International capital in Swedish businesses: A study of the relationship between foreign ownership and firm performance

Erik Fogelström* and Martin Schönning**

Stockholm School of Economics

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Abstract

The purpose of this study is to examine if a relationship exists between foreign ownership and the performance of Swedish companies and to explore the properties of this relationship. The relationship is studied by measuring performance in terms of Return on Assets as well as Approximate Q. Our study shows that a positive, contemporaneous, and significant relationship exists between foreign ownership and Approximate Q, and that the relationship between foreign ownership and Return on Assets is insignificant. The study further aims to answer the question whether the relationship between foreign ownership and firm performance in Swedish firms varies depending on what type of industry the firms under investigation operates in. Our results indicate that the relationship differs for Approximate Q depending on what industries the firms are active in, and shows an insignificant relationship for all industries between foreign ownership and Return on Assets. We conduct the study by looking at a comprehensive dataset of listed Swedish companies on the OMX Stockholm between the years 2001 – 2016.

Keywords: Approximate Q, Firm performance, Foreign ownership, Ownership structure, Return on assets.

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* 23504@student.hhs.se
** 23670@student.hhs.se

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1. Introduction

The share of foreign ownership on the Stockholm Stock Exchange has increased during the last two decades and accounted for more than a third (c. 41.3%) of the total ownership at the end of 2017 (Euroclear Sweden, 2018), compared to approximately a quarter (c. 25.5%) of the total ownership in 2001 (Holdings, 2018). The development is displayed in **Graph 1**. This trend has caused an ongoing debate of concern in Sweden, due to increased foreign control over domestic businesses and exposure to foreign entities. It is a controversial subject that raises the question whether or not this trend needs to be regulated to protect Swedish interests, and what effects a free flow of capital between economies can have. Thus, a study such as ours that examines if foreign ownership is associated with the performance of Swedish firms, is relevant for the debate and its conclusions could contribute with research that is objective and empirically rooted. Furthermore, the result is relevant both in the view of Sweden's competitiveness on a global scale and from the individual firm's perspective, as it could potentially suggest whether it is motivated to encourage the entrance of international investors to maximize the value and competitiveness for Swedish businesses.

In this thesis, annual data between 2001 and 2016 was collected to create regression models explaining the relationship between foreign ownership and firm performance. Firm performance was measured as Return on Assets (ROA), and Approximate Q. By using two different metrics, we were able to make a more comprehensive and thorough interpretation of the results. These two metrics served as complements to each other in the analysis, as ROA presents an accounting perspective on performance, while Approximate Q represents investors' projection of performance. Besides including foreign ownership as a variable for explaining performance, we included variables representing size, growth and risk to strengthen the explanatory power of the model and to avoid omitted variable bias. The results showed a significant, contemporaneous and positive relationship between foreign ownership and Approximate Q, while ROA showed no significant relationship with the proportion of foreign ownership.

We further explored the relationship between firm performance and foreign ownership by dividing the listed firms into different industry groups. We found that certain domestic industries seem to benefit more than others from international capital. Once again, the relationship was exclusively found between foreign ownership and Approximate Q for the separate industries, and it was non-existent for ROA. The industries that showed a significant positive relationship were Industry & Retail, Services, Property & Finance, and Other

Industries, whereas Commodities and Technology showed an insignificant relationship. The implication of these results suggests that the relationship between foreign ownership and market based firm performance is dependent on firm- and industry characteristics. This implies that for certain industries, foreign investors can increase firm performance and subsequently firm value if it is measured based on market capitalisation. On a further note, it supports the argument to encourage the entrance of foreign investors if value maximisation for the company's shareholders is the ultimate company goal. However, despite these findings we cannot rule out the potential source of error where the results suffer from reverse causality. Furthermore, this study has not investigated any potential change of risk that is entailed with the increased proportion of foreign ownership. Such an examination might yield results that can serve as an opposing view to the positive relationship we found between Approximate Q and foreign ownership.

2. Previous Literature

Research in this field of study has previously been conducted and the results have been ambiguous with contradictory conclusions. Some studies have found a positive relationship between foreign ownership and firm performance while other studies have found a negative relationship between the two. There have also been studies where no significant relationships have been discovered. The relationship seems to vary depending on what countries are of focus for the study. A majority of previous studies have been conducted outside of Sweden and predominantly in developing countries. In developing economies, the distinction between foreign and domestic capital is arguably larger than in developed economies and the potential effects from foreign ownership on firm performance is thereby more prominent. This characteristic of developing economies is the reason why much research has been directed towards these types of countries.

When considering research done outside of Sweden, Huang and Shiu (2009) explored the local effects of foreign ownership in Taiwan. In their study, they examined if foreign investors have an informational disadvantage compared to domestic investors due to limited knowledge about the local environment and the domestic firms. However, the results showed a positive relationship between the proportion of foreign ownership and stock performance and the assertion could not be supported. Aitken and Harrison (1999) found mixed results when looking into the Venezuelan market, studying whether domestic firms benefit from foreign investments by looking at plant productivity. They studied both direct effects and effects due to potential technological spillovers. Their results showed that direct foreign ownership has a positive effect on productivity for smaller firms. Additionally, Barbosa and Louri (2005) did a study on Greece and Portugal where they compared the corporate performance of foreign- and domestically owned firms by looking at net and gross Return on Assets. Once again, the results were somewhat mixed, with Portugal showing no significant difference in performance between the two ownership categories. Neither Greece showed any significant relationship between foreign ownership and performance except when looking at firms with the highest gross profit, where a significant relationship was found. Furthermore, an influential study was conducted in Korea by Baek et al (2004). They examined the effect of foreign ownership concentration on share value of Korean firms during the Korean financial crisis in 1997. The results showed that firms with a high foreign ownership concentration in their ownership structure experienced less decline in share values due to the

financial crisis than firms without these ownership characteristics. This result further argues for the existence of a relationship between foreign ownership and firm performance.

Regarding previous research on the topic in Sweden, there are mainly two prominent studies that are relevant to our research question, both conducted around the millennium shift. The study closest to our research is the one conducted by Oxelheim and Randøy (2003). They looked into the relationship between market measures of firm performance and foreign board membership by examining a sample of Swedish and Norwegian firms from 1996 to 1998. Results showed that market measures of performance did have a significant relationship with the presence of foreign board members. The second relevant study in Sweden was conducted by Dahlquist and Robertsson (2001). In their study, they analysed what characteristics foreign investors puts emphasis on when they invest in Swedish firms. In their paper, it is revealed that foreign investors are primarily drawn towards larger firms, with a high presence in international markets. They measure this international presence as the quantity of export sales and the extent of listings abroad. The authors of this study also found results that indicate a resemblance between foreign investors and institutional investors in Sweden.

What this study aims to contribute with in relation to previous research is predominantly to investigate and contrast the difference between looking at market- and accounting measures of performance when studying the relationship with foreign ownership. This contrast has not previously been explored in Sweden and could contribute with valuable insights regarding the nature of the relationship. A deeper knowledge about the relationship can also be gained by investigating if there are any differences based on industry characteristics. Our study further aims to provide a current, relevant and trustworthy understanding of the topic by examining an extensive time period leading up to present date.

3. Data

3.1 Data Sources

To analyse the relationship between firm performance and foreign ownership, we needed data that reflected both these factors. Due to a lack of availability from one uniform source, the data was gathered from two separate sources, Modular Finance and Thomson Reuters Datastream. Data with annually updated historical figures on ownership was collected from Holdings, a database supplied by Modular Finance. Their definition of foreign ownership is based on the origin of the owner rather than on what country the account containing the shares is based. By making this distinction, Holdings makes adjustment for the problem with indirect ownership and the holding of shares through a foreign account directly or indirectly through an asset management company. All remaining variables were collected from Thomson Reuters Datastream.

As a result of extracting the data from two different sources, some of the observations were not identical in terms of measurement date. The difference in time was due to how the data sources collect their data. For instance, the market value is collected each calendar year, while accounting measures for some of the firms are reported and collected per fiscal year. This caused the variables to be slightly different when comparing the market value of equity, which could be extracted from both sources and serve as a way to make sure the merged data was accurate. However, the differences seemed relatively small as the magnitude of this potential error was investigated when going through the dataset. For those variables that could be extracted from both sources, we chose the ones from Thomson Reuters Datastream to create consistency in the data, as all data was gathered from this source except the variable measuring the percentage of foreign ownership.

3.2 Sample & Adjustments

The data sample consisted of annual data for companies listed on OMX Stockholm for the time period 2001-2016. The sample for this period in Holdings consisted of 278 publicly traded firms. In Thomson Reuters Datastream the sample consisted of 313 publicly traded firms. The intention was to use the most comprehensive time period possible leading up to present date. Due to missing data from both Datastream and Holdings, data from 2017 was

excluded from the sample. Ownership data in Holdings did only go back as far as 2001, which is the reason why the sample consisted of data from 2001-2016.

Data for companies that was not available in both datasets was dropped. When all data had been merged together, the resulting dataset contained data on 278 unique companies. The annual data for some specific years was missing in the merged dataset. The missing data was likely due to IPO's during the time period, delisting's, or because of missing observations from either of the data sources. The missing data had no indication of suffering from attrition in any way and was assumed to be MCAR (missing completely at random). Because of the MCAR assumption and to preserve as many observations as possible we decided to keep the panel data unbalanced. The final dataset consisted of an unbalanced panel with 247 companies and 2739 firm/year observations for the model explaining ROA, and 216 companies with 2367 firm/year observations for the model explaining Approximate Q. The difference in number of observations between the two models was due to the elimination of firms that did not have complete data for all the components needed to calculate either ROA or Approximate Q.

3.3 Descriptive Statistics

When we examined the unadjusted variables in the two datasets that can be seen in **Table 1** and **2**, there were certain features that stood out. As mentioned in the previous section, the number of observations differed between the two datasets. The Approximate Q dataset contained slightly fewer observations than the ROA dataset due to more missing values. Based on the descriptive statistics and after going through the datasets, the variables representing ROA, Approximate Q and foreign ownership share were all judged to be somewhat normally distributed, without any severe outliers or highly skewed distributions. The leverage ratio and the revenue growth variables in the two datasets did however suffer from severe outliers. Furthermore, the distribution for the variable total assets seemed to be skewed based on an examination of the sample. These issues are further discussed under the methodology section.

Table 1: **Descriptive Statistics for Unadjusted Variables with ROA**

Variable	Obs.	SD	Mean	Median	Min	Max
ROA	2739	0.1746	0.0352	0.0590	-1.4108	0.8207
FOREIGN OWNERSHIP SHARE	2739	0.1807	0.2419	0.2047	0.0000	0.9523
TOTAL ASSETS	2739	4.34e+08	7.16e+07	1904000	6288	6.40e+09
LEVERAGE RATIO	2739	3.5712	0.7593	0.3683	-149.0688	33.2857
REVENUE GROWTH RATE	2739	12.5532	0.6707	0.0603	-18.6029	397.1071

Table 1 provides descriptive statistics of the unadjusted variables used in the main ROA regression model. ROA, Foreign Ownership Share, Leverage Ratio and Revenue Growth Rate are displayed as ratios. Total Assets is the value of total assets in thousands of SEK. Obs. represents the number of observations, SD represents the standard deviation, Mean represents the mean value of the observations, Median represents the median value of the observations and Min/Max is the minimum and maximum value respectively.

Table 2: **Descriptive Statistics for Unadjusted Variables with Approximate Q**

Variable	Obs.	SD	Mean	Median	Min	Max
APPROXIMATE Q	2367	2.0521	1.5367	0.9698	-0.3078	28.1376
FOREIGN OWNERSHIP SHARE	2367	0.1799	0.2424	0.2057	0.0000	0.9523
TOTAL ASSETS	2367	4.05e+07	1.47e+07	1404712	7290	3.85e+08
LEVERAGE RATIO	2367	3.4744	0.4532	0.3175	-149.0688	33.2857
REVENUE GROWTH RATE	2367	9.0034	0.4601	0.0630	-1.0000	379.3805

Table 2 provides descriptive statistics of the unadjusted variables used in the main Approximate Q regression model. Approximate Q, Foreign Ownership Share, Leverage Ratio and Revenue Growth Rate are displayed as ratios. Total Assets is the value of total assets in thousands of SEK. Obs. represents the number of observations, SD represents the standard deviation, Mean represents the mean value of the observations, Median represents the median value of the observations and Min/Max is the minimum and maximum value respectively.

4. Scope of Study

4.1 Hypothesis 1

Research regarding corporate governance demonstrates that there is a conflict of interest between firm principals and agents, commonly referred to as the "agency problem" (Andrei and Vishny, 1997). The agency problem suggests that insider managers and owners have incentives to perform value destroying activities in favour of themselves at the expense of the firm value. Value destroying activities could include conglomerate building through acquisitions and suboptimal investment decisions (Montgomery, 1994). Another example could be that managers resist a takeover attempt to protect their own benefit rather than to serve shareholders (Comment and Schwert, 1995). Furthermore, poorly structured incentive programs are also a cause why managers perform activities that are value destroying for the firm and its shareholders but that benefit the managers themselves (Andrei and Vishny, 1997). All these factors could lead to a worsened performance for firms due to the distance between shareholders and managers. However, it has been argued that foreign investors have similarities to institutional investors and are able to improve the monitoring of insider managers and owners (Dahlquist and Robertsson, 2001). As a result, the presence of foreign ownership could mitigate the agency problem in a firm and reduce the value destroying activities. Thereby, a higher degree of foreign presence in a firm might lead to improved performance and reinforce the value enhancing activities. This effect should be noticeable when looking at accounting based performance measures as management becomes more effective in managing the firm's assets. The logic of this cause and effect relationship is the reasoning behind the first hypothesis in this study.

*Hypothesis 1a: There is a relationship between **accounting** measures of performance and the proportion of foreign ownership in Swedish firms.*

Further research supporting the argument that foreign ownership could be positive for performance is a study in Sweden that showed that firms with outsider Anglo-American board members are more likely to fire a CEO if a firm is lacking in its performance (Oxelheim and Randøy, 2003). This indicates that a higher presence of outsider Anglo-American board members could lead to an increased focus on fulfilling the financial goals of Swedish firms, supporting the assumption that the origin of owners might have an effect on

firm performance. Another result from the same study proves that the presence of foreign directors is perceived by the market as a signal of transparency and a willingness to improve governance. This indicates that the presence of foreign ownership can cause higher firm market values as it decreases the distance between shareholders and management. Thereby, from a market perspective a high degree of foreign presence implies a positive effect on firm performance as foreign owners are appreciated by investors, which in turn leads to a higher valuation. Following this reasoning, the extension to the first hypothesis is formulated as follows.

*Hypothesis 1b: There is a relationship between **market** measures of performance and the proportion of foreign ownership in Swedish firms.*

Another implication of an internationalised ownership structure is that foreign investors can expand the firm's potential investor base and its access to capital. This could decrease the risk of equity due to diversification benefits for the shareholders, as risk will be distributed among more investors with different portfolio exposures. Furthermore, investors with a global portfolio rather than a national portfolio will have a globally determined cost of capital, and risk that previously could not be diversified within a single national economy can be erased (Stulz, 1999). As a result from a reduction in risk, the companies will decrease their cost of capital which increases their market values. Other empirical evidence supporting this causal relationship have been analysed in cross-border listings, where results seem to support abnormal returns for firms with an international ownership structure (Sundaram and Logue, 1996), (Foerster and Karolyi, 1999). This argument is an explicit support to hypothesis 1b, that questions a relationship between market measures and foreign ownership. Furthermore, the argument can also be applied to hypothesis 1a, as other research shows a significant relationship between a lower cost of capital and accounting measures of corporate performance (Sattar, 2015).

Other studies have recognised the notion that foreign ownership could have a negative effect on firm performance. Arguments include that there could be a possibility that domestic investors have an informational advantage compared to foreign investors, which creates informational asymmetry that could expose firms to situations such as moral hazard and adverse selection (Huang and Shiu, 2009). The informational asymmetry can subsequently have a negative effect on firm value and its performance (Fosu et al, 2016). These arguments

are applicable to both hypothesis 1a and 1b, but highlights that the relationship could be negative rather than positive.

Aforementioned arguments support the claim that firm performance is associated with foreign ownership. Other research does however support that no significant relationship exists between the two. Empirical research made in Portugal showed that ownership ties have no significant difference in respect to the performance of firms (Barbosa and Louri, 2005). Furthermore, research made in Bulgaria, Poland, and Romania showed mixed results where Bulgaria and Romania showed no significant relationship, while Poland showed a positive correlation between firms' performance and foreign ownership (Jozef, 2001). This further raises the question if there is in fact a relationship between the two in Sweden. As a result, reflecting on hypothesis 1a and 1b, the null hypotheses being tested are the following:

*H_{O1a}: There exist no relationship between **accounting** measures of performance and the proportion of foreign ownership in Swedish firms.*

*H_{O1b}: There exist no relationship between **market** measures of performance and the proportion of foreign ownership in Swedish firms.*

4.2 Hypothesis 2

The extension of this study was to investigate if the relationship between the proportion of foreign ownership and firm performance varied between industries. We did this by dividing the OMXS into six different industries. In Sweden, there is a term commonly referred to as "The traditional Swedish ownership model". It refers to when the ownership structure of companies is highly concentrated to only one or two investors, commonly consisting of a family (Henrekson and Jakobsson, 2008). As a result of this ownership structure, the capital base for listed companies in Sweden can become somewhat limited, and as the ownership becomes globalised with increased influence of foreign capital, the traditional model is challenged. Therefore, an increased proportion of foreign ownership could potentially contribute more to industries that require substantial investments, as capital becomes increasingly accessible. This indicates that industries that are characterised by large balance sheets due to heavy investments in non-liquid assets, can gain more from the entrance of foreign investors than industries without these kinds of investment requirements.

Another argument supporting a variation in the relationship between industries is that some domestic industries in Sweden are more competitive than others on a global scale, which attracts more foreign capital. It is widely recognised that Sweden is in the forefront of digitalisation and many of the industries that are going through a digital transformation have been the most attractive industries for foreign investments in Sweden, such as the service, manufacturing and finance sector (EY, 2017). The skewed distribution of foreign investments between sectors could imply that the magnitude of the effect from foreign ownership on firm performance differs between industries. These arguments result in the next two hypotheses that this study will analyse.

*Hypothesis 2a: The relationship between **accounting** measures of performance and the proportion of foreign ownership in Swedish firms varies depending on what industries the firms are active in.*

*Hypothesis 2b: The relationship between **market** measures of performance and the proportion of foreign ownership in Swedish firms varies depending on what industries the firms are active in.*

Where the null hypotheses are:

*H_{O2a}: The relationship between **accounting** measures of performance and the proportion of foreign ownership in Swedish firms does not vary depending on what industries the firms are active in.*

*H_{O2b}: The relationship between **market** measures of performance and the proportion of foreign ownership in Swedish firms does not vary depending on what industries the firms are active in.*

5. Methodology

5.1 Variables

The variable of interest for this study is foreign ownership. This variable is shown as the share of foreign ownership of the firm's total ownership. The variable is expressed in the models as continuous rather than discrete, as this enables a measurement of the effect caused by a changing ratio over time. Further, a categorical solution would demand cut-off points to be selected without any clear approach on how to determine these. A categorical solution was therefore discarded.

5.1.1 Performance Measures

Measuring firm performance is a complex task, as different measures takes various aspects of performance into consideration. Therefore, to conduct a study measuring firm performance, the first question to answer was what variables should be chosen to represent performance. Previous research that studied the relationship between ownership and performance have used different measures of firm performance. A study on foreign and domestic ownership in Greece and Portugal used ROA as a measure of firm performance (Barbosa and Louri, 2005). Studies done in India on foreign ownership and profitability has likewise focused on return measures such as Return on Sales (ROS) and ROA. In research on Anglo-American board membership's effect on performance, a logarithmic Tobin's Q was used as a measure of performance (Oxelheim and Randøy, 2003). Tobin's Q also appear as a performance measure in research on foreign directors' effect on board meeting frequency (Hahn and Lasfer, 2016).

These measures can in general be classified as accounting based measures and market based measures. Accounting based measures are based on reported numbers and reflect a backward-looking measure of performance. Market based measures on the other hand, reflect a forward-looking perspective and is based on the market's valuation and expectations of the firm rather than solely on the firms' own reported earnings. In the models that tested the null hypotheses, both ROA and a version of Tobin's Q were used. Tobin's Q was expressed in the form of Approximate Q as defined by Chung and Pruitt (1994). The reason behind using both measures was to establish a more exhaustive picture of the effect on performance from both an accounting and market based perspective, and also to compare actual effects on performance (ROA) with the perception of foreign ownership (Approximate Q). When comparing the results from the models, the different dependent measures allows for a

comparison between the effect of foreign ownership on market based and accounting based measures.

Tobin's Q represents a ratio of the market value of a firm divided by the replacement cost of its assets (Tobin, 1969). It thereby represents the inherent value and future expectations on a company and is accordingly an appropriate measure of market based performance. Throughout the years it has been used in a variety of shapes mainly due to the fact that the original measure requires extensive financial data, which might be difficult to obtain. One version of Tobin's Q is Approximate Q which is an approximation of Tobin's Q. Approximate Q uses a sample of more easily accessible financial information and manages to explain at least 96.6% of the variability in Tobin's Q (Chung and Pruitt, 1994). As this measure requires less financial information than Tobin's Q, and still shows significant correlation with the original measure, we decided to use Approximate Q for this study. When dealing with the calculation of market value of equity used in Approximate Q, there was a dilemma in how to handle different equity structures. For the companies with more than one listed or unlisted equity security, which is common for Swedish stocks, we decided to use the consolidated market value for all outstanding equity.

An Approximate Q value of one can be seen as the equilibrium, and a value above one suggests that value is added by the firm's operations and the firm is worth more than the replacement cost of its assets. On the other hand, a value less than one implies that the replacement cost of the firm's assets exceeds the market value of the firm. Therefore, a high value implies better performance.

The formula for Approximate Q is the following:

$$Approximate\ Q_t\ =\ \frac{(MVE_t\ +\ PS_t\ +\ DEBT_t)}{TA_t}$$

Where:

MVE_t	*is the product of a firm's share price and the common stock shares outstanding at time t*
PS_t	*is the liquidating value of the firm's outstanding preferred stock at time t*
$DEBT_t$	*is the value of the firm's short-term liabilities net of its short-term assets, plus the book value of the firm's long-term debt at time t*
TA_t	*is the book value of the firm's total assets at time t*

ROA is a common measure of financial performance and reflects the ability of a firm to make use of its assets. Firms that are more efficient in making use of their assets should therefore exhibit a higher ROA. A drawback of the measure is its sensitivity to different accounting practices which might produce miscellaneous results (Barbosa and Louri, 2005). It has however been demonstrated that ROA does contain information about economic rate of return and that it is subsequently a valid measure of firm performance (Jacobson, 1987).

The general formula for ROA is the following:

$$ROA_t = \frac{NI_t}{ATA_t}$$

Where:

NI_t	*is the reported earnings after taxes on the income statement at time t*
ATA_t	*is the average book value of the firm's total assets between time t and t - 1*

5.1.3 Control Variables

In order to avoid omitted variable bias, several control variables were included in the models to represent other factors than foreign ownership that potentially could effect the performance of a company. Factors were chosen based on how firm performance have predominantly been measured in previous research and on financial theories regarding what factors have an effect on firm performance.

Firm size is a factor that have been extensively researched regarding its effect on firm performance. Larger firms can in comparison to smaller firms be expected to exhibit superior abilities to capture advantages from both economies of scale and scope (Penrose, 1959). Additionally, larger firms may be argued to have the advantage of market power in terms of their ability to influence prices on the market, in comparison to smaller firms (Bresnahan, 1989), (Shepherd, 1986). In contrast to these two views, it could be argued that smaller companies can gain advantages on larger companies by employing different compensating strategies, such as product innovation and providing employee benefits (Audretsch and Yamawaki, 1992). The research on firm size and its effect on performance is thereby ambiguous but indicates an existing relationship between the two. The natural logarithm of total assets was used as an independent variable representing size. This adjustment was made

in line with previous research, and to adjust for a seemingly skewed distribution of total assets in the sample.

Leverage ratio and its correlation with firm performance is a topic of constant debate, with research based on perfect capital markets stating that capital structure should have no effect on firm performance (Modigliani and Miller, 1958). On the other hand, empirical research supports the argument of a relationship between the two (Le and Phan, 2017). Firms can use a higher leverage ratio to improve the return to their shareholders. Meanwhile, with higher leverage comes greater exposure to financial risk. Therefore, in theory the relationship between the debt to equity variable and performance has an inverse U-shaped form, as shareholders appreciate the exposure up to a certain extent (Myers, 1984). Besides these factors, the leverage ratio can also be a measure of a firm's ability to capture investment opportunities through financial flexibility and bargaining power in financial markets (Marchica and Mura, 2010). With these characteristics of the leverage ratio in mind, the leverage ratio in the shape of debt divided by equity (debt-to-equity ratio), was included both as a squared and non-squared variable in the models.

The firm's growth rate is another variable generally considered to have an effect on firm performance. Previous research has shown that there exists a positive relationship between growth and profitability, although the relationship was demonstrated to be slightly weaker within concentrated industries (Bradburd and Caves, 1982). A positive relationship has further been demonstrated by Benefield and House (1995). On account of these factors, the growth variable in the shape of yearly revenue growth was included in the models.

5.2 Main Regression Models

Two contemporaneous, fixed effects regression models controlling for firm- and year fixed effects were used to test H_{O1a} and H_{O1b}. The explanatory variables were kept unchanged, and the only difference between the two models displayed below is the dependent variable.

Model 1:

$$ROA_{it} = \beta_1 + \beta_2 * FO_{it} + \beta_3 * {}^{D}/_{E_{it}} + \beta_4 * {}^{D}/_{E_{it}^2} + \beta_4 * ln(TA_{it}) + \beta_5 * RG_{it} + \delta_t + \varepsilon_{it}$$

Model 2:

$$Q_{it} = \beta_1 + \beta_2 * FO_{it} + \beta_3 * {}^{D}/_{E_{it}} + \beta_4 * {}^{D}/_{E_{it}^2} + \beta_4 * ln(TA_{it}) + \beta_5 * RG_{it} + \delta_t + \varepsilon_{it}$$

Where:

ROA_{it}	*is measured as Return on Assets for firm i at time t*
Q_{it}	*is measured as Approximate Q for firm i at time t*
FO_{it}	*is measured as the percentage share of foreign ownership for firm i at time t*
D/E_{it}	*is measured as the debt to equity ratio for firm i at time t*
TA_{it}	*is measured as the total assets for firm i at time t*
RG_{it}	*is measured as the yearly revenue growth for firm i at time t*
δ_t	*is a set of dummy variables that captures year fixed effects*
ε_{it}	*is the error term*

In the descriptive statistics which can be seen in **Table 1** and **2**, the leverage ratio and growth variable seemed to contain severe outliers. The outliers were deemed large enough to potentially cause biased results. Due to this, we implemented a winsorization to reduce the problem and outliers beyond the 10th and 90th percentiles were replaced with the next value counting inwards from the extremes. We performed this procedure to both the leverage ratio and the revenue growth variable. The resulting winsorized variables as well as the logarithmic total asset variable can be seen in **Table 3** and **4**.

Unobserved heterogeneity is a potential problem when dealing with panel data, which can cause endogeneity and a misleading model. To deal with this problem, we did a Hausman test to decide if fixed- or random effect was appropriate for the models (Hausman, 1978). A common approach for applying fixed effects to a model is to add firm fixed effects. This approach will deal with heterogeneity caused by unobserved differences among individual firms in the sample not represented by other independent variables in the model. The Hausman test, which tests for no systematic difference among variables between firms, could be rejected at a 1% significance level for both models. We thereby decided to use firm fixed effects in the models. By concluding that a firm fixed effects model is needed, one is implicitly stating that unobserved firm specific characteristics are correlated with the independent variables, which we assumed to be the case. Additionally, besides the firm fixed effects, we tested for time fixed effects in the models by using a Wald Chi-Squared Test. When we tested for time fixed effects, which controls for aggregate differences between years, the Wald Chi-Squared test showed that time fixed effects were needed at a 1% significance level for Approximate Q and at a 5% significance level for ROA. A dummy variable for each year in the sample was therefore added to the model.

The models were further developed by testing for heteroscedasticity (systematically unequal variability of variables across observations). Additionally, the models were tested for autocorrelation (correlation between observations with lagged versions of itself in time series regressions). A modified Wald statistic for groupwise heteroscedasticity was used when testing for heteroscedasticity (Greene, 2000), and a Portmanteau test was done when testing for autocorrelation (Inoue and Solon, 2006). The tests showed that the models were suffering from both heteroscedasticity and autocorrelation at a 1% significance level. In order to deal with these issues, clustered standard errors were used in both models, clustered on the firm level. Clustering can be used when common unobserved random shocks at the group level will lead to correlation between all observation within each group (Hansen, 2007). This was assumed to be the case in our models. Furthermore, using clustered standard errors on the firm level was deemed appropriate since the sample contained a large number of firms to cluster on.

5.3 Industry Group Comparison

In order to test H_{O2a} and H_{O2b}., firms were divided into groups based on their industry belonging and separate regressions were run on each of the industries. Two main criteria were considered when dividing the firms into industry groups. First, the classification into industries had to reflect the operations of the firms within and be distinctly separated from other industries. Second, industry groups had to contain a sample large enough to yield any significant result. The chosen industries were; Commodities, Technology, Industry & Retail, Services, Property & Finance, and Other Industries. The category labelled Other Industries was used for companies belonging to an industry not containing enough observations or companies without a clear industry belonging.

The regression models for the industry groups were based on **Model 1** and **2**. We did in these regression models, just as in previous ones, perform winsorization to the variables representing D/E ratio and revenue growth to control for severe outliers in the data. Furthermore, we once again used the natural logarithm of total assets as the variable representing size due to the skewed distribution of total assets for firms in the sample. Additionally, we used the same reasoning as in previous models for including a squared D/E ratio.

We found mixed results between the industries when we tested if fixed- or random firm effects, and time fixed effect were to be applied to the models with the help of Hausman

tests, and Wald Chi-Squared tests. The Hausman test could be rejected at a significant level for both models explaining the industries Technology, Industry & Retail, and Property & Finance. It could also be rejected for the ROA model in the Commodities industry as well as for the Approximate Q model in Other Industries. For these industries, we used an OLS model with firm fixed effects, and for the remaining industries we used a GLS model with random firm effects. Using random effects in a model differs slightly from the fixed effects. There are two different estimators being estimated in a fixed and random effects model for panel data regressions. There is the *within* estimator which uses the variation within firms during time. This is the estimator that the fixed effects model focuses on. However, there is also the *between* estimator that use variation between firms. In a random effects model, a weighted average of the *within* and *between* estimators is used.

When we tested for time fixed effects with a Wald Chi-Squared test, the result was that yearly dummies were to be included in the Technology, Industry & Retail and Service industries. Furthermore, the test showed that yearly dummies were to be included in the model for ROA in the Property & Finance industry as well as in the model for Approximate Q in Other Industries. In the remaining industry models, there were no significant differences over the years in the sample, and yearly dummies were not included.

Due to the fact that the **Model 1** and **2** suffered from heteroscedasticity and autocorrelation in the main regressions, clustered standard errors on the firm level were used when estimating the industry models as well. It was thereby assumed that random shocks at the group level would lead to correlation between all observation within each group (Hansen, 2007). The sample of companies was on the verge of being too small to cluster standard errors on the firm level in some cases, as the Commodity industry did only contain 15 companies. However, we decided that the benefits of adjusting for heteroscedasticity and autocorrelation outweighed the disadvantages of a small sample size and clustered standard errors were kept on the firm level.

6. Results

6.1 Main Regression Models

Table 5: Main Regression Models

Dependent Variables	Approx. Q	ROA
FOREIGN OWNERSHIP	1.244**	-0.0601
	(0.482)	(0.0398)
SIZE	-0.119	0.0480***
	(0.186)	(0.0140)
LEVERAGE RATIO	-1.035**	-0.142***
	(0.493)	(0.0366)
LEVERAGE RATIO^2	0.727**	0.0447***
	(0.314)	(0.0168)
GROWTH	0.938***	0.180***
	(0.241)	(0.0286)
Constant	2.454	-0.654***
	(2.497)	(0.193)
Observations	2367	2739
Number of companies	216	247
R-squared within	0.095	0.1329
R-squared between	0.2404	0.1333
R-squared overall	0.1612	0.1172
F-statistic	10.34***	7.29***
Firm fixed effects	YES	YES
Time fixed effects	YES	YES

Table 5 provides information regarding the main regression models. Approx. Q represents Approximate Q and ROA represents Return on Assets. They are the dependent variable for each regression model. FOREIGN OWNERSHIP is an explanatory variable representing foreign ownership share. SIZE is an explanatory variable representing the natural logarithm of total assets in thousands of SEK. LEVERAGE RATIO is an explanatory variable representing debt divided by equity, expressed as a ratio and winsorized to the 10^{th} and 90^{th} percentile. LEVERAGE RATIO^2 is an explanatory variable representing debt divided by equity, expressed as a ratio, winsorized to the 10^{th} and 90^{th} percentile and squared. GROWTH is an explanatory variable representing the yearly growth rate in revenue, expressed as a ratio and winsorized to the 10^{th} and 90^{th} percentile. Robust standard errors in are in parentheses and significance levels are expressed as follows: *** p<0.01, ** p<0.05, * p<0.1.

6.1.1 Return on Assets

Results from the first regression showed that all variables except foreign ownership were significant in explaining variations of performance in terms of ROA at a 1% level.
A negative relationship was displayed between the variable representing foreign ownership and ROA. Regarding the variables representing growth and size, it can be noted that they displayed an expected positive relationship with ROA. The variables representing leverage ratio in the model did together display a U-shaped relationship with performance, and not the inverse U-shape that was expected. When evaluating the explanatory abilities of the model as a whole, it is noted that the R-squared values showed low but acceptable values in a fixed effects panel data regression. The *between* R-squared was 13.33%, the *within* R-squared was 13.29% and the *overall* R-squared was 11.72%. Furthermore, the F-test showed that the model as a whole was significant at a 1% level.

Based on the results, there seem to be no relationship between ROA and the share of foreign ownership for Swedish firms. H_{O1a} can thereby not be rejected and we cannot prove that a relationship exists between accounting measures of performance and the proportion of foreign ownership for Swedish firms.

6.1.2 Approximate Q

Results from the second regression showed that the proportion of foreign ownership had a significant relationship with performance in terms of Approximate Q. The variable representing foreign ownership share was significant at a 1.1% level in the model. Further, the growth variable was significant at a 1% level and both leverage variables showed significance at a 5% level. Size was the only variable not significant in the model. Due to the high relevance of including a size variable in the model and the considerable magnitude of the sample which allowed for many degrees of freedom, the size variable was decided to be kept in the model despite its insignificant explanatory power.

The variables representing foreign ownership and growth showed a strong positive relationship with Approximate Q while the variable representing size showed a slightly negative relationship with Approximate Q. In this model as well as in the one explaining ROA the leverage variables did together display a U-shaped relationship with performance. Considering the model as a whole, the *between* R-squared showed a value of 24.04%, the *within* R-squared showed a value of 9.48% and the *overall* R-squared showed a value of 16.12%. Low R-squared values are expected in fixed effects panel data regressions, but a

within R-squared of 9.48% is on the verge of being too low. The *between* and *overall* R-squared values of 24.04% and 16.12% are on the other hand more acceptable. The F-test showed that the model as a whole was significant at a 1% level.

The results show that Approximate Q has a significant relationship with the share of foreign ownership in Swedish firms, and H_{O1b} can be rejected. Therefore, the results imply that a relationship exists between market based measures of performance and the proportion of foreign ownership in Swedish firms.

6.3 Industry Group Comparison

The results from the industry group regressions are shown are shown in **Table 6**. In the regression models for the respective industry groups, the sample sizes varied between industries. For some industries, such as Commodities and Property & Finance, the number of observations were considerably few. These small sample sizes make it difficult to draw any distinct conclusions regarding the result from these industries. However, for the remaining industries the sample sizes were considerably larger.

Regarding the results from the models with ROA as a dependent variable, it is visible in **Table 6** that foreign ownership was not significant in explaining ROA in any of the industries. The coefficients for the variable representing share of foreign ownership was negative in all industries except in Other Industries. Another implication from the ROA models is that the variables explaining growth and size were highly significant in a majority of the industries.

With reference to the models explaining Approximate Q, the results showed a greater variation among industries when examining the relationship between foreign ownership and performance. The variable representing foreign ownership share was significant in four out of six industries. Noticeable is that foreign ownership share was significant at a 1% level for Industry & Retail. The Service industry and Other Industries showed that foreign ownership was significant at a 5% level, and within Property & Finance foreign ownership was significant at a 10% level. In all industries except Technology, the coefficient for foreign ownership was consistently positive in the models with Approximate Q as dependent variable, and the strongest positive relationship could be found in Industry & Retail as well as in Other Industries.

Table 6: Industry Regression Models

	Commodities		Technology		Industry & Retail		Services		Property & Finance		Other Industries	
Dependent Variables	Approx. Q	ROA	Approx. Q	ROA	Approx. Q	ROA	Approx. Q	ROA	Approx. Q	ROA	Approx. Q	ROA
FOREIGN OWNERSHIP	0.603	-0.0565	-0.882	-0.261	1.514***	-0.0228	0.719**	-0.0387	1.174*	-0.114	5.453**	0.0856
	(0.402)	(0.0764)	(1.315)	(0.157)	(0.557)	(0.0684)	(0.317)	(0.0390)	(0.627)	(0.0723)	(2.250)	(0.0988)
SIZE	-0.0199	-0.0282	0.212	0.105***	-0.468	0.00355	-0.0187	0.0236***	0.252***	-0.00776	-0.458	0.0675***
	(0.0650)	(0.0202)	(0.534)	(0.0376)	(0.287)	(0.0148)	(0.0595)	(0.00526)	(0.0553)	(0.0173)	(0.287)	(0.0204)
LEVERAGE RATIO	0.300	-0.0672	-4.515***	-0.343***	-0.734	0.0160	-0.143	-0.138***	0.374	-0.0371*	-0.755	-0.194*
	(0.964)	(0.154)	(1.599)	(0.121)	(0.602)	(0.0463)	(0.415)	(0.0378)	(0.858)	(0.0191)	(1.710)	(0.112)
LEVERAGE RATIO^2	-0.501	-0.0163	2.897**	0.0584	0.484	-0.0409	0.0736	0.0395	-0.444	0.00591**	1.403	0.0779
	(0.641)	(0.113)	(1.063)	(0.0819)	(0.359)	(0.0302)	(0.292)	(0.0320)	(0.658)	(0.00291)	(1.685)	(0.0968)
GROWTH	0.478***	0.165***	1.306**	0.205***	1.323**	0.220***	0.505***	0.203***	0.420	-0.0180	0.293	0.210***
	(0.171)	(0.0387)	(0.589)	(0.0642)	(0.550)	(0.0432)	(0.170)	(0.0391)	(0.246)	(0.0336)	(0.431)	(0.0482)
Constant	1.011	0.526*	-1.157	-1.534***	7.643*	-0.0157	0.640	-0.310***	-3.361***	0.207	5.631	-0.946***
	(0.946)	(0.298)	(6.996)	(0.494)	(4.065)	(0.218)	(0.727)	(0.0754)	(1.039)	(0.274)	(3.467)	(0.274)
Observations	178	176	326	324	942	951	379	373	136	505	406	410
Number of companies	15	15	28	27	85	85	31	31	13	45	44	44
R-squared within	0.1189	0.2646	0.2203	0.3369	0.1537	0.1242	0.3069	0.3547	0.1664	0.1542	0.1545	0.2092
R-squared between	0.1011	0.0699	0.0248	0.1747	0.0593	0.0590	0.1405	0.3260	0.0561	0.0004	0.1285	0.1916
R-squared overall	0.1373	0.0000	0.1477	0.2280	0.0813	0.1230	0.1868	0.3827	0.0055	0.0715	0.1134	0.1544
F-statistic	-	-	52.32***	41.05***	13.21***	9.10***	-	-	8.47***	13.29***	4.35***	-
Wald Chi2-statistic	26.88***	10.88***	-	-	-	-	101.48***	628.23***	-	-	-	33.29***
Firm Fixed effects	NO	YES	YES	YES	YES	YES	NO	NO	YES	YES	YES	NO
Firm Random Effects	YES	NO	NO	NO	NO	NO	YES	YES	NO	NO	NO	YES
Time fixed effects	NO	NO	YES	YES	YES	YES	YES	YES	NO	YES	YES	NO

Table 6 provides information regarding the industry regression models. Approx. Q represents Approximate Q and ROA represents Return on Assets. They are the dependent variable in the regression models. FOREIGN OWNERSHIP is an explanatory variable representing foreign ownership share. SIZE is an explanatory variable representing the natural logarithm of total assets in thousands of SEK. LEVERAGE RATIO is an explanatory variable representing debt divided by equity, expressed as a ratio and winsorized to the 10th and 90th percentile. LEVERAGE RATIO^2 is an explanatory variable representing debt divided by equity, expressed as a ratio, winsorized to the 10th and 90th percentile and squared. GROWTH is an explanatory variable representing the yearly growth rate in revenue, expressed as a ratio and winsorized to the 10th and 90th percentile. Commodity, Technology, Industry & Retail, Services, Property & Finance as well as Other Industries each represents a distinct industry. Robust standard errors are in parentheses and significance levels are expressed as follows: *** p<0.01, ** p<0.05, * p<0.1.

In agreement with the models where ROA was the dependent variable, the variable representing growth in the Approximate Q models turned out highly significant in a majority of the industries. Furthermore, in the industries Property & Finance and Commodities, it was concluded that no yearly dummies were needed after it was tested for. This might indicate that these industries are relatively non-cyclical compared to the other industries. However, it might also be a result of the smaller sample sizes in those industries.

The results from the industry group regressions do not allow for a rejection of H_{O2a} but do allow for a rejection of H_{O2b}. It can thereby be concluded that the relationship between market based measures of performance and the proportion of foreign ownership does vary depending on what industries Swedish firms are active in. However, we cannot prove that the relationship between accounting measures of performance and the proportion of foreign ownership varies depending on what industries Swedish firms are active in.

6.4 Robustness Tests

In order to assess the validity of the models and their sensitivity to the adjustments that were made to each of the variables, we performed several robustness tests. Lagged effects were applied to the explanatory variables in both of the main models with one, two and five-year lags respectively. The result displayed in **Table 7** showed that the foreign ownership variable was insignificant in explaining both accounting and market measures of performance when including lagged effects. Further, the models did overall seem to show a lower explanatory power with the lagged effects. This result supports an contemporaneous relationship and indicates a diminishing relationship over time between foreign ownership and firm performance.

In order to test how big of an impact the winsorizing of the leverage ratio and growth variables had in the regressions, we ran the regressions without these effects. The outcome displayed in **Table 8** showed that no important change occurred. Without winsorizing, the foreign ownership share was still highly significant at a 1% level in the Approximate Q model, and insignificant in the ROA model. The main difference to the models without the winsorizing effect was that those variables that had previously been winsorized became insignificant. Furthermore, we also undertook a robustness test to investigate what the outcome would be if no clustered standard errors were to be included in the models, which can be seen in **Table 9**. The greatest change without clustered standard errors was that the variable for foreign ownership became significant at a 5% level in the ROA model, but the

Table 7: Lagged Effects Regression Models

Dependent Variables	Approx. Q			ROA		
Time Lag	1 Year	2 Year	5 Year	1 Year	2 Year	5 Year
FOREIGN OWNERSHIP	0.882	0.633	0.0799	-0.0284	0.0146	0.0279
	(0.555)	(0.640)	(0.547)	(0.0451)	(0.0425)	(0.0475)
SIZE	-0.187	-0.221*	-0.115	-0.0150	-0.0319**	-0.0194
	(0.141)	(0.133)	(0.140)	(0.0135)	(0.0131)	(0.0132)
LEVERAGE RATIO	-0.299	-0.858**	-0.191	-0.0325	0.00551	-0.0260
	(0.484)	(0.393)	(0.476)	(0.0383)	(0.0293)	(0.0333)
LEVERAGE RATIO^2	0.130	0.653*	0.290	0.0135	0.000619	0.0237
	(0.432)	(0.344)	(0.381)	(0.0204)	(0.0140)	(0.0244)
GROWTH	0.610**	1.025***	-0.461	0.103***	0.0218	0.0100
	(0.246)	(0.351)	(0.496)	(0.0187)	(0.0245)	(0.0218)
Constant	3.762*	4.462**	3.080*	0.202	0.466**	0.335*
	(1.925)	(1.866)	(1.854)	(0.187)	(0.184)	(0.179)
Observations	2139	1936	1397	2451	2224	1620
Number of companies	199	187	174	231	216	202
R-squared within	0.0782	0.0835	0.0823	0.0443	0.0233	0.0289
R-squared between	0.1755	0.1486	0.0879	0.0568	0.0647	0.0472
R-squared overall	0.1285	0.1331	0.0751	0.0040	0.0247	0.0091
F-statistic	8.93***	10.48***	9.75***	5.53***	3.24***	2.99***
Firm fixed effects	YES	YES	YES	YES	YES	YES
Time fixed effects	YES	YES	YES	YES	YES	YES

Table 7 provides information regarding the lagged effect regression models. Approx. Q represents Approximate Q and ROA represents Return on Assets. They are the dependent variable for each regression model. Time Lag represents how many years the explanatory variables are lagged in the regression models, here represented by 1, 2 and 5-year lags. FOREIGN OWNERSHIP is an explanatory variable representing foreign ownership share. SIZE is an explanatory variable representing the natural logarithm of total assets in thousands of SEK. LEVERAGE RATIO is an explanatory variable representing debt divided by equity, expressed as a ratio and winsorized to the 10^{th} and 90^{th} percentile. LEVERAGE RATIO^2 is an explanatory variable representing debt divided by equity, expressed as a ratio, winsorized to the 10^{th} and 90^{th} percentile and squared. GROWTH is an explanatory variable representing the yearly growth rate in revenue, expressed as a ratio and winsorized to the 10^{th} and 90^{th} percentile. Robust standard errors in are in parentheses and significance levels are expressed as follows: *** p<0.01, ** p<0.05, * p<0.1.

variable for foreign ownership in the Approximate Q model stayed significant at a 1% level. It is also worth to be noted that the explanatory power in the models, especially in the ROA model, decreased slightly without clustered standard errors. In addition to these robustness tests, we also ran regressions without the quadratic leverage ratio, in order to test the validity of this variable in the model. There were no substantial effects from this change to the models, as shown in **Table 10** and **Table 5**.

The final robustness test was made to examine if the dependent variable ROA, was an appropriate variable to represent accounting measures. In order to study this, the accounting measure Return on Equity (ROE) was used. The procedure was to replace ROA with ROE as the dependent variable, and then determine if any considerable changes could be found. The result, which can be seen in **Table 11,** was similar to the regression using ROA as dependent variable and showed that foreign ownership was not significant in explaining ROE. It was also found that the model with ROE as the dependent variable instead of ROA, had a considerably worse overall explanatory power than when using ROA. Further, many of the control variables that had been significant in explaining ROA were not significant in explaining ROE. This result further validates the insignificant relationship between foreign ownership and accounting measures of performance for Swedish firms.

6.5 Interpretation of the Results

Referring back to the main regression models, the results imply that foreign ownership has a contemporaneous, significant and positive relationship with the performance measure Approximate Q. Furthermore, the relationship between foreign ownership and ROA is negative but insignificant. The discrepancy in the results indicates that an increase of the foreign ownership seems to positively affect market measures, but have no relationship with accounting measures. The contradictory result from the two models is further strengthened when looking at their relationship in the Pearson correlation matrix in **Table 12**, which indicates a weak relationship between Approximate Q and ROA.

Considering the results when testing for accounting based measures of performance (H_{O1a}), it is evident that foreign ownership does not have a visible effect on ROA and does not add extra value to how effective firms are at making use of their assets. Considering the arguments regarding the monitoring abilities of foreign investors discussed in *4.1 Hypothesis 1*, the result show that there seem to be no tangible benefits to gain from effective monitoring caused by the presence of foreign investors. If any tangible benefits would exist, they are

presumed to be reflected in ROA due to higher returns, as firms would improve their value enhancing activities, but no such evidence was found.

The results from the ROA model could also be interpreted and explained by macroeconomic trends for firms over time. The world has changed during the time frame of this study and has become increasingly globalised. Besides being providers of physical capital, foreign investors can be providers of intellectual capital and contribute with valuable global competence to the firms they invest in. It could however be the case that the advantages of having foreign investors in the ownership structure is diminishing as the world becomes increasingly interconnected. More advanced technological tools help information travel faster and more effortlessly across borders. This might lead to a diminishing importance of the origin of owners, since firms are in less need of the global competence these investors possess. Although this might be the reality, it is not certain that the market has completely adapted to this change in business environment. This factor might thereby be one reason why no significant relationship was observed between ROA and foreign ownership while it was found between Approximate Q and foreign ownership. The explanation above can further find support when questioning why previous studies on the effects from foreign ownership on performance have shown mixed results between countries. It might be the case that effects on accounting measures of performance does not show any significant relationship with foreign ownership in developed countries such as Sweden, while the results from developing countries are more prone to show a significant relationship.

Regarding the results from testing market based measures of performance (H_{O1b}), there are several possible explanations for the outcome. As discussed under *4.1 Hypothesis 1,* one explanation might be the signalling effect that an increased foreign ownership share conveys to the market in terms of transparency and willingness to improve governance. This effect could potentially increase firms' market values, which in turn would have a positive effect on Approximate Q. On the other hand, the explanation for the results can also be found in the argument that foreign ownership reduces the cost of capital for firms. By enabling access to a larger capital base, foreign investors may reduce firms' costs of capital. In theory, a decreased cost of capital can lower the discount factor used to value firms, which in turn increases the present value of company market value. This effect could explain why firm market value and thereby market measures of performance show a positive relationship with foreign ownership in the results. However, as raised under *4.1 Hypothesis 1,* a lower cost of capital has in addition been associated to accounting measures of performance by Sattar (2015). This indicates that a significant relationship should have been found between foreign

ownership and ROA, but such a relationship could not be found. The explanation suggesting that foreign investors can decrease firms' cost of capital is thereby weakened due to the contradictory results when taking both performance measures into consideration.

Another important aspect from the results is to acknowledge the possibility of reverse causality. Reverse causality is problematic to rule out, as the results might be a reflection of foreign investors' propensity to invest in companies of a particular nature, rather than investors themselves having an impact on firms. The significant positive coefficient for foreign ownership share in the Approximate Q model might, when considering reverse causality, indicate that foreign investors are drawn to companies with high market valuations in relation to their total assets. Furthermore, the insignificant relationship between ROA and foreign ownership share, could be interpreted as an indication that foreign investors are not attracted to firms that are profitable and properly managed in accordance with accounting measures. When further reflecting on causes of reverse causality and why foreign investors are attracted to Swedish firms, firm size seems to be a factor that these investors takes into consideration. This argument is somewhat strengthened by looking at the correlation between the share of foreign ownership and total assets displayed in **Table 12**, which shows a positive relationship significant at a 5% level. The notion is further supported by Dahlquist and Robertsson (2001). The propensity to invest in larger firms can be an approach to reduce the informational disadvantage mentioned under *4.1 Hypothesis 1*. By investing in large firms, foreign investors may reduce disadvantages caused by language barriers, limits in information communicated abroad, and firms' limited global recognition.

In addition to aforementioned results, the outcome from the lagged regressions under *6.4 Robustness Tests* has important implications for this study. No significant relationship was found between foreign ownership and any of the performance measures when using one, two and five-year lags respectively for explanatory variables in the regression models. The implication from these tests is that the relationship between Approximate Q and foreign ownership represent a contemporaneous effect and not a lagged one. This result further allows us to argue for the explanation of a positive signalling effect due to changes in foreign ownership, since this effect is likely to be rather contemporaneous, as investors are assumed to react instantaneously to the entrance of foreign investors. However, the result could also be explained by the presence of reverse causality, which would show up as a contemporaneous effect if foreign investors are drawn to Swedish companies at the same time as their Approximate Q values are high.

Regarding the regressions testing Hypotheses 2a and 2b, the result is to a great extent in line with the outcome of the main regression models. In fact, no industry shows a significant relationship between foreign ownership and ROA and the majority of the coefficients are negative, which is visible in **Table 6**. The models with Approximate Q as the dependent variable does however show more variation between industries, as noted in the result from *6.3 Industry Group Comparison*. The question that undoubtedly arises is why Industry & Retail, Services, Other Industries, and the Property & Finance industries show highly significant, positive coefficients for foreign ownership when explaining Approximate Q, while the Technology and Commodity industries do not. The explanation for this could be that an industry such as Technology, where firms in many cases are global from the outset, is unable to gain as much from foreign capital as other industries. The technology sector is likely interconnected across the globe and competence is shared effortlessly across borders, reducing the importance of location. The result from the Commodities sector is somewhat more puzzling and does in fact point in the opposite direction of the argument that industries with big, illiquid balance sheets might benefit more from foreign capital discussed under *4.2 Hypothesis 2*. The result may however be biased due to the small sample size in the Commodities industry of only 15 companies, which can be seen in **Table 6**.

The most attractive industries for foreign capital, brought up under *4.2 Hypothesis 2*, were expected to be the Manufacturing, Services, and Finance industry (EY, 2017). Interestingly, these were the same industries showing significant and positive relationships between foreign ownership share and Approximate Q, namely Industry & Retail, Services, Property & Finance as well as Other Industries. The reason for this might be, as mentioned in *4.2 Hypothesis 2*, that the digital transformation in these industries might have caused an increased interest abroad, attracting international capital and advantageous market valuations. These advantageous market valuations might then be reflected in favourable Approximate Q values. Furthermore, both Industry & Retail and Property & Finance are industries where companies have large balance sheets and require substantial investments, which are both factors making access to foreign capital favourable by lowering the cost of capital. Additionally, both Industry & Retail and Property & Finance contain many traditional Swedish firms. In these firms, a traditional Swedish ownership model might be expected, where the ownership structure is highly concentrated to one or two investors, commonly consisting of a family (Henrekson and Jakobsson, 2008). Thereby, the capital base might further be limited, making access to foreign capital even more advantageous for firm performance in certain industries.

An additional implication for the Property & Finance industry concerns the argument of increased monitoring due to foreign ownership. The advantage of increased monitoring might be more applicable to this particular industry due to the lack of trust for financial institutions caused by historic events such as the financial crisis of 2008. Due to this lack of trust, the signalling of a willingness to improve governance caused by increased foreign ownership might be the reason why a significant relationship was found between foreign ownership and Approximate Q in the Property & Finance industry.

Overall, it is challenging to state any universal causes of the implications induced by changes in foreign ownership and why they differ between industries when the relationship with Approximate Q was tested. The different results between industries does somewhat also argue that no universal explanation can be found. However, it is evident that the effect of changes in foreign ownership on market based performance is dependent on firm and industry characteristics. Furthermore, the underlying explanations this study has brought attention to can be more applicable to some industries than others, and determining to what extent each of the explanations applies to different industries becomes a topic for future study.

7. Conclusion

The intent of this paper was to evaluate if a relationship exists between foreign ownership and the performance of Swedish companies listed on OMXS. Firm performance was measured as Return on Assets, representing an accounting based perspective, and Approximate Q, representing a market based perspective. Our study finds a positive, contemporaneous, and significant relationship between foreign ownership and Approximate Q and an insignificant relationship with Return on Assets. These findings are in agreement with the results from Oxelheim and Randøy (2003), who found a positive relationship between market measures of performance and the presence of Anglo-American board members in their study with data from 1996 to 1998. Regarding our result between Return on Assets and foreign ownership, it is aligned with the results from Barbosa and Louri (2005), who found no significant effect of foreign ownership on accounting based measures in Greece and Portugal. Furthermore, this study finds that the relationship between Approximate Q and the proportion of foreign ownership varies between industries. The industries that showed a positive relationship were Services, Industry & Retail, Property & Finance, and Other Industries, whereas Technology and Commodities showed no significant relationship. Because of the findings that the relationship differs between industries, it is evident that the effect of changes in foreign ownership on market based performance is dependent on firm and industry characteristics. These findings can therefore serve as support to the notion that for some industries, foreign investors can contribute to firm performance and value enhancement when looking at performance measures based on market value.

8. Limitations and Suggestions for Further Research

The robustness tests showed that the models we used to test our hypotheses are rather solid and the findings are similar when we used unadjusted variables in the models. This creates validity and instils trust in the results. However, we made choices in the execution of the methodology that could have yielded alternative results. The choice of including the foreign ownership variable as a continuous variable was made in order to be able to look at a changing percentage rate over time within firms. The method might have yielded another outcome if foreign ownership had been made into a discrete variable representing a very high share of foreign ownership and a very low share respectively. This could possibly have led to a more extreme result, perhaps contradictory to the result that was found in our study.

In terms of quantity of data for the analyses, the two main regression models both have sufficient quantity of company observations. However, for the industry group analysis, the data quantity for some of the industries are rather small. The small samples make the results less trustworthy, and when interpreting the results, the limiting sample size was therefore considered. In addition, the models used to test the hypotheses could have been extended. For instance, there are other potential control variables that could have been used or added to further control for endogeneity and omitted variable bias such as firm age, advertising expenditure as well as investments in R&D. These are all factors found in previous research to have an effect on firm performance. The reason why they were excluded in this study was due to the lack of data, since too few observations would have led to a smaller sample when running regressions. Based on this, we decided to favour a considerable sample size over additional control variables. In addition to using supplementary control variables, other measures of performance as dependent variables could have been used. When the robustness tests were undertaken, ROE was tested as an additional measure of accounting performance. Return on Sales (ROS) and Pre-tax Return on Assets could however also be relevant measures for investigating accounting based performance.

Another potential approach for studying the relationship between foreign ownership and performance could be the introduction of instrumental variables. However, no suitable instrumental variables were found, which resulted in a discardment of this method. If an instrumental variable had been found, appropriate according to the nature of this study, omitted variable bias as well as simultaneity bias could possibly have been further restricted in the model. This would have resulted in more reliable results and reverse causality could have been restricted.

In this study, it is implied that foreign ownership has a positive association with firm performance measured as Approximate Q. We suggest that there are several possible explanations for this result. Since the relationship varies between industries, some of the explanations provided are more relevant to some industries than others. To give a more nuanced picture of the causes behind the result, it would therefore be interesting to determine to what extent each of the explanations mentioned in this study are contributing to firm performance.

Another area of investigation relevant for future research could be to explore if firms' exposure to risk is affected by the extent of foreign investors. Potentially, it might be that firms become more exposed to macroeconomic events as its owners are more dispersed across the world. On the other hand, the relationship could be the opposite, and there might be diversification benefits with foreign ownership, indicating reduced company risk.

Lastly, instead of dividing the sample into subgroups based on industries it could have been done based on market capitalisation. In **Graph 1**, we can distinguish that the level of foreign ownership differs significantly between large cap, mid cap, and small cap. However, there seem to be no clear explanation to why this is the case, and what the implications are. Could it be that foreign ownership provides greater advantages to larger firms than smaller firms or vice versa? Furthermore, such a study could also use both accounting and market based measures for performance to see if any differences can be distinguished. Thus, the result from a study of this kind could once again serve as a theoretical foundation revealing how firms can maximise their value and performance, and whether or not foreign ownership should be encouraged.

9. References

Aitken, B.J. and Harrison, A.E., 1999. Do Domestic Firms Benefit from Direct Foreign Investment? Evidence from Venezuela. *American Economic Review,* 89(3), pp. 605-618.

Andrei, S. and Vishny, R.W., 1997. A Survey of Corporate Governance. *The Journal of Finance*, 52(2), pp. 737-783.

Audretsch, D.B. and Yamawaki, H., 1992. Sub-optimal scale plants and compensating factor differentials in U.S. and Japanese manufacturing. In: D.B. Audretsch and J.J. Siegfried, eds, *Empirical Studies in Industrial Organization: Essays in Honor of Leonard W. Weiss.* Dordrecht: Springer Netherlands, pp. 161-185.

Baek, J.-., Kang, J.-. and Suh Park, K., 2004. Corporate governance and firm value: Evidence from the Korean financial crisis. *Journal of Financial Economics,* 71(2), pp. 265-313.

Barbosa, N. and Louri, H., 2005. Corporate Performance: Does Ownership Matter? A Comparison of Foreign- and Domestic-Owned Firms in Greece and Portugal. *Review of Industrial Organization,* 27(1), pp. 73-102.

Bradburd, R.M. and Caves, R.E., 1982. A Closer Look at the Effect of Market Growth on Industries' Profits. *The review of economics and statistics,* 64(4), pp. 635-645.

Bresnahan, T.F., 1989. Chapter 17 Empirical studies of industries with market power. *Handbook of Industrial Organization*. Elsevier, pp. 1011-1057.

Chung, K.H. and Pruitt, S.W., 1994. A Simple Approximation of Tobin's q. *Financial Management,* 23(3), pp. 70-74.

Comment, R. and Schwert, G.W., 1995. Poison or placebo? Evidence on the deterrence and wealth effects of modern antitakeover measures. *Journal of Financial Economics,* 39(1), pp. 3-43.

Dahlquist, M. and Robertsson, G., 2001. Direct foreign ownership, institutional investors, and firm characteristics. *Journal of Financial Economics*, 59(3), pp. 413-440.

Euroclear Sweden, 2018, *Aktieägandet i Sverige 2017*, p. 3

EY, 2017, *2017 Nordics Attractiveness Report*, pp. 22-23.

Foerster, S.R. and Karolyi, G.A., 1999. The Effects of Market Segmentation and Investor Recognition on Asset Prices: Evidence from Foreign Stocks Listing in the United States. *The Journal of Finance,* 54(3), pp. 981-1013.

Fosu, S., Danso, A., Ahmad, W. and Coffie, W., 2016. Information asymmetry, leverage and firm value: Do crisis and growth matter? *International Review of Financial Analysis*, 46, pp. 140 - 150.

Greene, W., 2000. *Econometric Analysis (International Edition).* Pearson US Imports & PHIPEs.

Hahn, P.D. and Lasfer, M., 2016. Impact of foreign directors on board meeting frequency. *International Review of Financial Analysis,* 46, pp. 295-308.

Hansen, C.B., 2007. Generalized least squares inference in panel and multilevel models with serial correlation and fixed effects. *Journal of Econometrics,* 140(2), pp. 670-694.

Hausman, J.A., 1978. Specification Tests in Econometrics. *Econometrica*, 46(6), pp. 1251-1271.

Henrekson, M. and Jakobsson, U., 2008. Globaliseringen och den svenska ägarmodellen. *Underlagsrapport nr 19 till Globaliseringsrådet*. Stockholm: Globaliseringsrådet och Utbildningsdepartementet.

Holdings by Modular Finance, 2018. Access: *https://www.holdings.se/app/#/bolag (01/04/2018)*

House, William C. and Benefield, Michael E., 1995. The Impact of Sales and Income growth on profitability and market value measures in actual and simulated industries. *Developments In Business Simulation & Experiential Exercises*, Volume 22, 1995

Huang, R.D. and Shiu Cheng-Yi, 2009. Local Effects of Foreign Ownership in an Emerging Financial Market: Evidence from Qualified Foreign Institutional Investors in Taiwan. *Financial Management,* 38(3), pp. 567-602.

Inoue, A. and Solon, G., 2006. A Portmanteau Test for Serially Correlated Errors in Fixed Effects Models. *Econometric Theory,* 22(5), pp. 835-851.

Jacobson, R., 1987. The Validity of ROI as a Measure of Business Performance. *The American Economic Review,* 77(3), pp. 470-478.

Jozef, K., 2001. The effects of foreign direct investment on domestic firms. *Economics of Transition,* 9(3), pp. 619-633.

Le, T.P.V. and Phan, T.B.N., 2017. Capital structure and firm performance: Empirical evidence from a small transition country. *Research in International Business and Finance,* 42, pp. 710-726.

Marchica, M. and Mura, R., 2010. Financial Flexibility, Investment Ability, and Firm Value: Evidence from Firms with Spare Debt Capacity. *Financial Management,* 39(4), pp. 1339-1365.

Modigliani, F. and Miller, M.H., 1958. The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Economic Review,* 48(3), pp. 261-297.

Montgomery, C.A., 1994. Corporate Diversification. *Journal of Economic Perspectives,* 8(3), pp. 163-178.

Myers, S.C., 1984. The Capital Structure Puzzle. *The Journal of Finance,* 39(3), pp. 574-592.

Oxelheim, L. and Randoy, T., 2003. The impact of foreign board membership on firm value. *Journal of Banking & Finance,* 27(12), pp. 2369-2392.

Penrose, E.T., 1959. *The theory of the growth of the firm / Edith T. Penrose.* Oxford: B. Blackwell.

Sattar, 2015. Cost of Capital – The Effect to the Firm Value and Profitability; Empirical Evidences in Case of Personal Goods (Textile) Sector of KSE 100 Index. *Journal of Poverty, Investment and Development,* 17(1), pp. 24-28.

Shepherd, W.G., 1986. Tobin's q and the Structure-Performance Relationship: Comment. *The American Economic Review,* 76(5), pp. 1205-1210.

Stulz René, M., 1999. Globalization, Corporate Finance, and the Cost of Capital. *Journal of Applied Corporate Finance*, 12(3), pp. 8-25.

Sundaram, A.K. and Logue, D.E., 1996. Valuation Effects of foreign Company Listings on U.S. Exchanges. *Journal of International Business Studies,* 27(1), pp. 67-88.

Tobin, J., 1969. A General Equilibrium Approach To Monetary Theory. *Journal of Money, Credit and Banking,* 1(1), pp. 15-29.

10. Appendix

Table 3: Descriptive Statistics for Adjusted Variables with ROA

Variable	Obs.	SD	Mean	Median	Min	Max
ROA	2739	0.1746	0.0352	0.0590	-1.4108	0.8207
FOREIGN OWNERSHIP SHARE	2739	0.1807	0.2419	0.2047	0.0000	0.9523
LOGARITHMIC TOTAL ASSETS	2739	2.3401	14.7464	14.4595	8.7464	22.5792
WINSORIZED LEVERAGE RATIO	2739	0.5627	0.5573	0.3683	0.0000	1.6977
WINSORIZED REVENUE GROWTH RATE	2739	0.1797	0.0907	0.0603	-0.1706	0.4406

Table 3 provides descriptive statistics of the adjusted variables used in the main ROA regression model. ROA and Foreign Ownership Share are unadjusted and displayed as ratios. Winsorized Leverage Ratio as well as Winsorized Revenue Growth Rate are the ratios of the Leverage Ratio and Revenue Growth Rate winsorized to the 10^{th} and 90^{th} percentile. Logarithmic Total Assets is the natural logarithm taken of total assets in thousands of SEK. Obs. represents the number of observations, SD represents the standard deviation, Mean represents the mean value observations, Median represents the median value of observations and Min/Max is the minimum and maximum value respectively.

Table 4: Descriptive Statistics for Adjusted Variables with Approximate Q

Variable	Obs.	SD	Mean	Median	Min	Max
APPROXIMATE Q	2367	2.0521	1.5367	0.9698	-0.3078	28.1376
FOREIGN OWNERSHIP SHARE	2367	0.1799	0.2424	0.2057	0.0000	0.9523
LOGARITHMIC TOTAL ASSETS	2367	2.0991	14.4026	14.1553	8.8943	19.7675
WINSORIZED LEVERAGE RATIO	2367	0.4074	0.4310	0.3175	0.0000	1.1781
WINSORIZED REVENUE GROWTH RATE	2367	0.1691	0.0902	0.0630	-0.1513	0.4201

Table 4 provides descriptive statistics of the adjusted variables used in the main Approximate Q regression model. Approximate Q and Foreign Ownership Share are unadjusted and displayed as ratios. Winsorized Leverage Ratio as well as Winsorized Revenue Growth Rate are the ratios of the Leverage Ratio and Revenue Growth Rate variables winsorized to the 10^{th} and 90^{th} percentile. Logarithmic Total Assets is the natural logarithm taken of total assets in thousands of SEK. Obs. represents the number of observations, SD represents the standard deviation, Mean represents the mean value observations, Median represents the median value of observations and Min/Max is the minimum and maximum value respectively.

Table 8: Main Regression Models Without Winsorization

Dependent Variables	Approx. Q	ROA
FOREIGN OWNERSHIP	1.334***	-0.0456
	(0.473)	(0.0399)
SIZE	-0.116	0.0473***
	(0.178)	(0.0146)
LEVERAGE RATIO	0.00144	-0.00208
	(0.00579)	(0.00131)
LEVERAGE RATIO^2	3.01e-05	-1.67e-05*
	(4.11e-05)	(9.09e-06)
GROWTH	-0.00250	0.000179
	(0.00331)	(0.000144)
Constant	2.268	-0.688***
	(2.462)	(0.205)
Observations	2367	2739
Number of companies	216	247
R-squared within	0.0838	0.0629
R-squared between	0.1323	0.1056
R-squared overall	0.1023	0.0709
F-statistic	7.67***	10.51***
Firm fixed effects	YES	YES
Time fixed effects	YES	YES

Table 8 provides information regarding robustness test when the main regression models were tested without winsorizing variables. Approx. Q represents Approximate Q and ROA represents Return on Assets. They are the dependent variable for each regression model. Foreign Ownership is an explanatory variable representing foreign ownership share. SIZE is an explanatory variable representing the natural logarithm of total assets in thousands of SEK. LEVERAGE RATIO is an explanatory variable representing debt divided by equity, expressed as a ratio. LEVERAGE RATIO^2 is an explanatory variable representing debt divided by equity, expressed as a ratio and squared. GROWTH is an explanatory variable representing the yearly growth rate in revenue, expressed as a ratio. Robust standard errors in are in parentheses and significance levels are expressed as follows: *** p<0.01, ** p<0.05, * p<0.1.

Table 9: Main Regression Models Without Clustered Standard Errors

Dependent Variables	Approx. Q	ROA
FOREIGN OWNERSHIP	1.244***	-0.0601**
	(0.347)	(0.0281)
SIZE	-0.119	0.0480***
	(0.0743)	(0.00564)
LEVERAGE RATIO	-1.035***	-0.142***
	(0.382)	(0.0233)
LEVERAGE RATIO^2	0.727**	0.0447***
	(0.307)	(0.0135)
GROWTH	0.938***	0.180***
	(0.206)	(0.0153)
Constant	2.454**	-0.654***
	(1.018)	(0.0789)
Observations	2367	2739
Number of companies	216	247
R-squared within	0.0948	0.1329
R-squared between	0.2404	0.1333
R-squared overall	0.1612	0.1172
F-statistic	11.76***	19,96***
Firm fixed effects	YES	YES
Time fixed effects	YES	YES

Table 9 provides information regarding robustness test when the main regression models were tested without clustering standard errors. Approx. Q represents Approximate Q and ROA represents Return on Assets. They are the dependent variable for each regression model. Foreign Ownership is an explanatory variable representing foreign ownership share. SIZE is an explanatory variable representing the natural logarithm of total assets in thousands of SEK. LEVERAGE RATIO is an explanatory variable representing debt divided by equity, expressed as a ratio and winsorized to the 10th and 90th percentile. LEVERAGE RATIO^2 is an explanatory variable representing debt divided by equity, expressed as a ratio, winsorized to the 10th and 90th percentile and squared. GROWTH is an explanatory variable representing the yearly growth rate in revenue, expressed as a ratio and winsorized to the 10st and 90th percentile. Standard errors in are in parentheses and significance levels are expressed as follows: *** p<0.01, ** p<0.05, * p<0.1.

Table 10: Main Regression Models Without A Squared Leverage Ratio

Dependent Variables	Approx. Q	ROA
FOREIGN OWNERSHIP	1.265***	-0.0565
	(0.477)	(0.0397)
SIZE	-0.128	0.0461***
	(0.185)	(0.0138)
LEVERAGE RATIO	-0.181	-0.0695***
	(0.235)	(0.0155)
GROWTH	0.919***	0.179***
	(0.243)	(0.0286)
Constant	2.477	-0.640***
	(2.502)	(0.192)
Observations	2367	2739
Number of companies	216	247
R-squared within	0.0925	0.1291
R-squared between	0.2064	0.1421
R-squared overall	0.1451	0.1206
F-statistic	10.13***	7.57***
Firm fixed effects	YES	YES
Time fixed effects	YES	YES

Table 10 provides information regarding robustness test when the main regression models were tested without including a squared leverage ratio. Approx. Q represents Approximate Q and ROA represents Return on Assets. They are here the dependent variable for each regression model. Foreign Ownership is an explanatory variable representing foreign ownership share. SIZE is an explanatory variable representing the natural logarithm of total assets in thousands of SEK. LEVERAGE RATIO is an explanatory variable representing debt divided by equity, expressed as a ratio and winsorized to the 10^{th} and 90^{th} percentile. GROWTH is an explanatory variable representing the yearly growth rate in revenue, expressed as a ratio and winsorized to the 10^{th} and 90^{th} percentile. Robust standard errors in are in parentheses and significance levels are expressed as follows: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 11: Comparison Between ROE and ROA in the Main Regression Model

Dependent Variables	ROE	ROA
FOREIGN OWNERSHIP	-0.294	-0.0601
	(0.193)	(0.0398)
SIZE	0.0764	0.0480***
	(0.0600)	(0.0140)
LEVERAGE RATIO	0.0274	-0.142***
	(0.453)	(0.0366)
LEVERAGE RATIO^2	-0.122	0.0447***
	(0.198)	(0.0168)
GROWTH	0.344***	0.180***
	(0.113)	(0.0286)
Constant	-1.060	-0.654***
	(0.777)	(0.193)
Observations	2729	2739
Number of companies	247	247
R-squared within	0.0166	0.1329
R-squared between	0.0942	0.1333
R-squared overall	0.0340	0.1172
F-statistic	6.40***	7.29***
Firm fixed effects	YES	YES
Time fixed effects	YES	YES

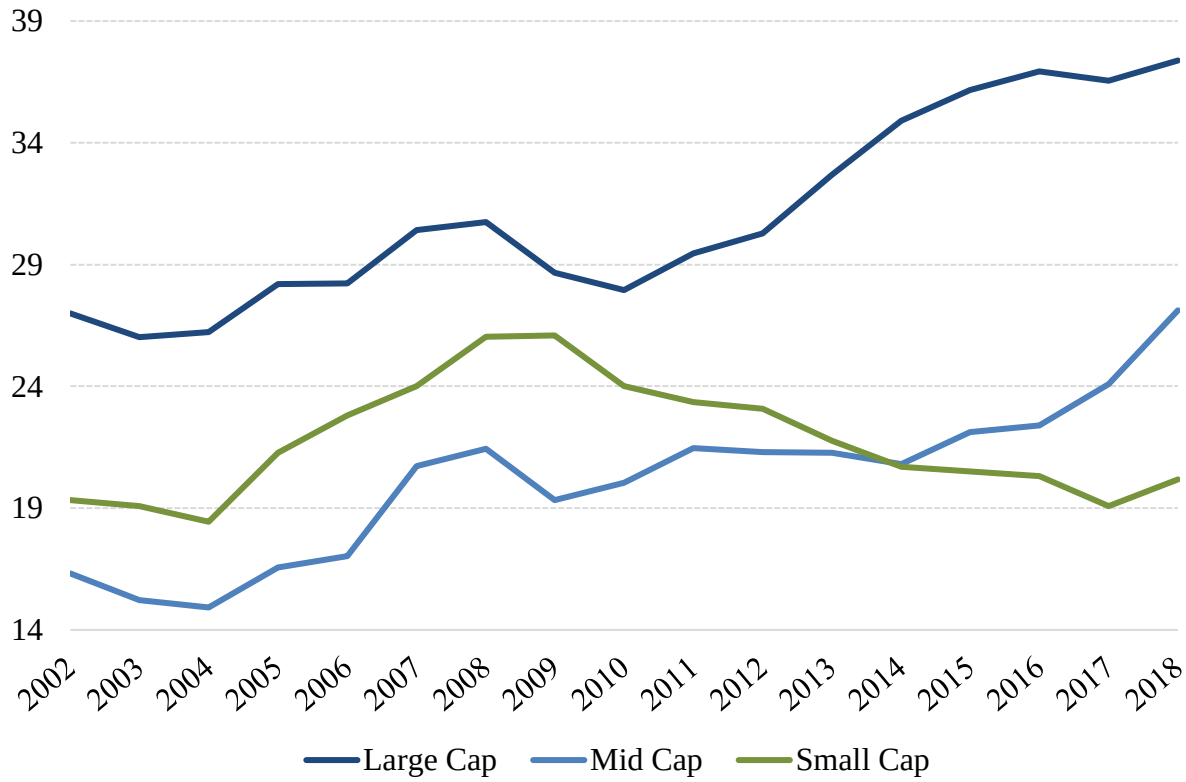
Table 11 provides information regarding robustness test comparing the difference in outcome when replacing ROA for ROE as dependent variable in the main regression model. ROE represents Return on Equity and ROA represents Return on Assets. They are the dependent variable for each regression model. Foreign Ownership is an explanatory variable representing foreign ownership share. SIZE is an explanatory variable representing the natural logarithm of total assets in thousands of SEK. LEVERAGE RATIO is an explanatory variable representing debt divided by equity, expressed as a ratio and winsorized to the 10th and 90th percentile. LEVERAGE RATIO^2 is an explanatory variable representing debt divided by equity, expressed as a ratio, winsorized to the 10th and 90th percentile and squared. GROWTH is an explanatory variable representing the yearly growth rate in revenue, expressed as a ratio and winsorized to the 10th and 90th percentile. Robust standard errors in are in parentheses and significance levels are expressed as follows: *** p<0.01, ** p<0.05, * p<0.1.

Table 12: Pearson Correlation Matrix

	ROA	APPROXIMATE Q	FOREIGN OWNERSHIP	TOTAL ASSETS	LEVERAGE RATIO	GROWTH RATE
ROA	1.0000					
APPROXIMATE Q	0.0304	1.0000				
FOREIGN OWNERSHIP	-0.0103	0.1035*	1.0000			
TOTAL ASSETS	0.0685*	-0.0762*	0.2887*	1.0000		
LEVERAGE RATIO	0.0067	-0.0130	0.0097	0.0245	1.0000	
GROWTH RATE	-0.0298	0.0259	0.0449*	-0.0130	0.0039	1.0000

Table 12 shows a Pearson Correlation Matrix where the correlation among variables is displayed. ROA represents Return on Assets as a ratio. Approximate Q and Foreign Ownership Share are displayed as ratios. Total Assets represents total assets in thousands of SEK. Leverage Ratio as well as Revenue Growth Rate are represented as ratios. The significance level of the correlations is presented as follows: * $p<0.05$.

Graph 1: Foreign Ownership Share on OMX Stockholm Divided by Large Cap, Mid Cap, and Small Cap, %



Graph 1 illustrates the change in foreign ownership over time on OMXS divided into categories of different market capitalizations. The y-axis represents the foreign ownership share as a percentage of total ownership on the OMXS. The x-axis represents time.

Source: Holdings.