the second sub sample (13-33% IOC) a statistically significant negative coefficient was found. In the third sub sample (over 33% IOC) a positive coefficient was present in the model, but this coefficient appeared not to be statistically significant. All these results for the ROA-ratio measure are in line with the second hypothesis, apart from the fact that the

third coefficient is not significant. For the P/B-ratio measure on the other hand, the results for all three subsamples were again not in line with the second hypothesis.

So, with the ROA-ratio measure for firm performance evidence was found for both the first and second hypothesis. Thus, for all arguments addressed here some empirical evidence was found. The evidence for the second hypothesis is however far from convincing, since the results of just one of the seven sub sample distributions did show the hypothesized effect of insider ownership concentration on firm performance. A possible explanation for the fact that only the last robustness check did give significant empirical evidence, is that conditions for entrenchment could have been changed, since the work of Morck et al. dates from 1988. For the P/B-ratio measure no evidence was found for the first and the second hypothesis. A possible explanation for this observed phenomenon may lie in the nature of the ratios. It may be that the P/B-ratio is a more subjective measure of firm performance, since it is based on market expectations on future performance. The ROA-ratio is based on past performance and thereby may be more objective, even though both ratios are statistically significant and positively correlated on a 99% confidence level.

Because of the relatively small sample size(s) and the skewness of the sample, I have to be careful drawing conclusion from the results. But when you take this for granted, there could be some implications for Dutch listed firms. The findings indicate that firm performance may be maximized by intermediate degrees of total ownership concentration (meaning blocks around 48%). Firms may consider this as strategic advice.

Most importantly, because results on insider ownership concentration as being an explanatory factor of firm performance are inconclusive in this paper and results vary across different measures of firm performance, more extensive research could provide better insights on the subjects.

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