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Aligning ownership and control

An empirical study on the relationship between Insider Ownership and
Financial Performance

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Abstract

Title	Aligning ownership and control
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Authors	Alexander Bjarte, Jakob Gerby, Melker Melin
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Key words	Insider Ownership, Financial Performance, ROA, Tobin's Q, Asset Allocation, Decision Making
Purpose	The aim of this study is to investigate whether equity ownership amongst the decision-making management of a firm is positive for financial performance.
Methodology	In order to achieve the purpose of the study, a quantitative method with a deductive approach was used.
Theoretical perspective	The study relies on previous research on the relationship between ownership and financial performance. The Agent-principal relationship lays the foundation for the study. Agency conflicts and information asymmetry explaining how this relationship becomes problematic when ownership and control is divided. Signaling and managerial incentives explain how principal-agency conflicts could be mitigated through insider ownership.
Empirical foundation	The data consist of ownership -and accounting data for 325 firms listed on Stockholm Stock Exchange, small, -mid -and Large Cap. Data is collected from the Holdings database and Bloomberg.
Results	The results show a positive coefficient for insider ownership with statistical significance to financial performance measured as ROA. For Tobin's Q as dependent variable a positive coefficient for insider ownership is found but is not statistically significant.

Abstrakt

Titel	Aligning ownership and control
Datum för seminarium	15 Januari 2021
Kurs	Kandidatuppsats i Finansiering (FEKH89)
Författare	Alexander Bjarte, Jakob Gerby, Melker Melin
Handledare	Anamaria Cociorva
Nyckelord	Insiderägande, Finansiell prestation, ROA, Tobin's Q, Tillgångsallokering, Beslutsfattande
Syfte	Studien ämnar att undersöka om det finns ett positivt samband mellan aktieägarskap hos personer med beslutsfattande ställning i företag och finansiell prestation.
Metod	För att uppnå studiens syfte har en kvantitativ metod med deduktiv ansats använts.
Teoretiska perspektiv	Studien grundar sig i tidigare forskning som undersöker relationen mellan insiderägande och finansiell prestation. Agent-principal teorin utgör grunden för studien. Konflikter och informationsasymmetri förklarar problematiken som uppstår när kontroll och ägarskap är skilt, medan signalering- och ledskapsincitament förklarar hur agentkonflikter kan minskas genom insiderägande.
Empiri	Den data som har använts består av ägarskap -och bokföringsmässiga variabler för 325 företag listade på Stockholmsbörsens small, mid och largecap. All data är hämtad från Holdings databas och Bloomberg.
Resultat	Resultaten visar på en positiv koefficient för insiderägande med statistisk signifikans till finansiell prestation mätt som ROA. För Tobins Q som beroende variabel finner studien en positiv koefficient men inte med statistisk signifikans.

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1.Introduction

The introductory chapter presents the background and problem discussion that has lead to the study's purpose and problem statement. Moreover, the limitations of the study and disposition is presented.

1.1 Background

The main goal for an investor is to allocate capital to equities or other securities to earn as high a return possible with regard to the individual's risk adversity. When allocating capital to a firm, the investment value is determined by the combination of the stock appreciation and dividend ratio within the investment time frame (Berk & DeMarzo, 2017).

Short-term stock movements are subject to one-time events, market psychology and other unpredictable outcomes and events. Though the price of a stock fluctuates from unpredictable events, what is ultimately considered to determine the long-term duration is the long-term views and current financial performance of a firm. Dividends on the other hand also depend on the firm's dividend policies, abilities to allocate excess capital and most importantly its financial ability to distribute capital (Berk & DeMarzo, 2017). Financial performance is therefore an important variable for a long-term investor to consider because it will ultimately determine the return on their investment.

Corporate decisions can be good or bad, and a common misconception is that this label depends on the outcome. Rather, a good corporate decision is defined as a decision supported with all information available and the right intention. A bad decision is defined as the opposite, i.e. the decision has been made on the basis of gut-feeling, intuition or wrong intentions (Celona & McNamee, 2005). While a bad decision can turn out to be good, it should not according to research be a desirable way to make a decision because it will not be consistent. If a good decision is affected by an unpredictable event, then at least the decision was based upon good intentions. Meaning that corporate resources were allocated to the most desirable project for maximizing shareholder wealth with all information available at that point in time combined with the right intention, i.e., what could be controlled (Celona & McNamee, 2005).

In the context of a firm, decision making is made by the CEO and other executive managers and is supervised by the board of directors. Passive shareholders are not involved in the daily operations and must therefore rely on the CEO as well as the other executive managers to make responsible decisions in order to maximize shareholder value, and for board members to supervise and hold the managers accountable for their actions. This is achieved by managing the firm in a way that leads to optimal financial performance. Because the probability of outcomes that we want increases with high-quality decision making (Celona and McNamee, 2005), shareholders expect that the executive management and board members act upon their best interest. More importantly, a limited liability firm's main goal should be to maximize shareholder wealth, which can be viewed in The Swedish Act (ABL; 1975:1385). However, though it is expected, the reality is that executive management and board members might have incentives and intentions to make decisions for their own benefits, rather than that of maximizing shareholder wealth. These conflicting desires have been a subject for a wide range of research and were first defined by Jensen and Meckling (1976) as agency-conflicts.

1.2 Problem Discussion

When it comes to agency-conflicts there is no shortage of scandals that repeatedly reaches headlines in financial journalism. Managers are somewhat expected to meet target numbers for quarterly results and other short-term goals. This can distort the focus from the firm's longevity, and lead to managers accepting projects to gain personal benefits, rather than choosing projects and making investments that would be in the best interest for the firm on a long-term basis.

The response to these poor decisions is often argued to bring worse financial performance than what could have been achieved with good decisions - all else equal. A weaker financial performance will affect shareholders net investment negatively, hence agency-costs will ultimately be borne by the shareholders. In order to minimize their exposure to this kind of detrimental conflict, a considerable number of investors have adopted an investment strategy, which effectively remedies the problems caused by managers putting their personal gain before the wellbeing of the company. This strategy focuses on limiting investments to companies in which the managers themselves own a considerable stake of the equity in the firm. Having a firm controlled by managers which themselves bear the risk of losing their personal capital if the firm performs poorly, incentivizes the managers to lead the company in a more financially sustainable manner. Moreover, this strategy is also considered to indicate a greater potential

for future financial performance. The theory supporting the strategy furthermore revolves around the idea that insider ownership bridges the information-gap between the agents by indicating that; if individuals with an information advantage believe in the firm, then so can the uninformed investor. In addition, it is a sign of confidence in the managers ability to run the business. Hence, investors speculate that this investment strategy will allocate capital to firms which will perform better long-term, leading to higher returns than those firms with lower or no insider ownership present. But can it actually be argued that insider ownership among the agents (decision making management) is a sign of a desirably higher financial performance?

The corporate finance literature on this relationship goes back as far as 1932, where Berle and Means provided empirical evidence that firm resources in many cases were used by managers to satisfy their own interests rather than to maximize shareholder wealth. Jensen and Meckling (1976) later on argued through empirical findings that these agency-conflicts could be lowered or eliminated through equity ownership. They argued that equity allocation among managers developed incentives for managers to align their interests with shareholders. Thus, to some extent correlating with what the strategy aims to achieve. Post these empirical findings, research investigates the relationship between various equity allocations and financial performance.

Agrawal and Knoeber (1996) finds a significant relationship between equity ownership among decision making insiders and Tobin's Q for firms listed on Forbes 800 list per 1987. Similar results were found by Sarkar and Sarkar (2000) on the Indian Stock Exchange, and Mitton (2002) on the East Asian Market per 1997-98. Moreover, Ang et al. (2002) finds that agency costs were greater for firms where managers owned no equity, which is consistent with Jensen and Meckling (1976) hypothesis. However, Cheung and Wei (2006) studied 1430 US listed firms between 1991-2000 and found no positive relationship between insider ownership and financial performance. Important to note however is that their definition of insiders differed by including board members as decision makers.

A well renowned study by Demsetz and Lehn (1985) showed no significant relationship when investigating ownership concentration and accounting measures as measurement for financial performance. More recently, Demsetz and Villalonga (2001) replicated Demsetz and Lehns study and replaced ownership concentration with equity ownership among decision making

management and board members. The same results were found for the equivalent data sample and research design.

While research on the relationship has been conducted on various geographical data samples, no equivalent research has been published for Swedish listed firms, which leaves an empirical gap for this study. Beyond this gap, the Swedish market seems to distinguish from most other markets that have been investigated in comparable studies. First, the data on ownership appears to be more accessible, comprehensive, revised and monitored for firms listed on the Stockholm Stock Exchange than for other markets. For example, in Germany it is not compulsory to disclose owners with less than 25% ownership (Frank & Mayer, 2001). For the US market, the Security and Exchange Commission states that ownership exceeding 5% of total shares is only compulsory to disclose. The equivalent limit is at the 3%-level for UK firms. In addition, similar ownership data limitations are true for most Western European countries (Faccio and Lang, 2002) and East Asian countries (Claessens et al. 2000). Quality limitations as well as limitations on the comprehensiveness of ownership is likely to disrupt findings on the relationship. Ownership in Sweden is monitored by the Swedish Financial Supervisory Authority, who are legally obliged to disclose all ownership changes made for each firm listed on the SSE. Thus, eliminating the problems of incomplete ownership data.

Moreover, the Swedish market is characterized by a large fraction of family-owned businesses in comparison to most markets being researched. As family-owned firms tend to perform better than their counterparts (Anderson and Reeb, 2001), it would imply that when shareholders are also decision makers, agency-costs are reduced. Therefore, a study on Swedish firms seems to have the potential to indicate a stronger relationship and insights than previous studies have achieved.

Conclusively, this study aims to fill these empirical gaps. Beyond the potential research contribution, we also emphasize the practical implications to expand the empirical data for the strategy adopted by investors.

1.3 Purpose and problem statement

The aim of this study is to investigate whether equity ownership amongst the decision-making management of a firm is positive for financial performance. This results in the following problem statement:

- Does insider equity ownership have a positive relationship with a firm's financial performance?

1.4 Limitations

This study will be limited to firms listed on Nasdaq Stockholm Stock Exchange Small-, Mid-, and Large Cap. It will not account for unlisted firms, nor firms listed on First North, Spotlight Stock Market, Nordic SME, NGM or other external marketplaces on Nasdaq Stockholm. Furthermore, all types of financial firms as banks and investment firms have been excluded from the tests to comply with the financial performance measures used in the study. Tobin's Q is not a good measure to use for valuing financial institutions such as banks because of the nature of their balance sheets. Their asset heavy balance sheet makes it difficult to interpret and compare the Tobin's Q ratio to other sectors, which ultimately is problematic since the measure seems to be increasingly high for banks even though it does not say anything about the financial performance. As for investment firms, the study aims to look at companies that in the traditional sense produce goods or services, rather than looking at firms whose entire business model is built upon ownership in other firms. Data on insider ownership will be limited to per the date of fiscal year 2019 filings for each firm and limited to equity holdings amongst CEO and other executive managers with decision making authority. To coincide with data on insider ownership, financial performance measures as well as controlling variables are limited and collected per fiscal year 2019. In the light of the complications caused by the Covid-19 pandemic, it was decided that this study would not include any measures post year end 2019. The data set is limited to cross-sectional data. Ideally, we would have preferred to use panel data in order to capture the impact of changes in insider ownership within the same firm over time. However, we could only get comprehensive ownership data for the period 2017-2020, and there were no significant changes in ownership during that period.

Financial performance is limited to the measurements ROA and Tobin's Q. Reasons are further discussed in section *3.7.1 Financial Performance* and is an important part of this study. This study is henceforth limited to these measures due to its compliance with prior research and relationship to management's allocation of firm assets.

1.5 Disposition

Theoretical Framework

Four foundational theories related to insider ownership and its relationship with financial performance are presented, followed by a summarization of previous research on the subject. Based on these two hypotheses on the outcome of the results are formulated.

Method

The methodology of the study is discussed, covering parts such as sample selection, controlling variables, the use of regression models as well as methodical criticism.

Results

Descriptive statistics and the results from the final OLS regression models are presented.

Analysis

The empirical dataset and the results of the study are analyzed and tied to the theoretical framework as well as previous studies.

Conclusion

A conclusion is drawn in order to answer the research question of the study. This is followed by a discussion of the study and suggestions for further research.

2. Theoretical framework

This chapter presents four theories that are used to explain why insider ownership could be related to financial performance. Thereafter previous research on the relationship between insider ownership and financial performance is presented.

2.1 Principal-agent conflicts

The principal-agent relationship is well known and documented in the context of corporate governance. It was defined by Jensen and Meckling (1976) as an agreement between the agent (controlling management) to run the firm upon the principals (external shareholders) behalf. Within the context of this, external shareholders are not able to fully control or observe how managers are allocating the firm's resources. The agents are expected to allocate firm resources with the aim of maximizing shareholder wealth.

The principal-agent relationship becomes problematic when in presence of information asymmetry and conflicts of interests. These two are highlighted in Akerlof's article *market for lemons* below.

2.2 Information Asymmetry

Economist George Akerlof along with fellow colleagues Michael Spence and Joseph Stiglitz received The Sveriges Riksbank Prize in Economic Sciences in 2001 for their discoveries on information asymmetry. Akerlof's article *The Market for Lemons: Quality Uncertainty and the Market Mechanism* (1970) addresses their findings in an illustrative way with a scenery from a car dealership.

In the dealership there are two cars for sale. Both appear to be in good conditions. With all information available however, one car is in poor condition and the other in good condition. The buyer (investor in a corporate finance context) does not have all available information and thinks that both cars are in good condition whereas the car dealer (management/insiders) have all available information and therefore knows that one of the cars is in poor condition. This is called the information asymmetry and is problematic for the agent-principal relationship to work effectively. Bearing this in mind, the buyer is only willing to pay the

average price of these two cars to hedge the risk of buying the car in poor condition. A deal where the price of the car in a good condition is below its intrinsic value is not a good deal for the car dealer, leaving only those in poor conditions to the market. This is a result of an entrenched car dealer, which means that the car dealer is entrenched to act for own benefits on behalf of the buyer's utility.

These conflicting interests to that of the car dealer and buyer becomes problematic for the buyer because he or she will ultimately have to pay more for a car that is worse than would have been on the market if interests were aligned. The entrenched manager is equivalent to the car dealer, where the manager makes decisions for personal benefits rather than for maximizing shareholder wealth.

For mitigating principal-agency conflicts, two mechanisms will be described further on: Signaling and Managerial incentives which are theories for aligning interests between the principal-agency relationship to mitigate information asymmetry and entrenchment effects.

2.3 Signaling theory

Signaling theory is to some extent the solution to information asymmetry. As described under *2.2 Information Asymmetry*, agents and principals have access to various amounts of information. Agents (insiders) tend to have an information advantage over the principal (outside shareholder) and can use this for the advantage of benefiting themselves on the shareholders behalf. Their relationship in the context of signaling theory is described as the agent being the sender of information whereas the principal the receiver of the information. As the agent (sender) has an information advantage, the shareholder (information receiver) must process the value and reliability of what has been communicated. The problematic part of the information asymmetry derives from the entrenched insiders who have incentives for communicating deceptive information to shareholders. One way to increase the incentives for the sender to communicate effectively and truthfully without withholding and distort information that could hurt the receiver is to coincide the interests of the parties (Connelly et al., 2011). One incentive that has been proven to align interests, as already disclosed, is equity ownership. This would accordingly with signaling theory increase the likelihood of effective and efficient information exchange which would benefit both insiders and outside shareholders (Connelly et al., 2011).

2.4 Managerial incentives

Bennedsen and Meisner Nielsen (2010) argue that there are two counteracting effects on the governance of corporations. Incentive -and entrenchment effects. By giving a strong incentive to the people in charge of leading the corporation, it makes the monitoring and management more efficient. Moreover, incentive effects can also be used for aligning managers interests with those of outside shareholders to mitigate agency-conflicts, information asymmetry and signaling effects as previously mentioned.

The entrenchment effect enables owners to benefit themselves at the cost of minority owners (Morck et al., 1988). By looking at the data for 1301 publicly traded corporations in eight East Asian economies (Claessens et al., 2002), they found that company value increased in accordance with the cash-flow ownership of the largest shareholder, which is consistent with a positive incentive effect. This goes further to show that when principal and agent incentives are aligned, the outcome will favor both parties. Entrenchment effects are incentives that ultimately hurt the principal in the agency-principal relationship when viewed in the corporate governance context.

2.5 Previous research

The research on the relationship between ownership structure and financial performance is well studied in the literature. It can be concluded that previous research is united on how financial performance should be measured to capture its relationship to allocations of corporate resources which ultimately affect financial performance. Moreover, most research has recognized the importance of insider ownership and its implications for motivating managers to allocate corporate resources in favor of maximizing shareholder wealth (financial performance). However, empirical evidence suggests that both positive and negative correlations are true and is dependent on which type, and geographical data sample being used. Theories, definitions and choice of method is to a great extent consistent throughout. Therefore, previous research on ownership structure and financial performance has both been an integral part for the choice of method but also for the analytical part of empirical findings.

Berle and Means (1932) investigates how ownership differs from control and adopted a hypothesis around their findings. They find that management in many cases have intentions

to act upon their own interests rather than that of maximizing shareholder wealth. Further, they argue that these acts incur agency costs borne by the shareholder. Therefore, interests in regard to how firm assets should be allocated differ depending on if the individual has economical and decision-making control of a firm or the opposite.

Their hypothesis that the separation of ownership and control leads to agency problems was later adopted by Jensen and Meckling (1976). They are the first of its kind that further investigate the hypothesis by presenting empirical findings on the relationship. Like Berle and Means (1932) their empirical findings showed that managers who have decision making control had incentives to allocate firm resources and investment and financing policies for personal gain while reducing shareholder wealth. Further, and what is particularly relevant and interesting for this study's aim, the greater fraction of capital owned by managers with decision making power, the incentives coincided more with that of maximizing shareholder wealth. Moreover, as the allocation of equity intensified for this group of owners, the firm value tended to be greater.

Followed and inspired by these findings, various empirical research was conducted to investigate the relationship between ownership structure and financial performance. Consistent for all research is whether equity structures affect how corporate resources are allocated. Secondly, if equity structures reduce agency problems and whether greater financial performance is the outcome. Ownership structure can adapt various definitions and has to a greater extent been investigated as ownership concentration and insider ownership and financial performance to a lesser extent.

Agrawal and Knoeber (1996) studied the relationship between insider ownership (ownership with decision making power) and financial performance as measured by Tobin's Q. Through an OLS regression analysis on cross sectional data of all firms listed on Forbes 800 list, findings indicated a positive relationship between insider ownership and Tobin's Q (measure for firm value). The same findings were later discovered for the Indian market when including 1567 manufacturing firms in the Indian stock market per 1995-1996 (Sarkar & Sarkar, 2000). Mitton (2002) found the same relationship when investigating 398 Asian firms during the East Asian Financial Crisis of 1997-1998. Afza and U-Din (2008) studied the relationship between insider ownership and financial performance in the emerging economy of Pakistan. With a sample of 100 firms listed on the Karachi Stock Exchange, they managed

to find a strong positive relationship between management ownership and financial performance. The measurement of financial performance that they analyzed was ROA and Tobin's Q.

From a sample of 1708 private small firms in the US, Ang et al. (2002) found that agency costs were greater for firms where managers owned no equity. However, and somewhat contradictory to Ang et al. (2002) findings, Cheung and Wei (2006) found no significant relationship between insider ownership (management and board members) and financial performance as Tobin's Q. Their regression included 1430 US listed firms between 1991-2000. Beyond the study of Cheung and Wei (2006), there are several examples of studies in developed economies which have researched management ownership and financial performance and did not find a positive relationship, e.g. Demsetz and Villalonga (2001). They replicated Demsetz and Lehn (1985) original study on ownership concentration and accounting measures years later but changed the dependent variable to equity ownership among decision making management and board members combined.

2.6 Hypothesis

The principal agent relationship becomes problematic when information asymmetry and conflicting interests are present. As disclosed, Berle and Means (1932) revolutionized the research when they found that corporate resources were somewhat allocated for the managers (decision makers) personal gain rather than for shareholder wealth. Their findings support the theory that conflicting interests and information asymmetry lead to problematic outcomes such as will affect the shareholder negatively. To mitigate these conflicts, signaling- and managerial incentives are two ways that align managers interests to shareholders. Jensen and Meckling (1976) found that agency costs could be reduced through equity ownership among the managers. More recent, Ang et al. (2002) strengthened these findings by presenting empirical evidence that showed that agency costs were greater for firms where no equity was owned by management. Therefore, equity ownership seems to be an incentive for managers to make good decisions, i.e., decisions that are made with the aim of maximizing shareholder wealth. While these theories are well accepted and evidently proven by empirical evidence, we aim to investigate whether these implications actually improve financial performance. Several studies, as disclosed, have proven that insider ownership is an incentive and signal that agency-costs and information asymmetry are likely to be reduced and therefore

ultimately improve decision making and the financial performance outcome. Agrawal and Knoeber (1996) study on an international level supports this notion. Sarkar & Sarkar (2000) finds similar evidence on the Indian Stock market, Mitton (2002) in the East Asian markets during a financial crisis and Afza & U-Din (2008) on the emerging economy of Karachi, Pakistan. Differently put, the relationship has been evidently proven for various types of markets, geographical samples and macro economical events affecting the samples.

This study adopts these findings and revolves around the theory that insider equity ownership is an incentive and signaling effect to mitigate agency-conflicts and information asymmetry related issues. Supported by disclosed previous research and theory, by minimizing the agency-conflicts and information asymmetry issues, the allocating of corporate resources is aimed to maximize shareholder wealth and thus improving financial performance in relation to those firms where agency-conflicts and information asymmetry are not reduced.

Both a short-term, backwards looking measure (ROA) and long-term forward-looking measure (Tobin's Q) are used to capture the effects of insider ownership but also to benefit from advantages and disadvantages of the measures respectively. These measures (as will be discussed in the next chapter) are mainly chosen for enabling comparableness to prior findings. Therefore, two hypotheses are formed around the basis of the previous empirical research on the subject as well as the theoretical frameworks discussed:

H1: A higher fraction of total capital owned by a CEO and other managers is positively related to a higher ROA.

H2: A higher fraction of total capital owned by a CEO and other managers is positively related to a higher Tobin's Q.

3. Method

This Chapter describes, justifies and discusses the method used in the study. The chapter begins with an overview of the study's approach.

3.1 Methodology

In accordance with the purpose of the study, we aim to investigate whether insider ownership has a positive relationship to a firm's financial performance. To determine which method that suits the purpose of the study, previous research on ownership structure and financial performance has laid a strong foundation for the study's approach. Based on the investigations of a relationship between two variables, this study has applied a deductive approach to enable an objective investigation. This approach will enable the study to investigate the gap between theory and practice to enable a discussion on how the relationship tends to unfold in reality. Because this investigation aims to relate reality to theory, the deductive approach will, in opposite to an inductive approach, lower and minimize subjective elements. This enables a discussion that better reflects reality. Deductive reasoning is usually set up by a hypothesis to investigate which relationship that prevails. To obtain the study's objectives and to determine whether the study's hypothesis can be justified or not, an empirical method is used. This means that to obtain the study's objectives as well as comparability to previous research methods, the purpose is approached and substantiated by data collection through investigations of reality. More specifically this means that a collection of quantitative data observations will serve as the foundation of discussion, i.e., the resulting impressions and attributability to theory.

Below, the methodology chapter will first take a closer look at how financial performance is measured. Followed by how the study defines its observation samples, this lays a foundation to which the regression analysis is based upon. Further, this is followed by a description of the variables and controlling variables used that is included in the regression analysis and the statistical tests the study uses to either reject or adopt the hypothesis. We thereafter present how the investigation collects and processes the data being used. Lastly, we end the methodology chapter with a critical view of the study's approach.

3.2 Dependent variable - Financial performance

The first issue the investigation encountered was which measures should be used to represent financial performance. The observant reader already noted those measures embedded under limitations and hypothesis formulation; Return on Assets (ROA) and Tobin's Q. The amount of financial performance measures are many, some of which are more suitable for a specific firm or sector, and some that are more suitable for a specific purpose. The most common way to measure financial performance in the literature on the relationship between ownership structure and financial performance has been through ROA and Tobin's Q. By adapting to the consensus on previous research, the comparability is increased and the contribution to a literature review is more accessible. In addition, by applying the most used measures in the literature, we enable measurements that are considered the most relevant and illustrating in hope of minimizing the gap between reality and our findings.

ROA and Tobin's Q differ in terms of time perspective, where ROA measures current and prior performance whereas Tobin's Q takes a forward-looking approach on performance. ROA is a short-term backwards looking measure for financial performance because it is based on quarterly reports or year-end reports that have already occurred (Mavruk et al. 2019). ROA is calculated by dividing the Net Income with Total Assets. This ratio is an indicator of how profitable the firm is given their total assets and is determined by how well management is able to allocate the assets in hand for maximizing shareholder wealth. Unlike the Return on Equity (ROE), which only takes shareholder equity into consideration, the ROA uses both equity and liabilities which should represent the way management is responsible for the allocation of all corporate resources. Therefore, ROA seems to be more relatable to and a better measure for studying the implications of agency-theory. Moreover, when applying ROE on a leveraged firm, it will illustrate a somewhat noncompliant empirical view on financial performance because incurred debt might be used in value-creating activities and therefore contribute to the financial performance even though management did allocate capital through bad decision making. Thus, not capturing the full extension of agency-problems.

As a countermeasure to the short-term measurement of ROA, this study also looks at Tobin's Q. The original definition of Tobin's Q is the ratio between the company's market value and the replacement cost of its tangible assets. In most studies however, instead of looking at the

replacement costs, they look at the book values of liabilities (Mavruk et al. 2019). We have chosen the latter approach, as it enables a much greater sample of observations instead of trying to estimate the replacement costs of a much smaller sample of companies. A ratio above one means that the market value of the company is higher than the value of all the tangible assets and vice versa. This ratio implies whether a firm can be considered under -or overvalued (Frye, 2004). A higher value will therefore indicate if a firm has allocated the firm's resources in a way that maximizes shareholder wealth. This can be explained through indicating that the expectations on future financial performance for current asset allocation is high. Moreover, Tobin's Q is also a measure of the quality of the decision-making management (Frye, 2004). Because corporate resources are allocated by them, Tobin's Q will therefore reflect agency-problems.

3.3 Observation sample

3.3.1 Classification of Insider Ownership

For enabling the most suitable way to measure insider ownership, previous research has laid a great foundation. Not least Mavruk et al. (2019) who study how ownership should be measured to capture corporate governance. They find no superior way to measure ownership, however, their findings argue that some ways are more applicable than others. The measures depend on which type of relationship is investigated and they distinguish between studies aiming to investigate a relationship between management and owners, and relationships among owners (for example ownership concentration).

For studies that intend to capture the agency-conflicts between agents (management) and principals (owners) when investigating a relationship between ownership and financial performance, ownership measured as “the fraction of total capital of the firm that is owned by management” is preferred. These findings correspond with most previous research ways of measuring while aiming to capture the agency-principal relationship.

This study will therefore classify ownership measurement as the fraction of total capital held by management with decision making authority. This measure is furthermore chosen for its relevance to information asymmetry and agency problems arising between management and shareholders.

3.3.2 Sample

Though data on insider ownership for each year since 2017 was available, we discovered that insider ownership did not change significantly during this period to justify the added time-consuming work of collecting the data for the whole period. This study therefore uses cross-sectional data in the regression models. The time of cross-sectional data was decided for fiscal year 2019 disclosures for each firm respectively to keep the sample updated but at the same time circumvent the implications of the Covid-19 pandemic. The sample of firms that have been included in this study assume all firms listed on the small, -mid -and large cap lists of the SSE as of fiscal year 2019. Out of these firms, financial firms were excluded. These firms are excluded because of its misfit to measure value within balance sheet heavy firms such as financial institutions and investment banks are.

Furthermore, as accounting measures were added to the observations, some measures were not to be found, thus some observations were eliminated. The final sample of firms is 311 for the regression on ROA as dependent variable whereas it is 313 for Tobin's Q as dependent variable.

The central value theorem explains that as greater observations make a distribution of the regression coefficient closer to a normal distribution than few observations likely would. To compute the study accordingly and partly justify for the short timeframe, our data sample includes 325 observations (firms) all listed on the small, -mid -and large cap lists on the Stockholm Stock Exchange. By limiting data to companies listed on the Swedish stock market, all observations are subject to the same legal institutions and tax regulations.

Moreover, our data includes large cross-sectional variation due to our data set representing the Swedish economy for both small, -medium, -and large firms with various branches which should provide the study with a more accurate and valid response to whether insider ownership affects firm performance.

3.4 OLS regression

To examine whether there is a relationship between insider ownership and firm performance, this study uses an Ordinary Least Squares (OLS) multiple regression. One of the most common estimation methods for linear models is the Ordinary Least Squares (OLS) method. The power in the model stems from its ability to analyze several variables simultaneously and

to determine whether a dependent variable can be explained by several controlling variables. The OLS method works by minimizing the distances of points in a scatter diagram from the estimated regression value. By using the OLS multiple regression model, this study takes an approach that is in line with previous research (Demsetz & Lehn, 1985; Mavruk et al. 2019; Demsetz & Villalonga, 2001). This makes this study more robust and comparable to what is already documented in the corporate finance literature. To defend our hypothesis with significant and justified results, our study examines the relationship with Tobin's Q and ROA in accordance with what is described under 3.2 Financial Performance. Therefore, the study consists of two multiple regressions with one of which will have the Tobin's Q as a dependent variable and the other one ROA as a dependent variable. To perform the regression analysis the study uses the statistical forecasting software EViews, with insider ownership as the independent variable combined with controlling variables to enable a more accurate illustration of reality.

3.4.1 Controlling variables

As the study uses cross-sectional data, we add seven controlling variables to ensure that various factors have been accounted for to ensure more reliable results. Controlling variables has been chosen on criteria as being commonly used in previous research and more importantly for its relevance in regard to affecting resource allocation and thus the chosen financial performance measures. The chosen variables are presented and motivated for below:

- Market Capitalization
- Leverage (Debt/Equity-ratio)
- Management Compensation (Y/N)
- Beta
- PP&E / Total Assets
- Dividend (Y/N)
- Business Sector

3.4.1.1 Market Capitalization

Although the size of a company can be measured in many different ways, measuring by market value is one of the most common. Since this study is limited to publicly traded firms, the market value can easily be obtained by multiplying the current share price with the number of shares outstanding. One reason for controlling size in form of market value, is that there is extensive research showing that smaller companies as a group consistently yield higher returns in terms of stock performance than larger, more mature companies (e.g. Garnsey, 1998; Adizes, 1989). Since the study is aimed to focus on the effect of insider ownership on financial performance, this is a necessary variable to control for.

3.4.1.2 Leverage

The variable leverage is measured by looking at the debt/equity-ratio of the company. Since this ratio shows the company's financial leverage, it is correlated with the risk the company is undertaking. When recalling the foundational work of Modigliani and Miller (1958), one might state the capital structure should not matter when it comes to the valuation of the company. However, this theory assumes a perfectly efficient market with no taxes or transactional costs, and that investors are able to borrow at the same interest rate as the company they wish to invest in. There are recent studies which have found that increasing leverage can increase the market value of the company (Paminto et al. 2016). Almost every company can scale their business model to a certain point by adding leverage, and therefore effectively increasing the firm's ROE.

3.4.1.3 Beta-value

The variable has been added as an indicator for the risk profile of the stock. In this study the Beta-value has been calculated by comparing the stock's performance as the dependent variable in relation to the OMX30-index as the independent variable. This gives an indication of how volatile the stock is in relation to the overall market (Shefrin & Statman, 1995). The Beta-value was calculated by comparing the individual stock return to the OMX30 index on a weekly basis over a 1-year period.

3.4.1.4 PP&E in relation to Total Assets

Property, plant and equipment (PP&E) was divided by the total assets and used as a controlling variable. Comparing certain sections of the assets to the total assets is one way to

measure the asset structure of a company which is relevant for how management can allocate firm resources.

3.4.1.5 Dividends

As for the firm's dividend payout, it has been accounted for through a dummy variable. If the firm paid dividends to their shareholders during the year of 2019, their status was set to “Yes”, if no dividends were paid it was set to “No”. It was decided that dividends needed to be controlled because of their effect on both the numerator and denominator in Tobin’s Q. According to Modigliani and Miller (1961) there should be a dividend irrelevance to the market value, meaning that there should be no difference in the amount that is paid out to investors and the consequent change in market value of the firm. This was however contested by Gordon (1962) who argued that investors valued cash in-hand differently as opposed to the retained earnings.

3.4.1.6 Management Stock Based Compensation

There are mainly two reasons for someone in a management position to hold stock in the company that they are working for. One alternative is that they have bought the shares, which indicates their belief that the firm holds investment value. The other alternative is that they have received the shares as a form of performance compensation. In this case the shares might be tied by a lock-up period, which prohibits the manager from selling them.

3.4.1.7 Business sector

The sector in which a firm operates largely sets the standards for what can be expected in the form of financial performance. Some industries will always be more profitable than others, which in turn will drive their valuations higher. How the business operates and how their assets are structured will have a substantial impact on the outcome of the ROA. A company selling a software program might have almost frictionless scalability in their business model, with a very limited need to acquire further assets when increasing their revenue, whereas a production company is likely to face several bottleneck issues when trying to increase their production and is in turn required to increase their capital expenditures.

3.5 Regression Diagnostics

3.5.1 Ordinary least squares (OLS)

To establish reliable and effective estimations from an OLS regression, there are several assumptions that need to hold true. If these assumptions don't hold true, coefficients are biased and lead to inference if not dealt with. First two assumptions are more related to data issues necessary for the results to be reliable and are both subject for changes for improvement to the final data set. The last two are related to variables on how the model fits the data, which ultimately show if results can be interpreted with accuracy or with caution and skepticism.

1. Test for Normality

One of the assumptions is normally distributed error terms. Jarque-Bera is a frequently used test for investigating whether data is normally distributed. Should the Jarque-Bera test be significant it means that the data is not normally distributed, and the null hypothesis is rejected. However, the Jarque-Bera score can be improved through transformations made from logarithmic and winsorizing variables included in the data set. The transformation's purpose is to minimize non-normality in the residuals, thus improving normality for the data set.

The reason for outlining this test first is to create an illustrative view on potential problems and identifying possible outliers or extreme values in the data set. Because the adjusted data set will serve as the foundation of the regression diagnostics moving forward, it is completed first. Data in *Chapter 4. Results* will be presented as prior and post adjustments to reflect discoveries and improvements made to the data set.

2. Test for Heteroskedasticity - White's Test

For effective estimations, the standard error variance should be constant for all independent variables. This is called homoscedasticity and should the standard error variance among independent variables not be constant, the regression model could prove to be inefficient. A common approach to test for heteroskedasticity is through a White's test in EViews and is therefore used for this study. If the White's test is significant it means that the regression method should incorporate robust standard errors over normal OLS standard errors.

3. Test for Multicollinearity

Issues with multicollinearity derives from its deceiving impact on the OLS regressions outputs. If present, the model could indicate a high degree of explanation while still having non-significant independent variables occurrent. Ultimately, multicollinearity could therefore yield a deceiving result.

To test for multicollinearity, a Variance Inflation Factors (VIF) EViews test will be used. The study chose to test for multicollinearity second to normality because both are more related to data issues than estimation methods that come third and fourth in the setup. A VIF test should show values below five for all variables to indicate an acceptable level of multicollinearity. If variables exceed five, results should be approached with caution.

4. Test for Non-linearity

To investigate non-linearity in the regressions, Ramsey RESET Test is used. To draw conclusions from an OLS regression, linearity among independent variables is to be preferred over non-linearity. The null hypothesis means that the independent variables tend to behave linearly. A p-value below 0.05 will lead to the null hypothesis being rejected. If rejected, conclusions should be adopted with caution as the nature of the non-linearity is difficult to model/account for with accuracy.

3.6 Data collection and processing

As mentioned above, the data sample consists of all Swedish firms listed on the Stockholm Stock Exchange of 2019. Data is retrieved from digital, online services whereas scientific articles have been used for broadening perspectives and for the comparing of research designs.

Data on ownership has been retrieved from the Modular Finance Holdings database (Modular Finance, n.d.). Data regarding the holdings of the CEO and other executive management for each firm were retrieved using the Holdings tool found in the Banking & Finance department. The Holdings tool offers updated data fit for analyzing each company thoroughly and conveniently to be exported to Excel spreadsheets for further analysis. For each firm, the total sum of capital owned by the CEO and other decision-making management was calculated

and transferred to one excel spreadsheet displaying all firms used as defined in section 3.3.2 *Sample*.

Data on accounting measures (dependent -and independent variables) has been retrieved from Bloomberg Terminals. All variables were retrieved from the Member Weightings (MEMB) function to collect and gather all variables in the same spreadsheet. From the “Fields” function in MEMB it was possible to sort all variables used in one spreadsheet for each firm within each price index. This function was used for OMX Stockholm Small Cap Price Index, OMX Stockholm Mid Cap Price Index. To collect all firms listed as Large Cap stocks, OMX Stockholm Benchmark Index in combination with OMX Nordic Large Cap Price Index was used. All variables were then exported to an Excel spreadsheet through the Bloomberg Excel Add-in function. As two lists were needed to collect all firms for Large Cap, manual sorting was needed to comply with the firms already collected from Holdings. To hedge against human errors, all firms listed on the large cap in the excel-file have been manually compared directly to Bloomberg terminals.

3.7 Method discussion

In this section we will highlight the most critical potential sources of error and discuss it in more depth. Based on this discussion, an overall assessment of the study's validity and reliability is then made.

3.7.1 Financial Performance

The motivation behind including ROA and Tobin's Q as financial performance measures is presented under 3.2 *Financial Performance*. In short, the motivation behind using ROA and Tobin's Q is to increase comparability and validity through using measures common in literature and empirical research. Moreover, these measures better reflect the agency-conflicts by including all assets management must allocate. Although these measures are seen as the best alternative to other measures, it is important to reflect over how the choice possibly could affect final results.

ROA intends to measure the return on total assets and since assets are subject to accounting policies, restrictions, rules and the way and which principles are applied, the assets shown on the balance sheet differ in terms of how they are valued. The problem with this is that ROA for some of the firms might deviate from a more correct value or its comparability to other firms' way of interpreting accounting principles. If this would have been the case, the results of this study might not answer what it intends to do. Thus, this study would lack validity.

Tobin's Q intends to measure the market's consensus views on its value and therefore incorporate estimations on future cash flows and how well management is considered to allocate resources from a shareholder point of view. According to a study by Dybvig and Warachka (2012), underinvestments might increase the measure and production-increasing and cost reducing activities might not lead to an increase in the measure. While these managerial decisions and actions are of interest to the shareholder, it therefore might not be priced in the measure. Another important aspect of Tobin's Q is that it captures psychological aspects from speculating investors. Hence illustrating a more complicated view on financial performance. Rather than measuring performance found on concrete numbers derived from IFRS accounting standards, there are countless factors that will impact the measure. While market psychology and the general appetite for the stock market can change rather quickly,

Tobin's Q can vary widely from one point in time to another. Therefore, a result might vary widely when conducting the exact same study only a few months apart. ROA however, would not likely vary as much due to its dependence on IFRS accounting standards rather than accounting standards and market psychology in combination.

The main reasoning behind measuring the same metrics as many earlier studies was to make the results comparable to earlier studies, but also the fact that these metrics are considered the most relevant for the specific topic. Despite this, it can be regarded as unoriginal to follow the same path as previous studies, and that this would lead to a lack of new contributions to the subject. It can be argued for that previously less studied metrics lead to new insights and new angles of approach to the subject. Rather, our goal is on expanding the data on current research by using a market with better comprehensive ownership data.

3.7.2 Insider Ownership

When we decided to research the topic of insider ownership and its effects on financial performance, we also had to decide upon whom should be included in the group of insiders. We analyzed studies such as Von Liliendorf-Toal and Ruenzi (2014) who look at the relationship between CEO ownership and stock market performance. Their study found abnormal returns using strategies based upon public information among CEOs who owned a significant portion of the firm's outstanding shares. We compared this to the study of Demsetz and Villalonga (2001) who instead looked at ownership of the management as a whole and its relationship to corporate performance. We found that the results would be more robust by looking at the entire management group, rather than just the individual that holds the role of CEO.

Another limitation that was made was to exclude board members from the group of insiders. This is because our study aims to investigate the agency problems between agents and principals as discovered by Jensen & Meckling (1976). Board members often hold their position because of their large ownership of the company's stock, or they might be appointed by someone with a large ownership. Therefore, their interests are most likely aligned with those of outsider shareholders (Demsetz & Villalonga, 2001). Our goal was to focus on managers who willingly invested their personal equity into the firm they manage. For that reason, we have controlled for companies that offer stock compensation to their managers.

3.7.3 Reliability

As the name suggests, the reliability aims to determine whether a study is reliable or not and if the results would be the same if that same study was conducted again or if any random stipulations have an explanatory value.

The reliability of a study is especially relevant when the result relies heavily on quantitative data as is the case in this study and therefore it is of uttermost importance that the chosen variable is stable (Bryman & Bell, 2017). This study relies on objective, quantitative data concerning insider ownership within companies on the Stockholm Stock Exchange and cannot be manipulated by the firm itself nor by any outside party which increases the reliability of the study. If this study was to be conducted again, one might argue that the same results would be achieved due to the difficulties to manipulate the data but what if that second analysis took place several years after the first one. During that time, the ownership structure of a firm may have changed significantly which might lead to new results. This is an important aspect that has to do with the stability of the measurements and may have a negative impact on the reliability of the study (Bryman & Bell, 2017). Moreover, macro-economic factors attributable to a specific time period could interfere with the comparableness of this study to previous as well as future studies. To reduce the impact of such events, the study is based on a year where no extreme macroeconomic factors occurred. Hence, one-time events can be eliminated for the greater sample, but of course one-time extraordinary happenings might have happened to a few firms in our sample. Those firms are not possible to sort out without involving subjective thoughts and preferences which ultimately would hurt the study's reliability in terms of its objectiveness, crucial to an empirical study like this one. Accounting for the choice of using accounting measures to quantify financial performance and controlling variables, the result could have been affected. Though we have used objective data without involving subjective assessments, the accounting measures are subject to rules, regulations and the various methods used by the accountants in various validations. Repetitive studies might see different results when changing time periods due to accounting standards changing. However, there is no other way of measuring performance. In regard to reliability, it is considered positive that our data is collected from external sources because no subjective assessments have been made to collect the data. In addition, we carefully describe how the data is collected, why some data discards

from the sample, what sources are used and how the data is processed which increases the possibility of replicating the study.

3.7.4 Validity

To restore as high validity as possible for the investigation of the relationship and to some extent hedge for using cross-sectional data instead of time-series data, seven controlling variables were added to the regression models. All of which in one way or another is relevant and has an impact on ROA and Tobin's Q as described under *3.4.1 Controlling Variables*. Using reliability and a variety of controlling variables allows our results to be more consistent with our empirical findings on the reality. Financial performance is not only a product of management and CEO's decision making and ability to allocate firm assets, but it has also implications from its size, sector, ability to earn revenue etc. Hence, the controlling variables enable the results from the multiple regression analysis to a greater extent reflect the actual relationship between insider ownership and financial performance. It also reduces the likelihood of drawing conclusions on insufficient data to measure what is intended.

If we take a closer look at the external validity it addresses ideas concerning the selection process, what we define and where we draw the line of what is insider ownership.

We have decided to review all firms listed on the Stockholm Stock Exchange. If another study determines to analyze the same problem but with new requirements, different results are a possibility. This means that the results achieved in this study cannot be generalized and used in future research on the topic. This would according to Bryman and Bell (2017) have a negative impact on the external validity. As discussed previously, since cross-sectional data is used, the results cannot be generalized across a longer time period.

3.7.5 Endogeneity

A combination of the complexity of firms and limited information available to researchers leads to concerns of endogeneity in the models. Endogeneity is a common issue for empirical studies related to corporate finance. As this study is conducted through empirical investigation, we need to address and approach results with caution of the potential endogeneity issues. These endogenous errors are commonly referred to as a selection bias in cross-sectional models (Wang & Cheng, 2020). As we use cross-sectional data, we process insider ownership as the total holdings per a point in time and do not account for insider

trading, i.e., when equity investments were made by the insider. The problematization behind this approach derives from possible endogeneity issues that are not accounted for. Though a positive relationship is to be found between a dependent variable (financial performance in this study) and the independent variable (insider ownership in this study), endogeneity implies that the reverse relationship could de facto explain the originally studied relationship. In other words, the independent variable (insider ownership in this study) is dependent on the dependent variable used (financial performance in this study). In this case of not supporting the data with insider trading, a possibility is that firms with greater financial performance attract more equity investments from insiders than firms with lower financial performance. Hence, meaning that the relationship is reversed (endogeneity). Another potential source of endogeneity is derived from exclusion of important controlling variables. In our attempt to hedge against this potential error, we applied seven controlling variables.

A method for eliminating endogeneity is a Two-Stage least squares (2SLS) regression analysis, which is an extension of the OLS model used in this study. Demsetz and Villalonga (2001) for example use the 2SLS model and find that their regression cannot prove that any endogeneity is not present. Because we do not test for endogeneity, results should be approached with caution.

4. Results

In this chapter, the results of the study will be presented. The chapter first presents the results from the regression diagnostics testing for the two OLS models. Moreover, this section describes whether any changes have been included to the final OLS equation in the light of the diagnostics. The chapter ends with a presentation of the final regression models for ROA and Tobin's Q respectively

4.1 Descriptive Statistics

Descriptive statistics of dependent -and quantifiable controlling variables prior to adjustments of outliers can be observed in table 1. Dependent variables assume ROA and Tobin's Q whereas controlling variables assume BETA, Debt to equity ratio, Market Capitalization and PP&E to total Assets, which are all controlling variables that are quantifiable.

Table 1: Descriptive Statistics - Pre adjustments

	BETA_W5	DEBT_EQUITY	MAR_CAP	PPE_TO_T_ASSET	ROA_W5	TOBINS_Q
Mean	0.579004	1.211413	3.06E+10	0.178040	0.017399	3.606257
Median	0.650351	0.581356	4.46E+12	0.060867	0.047952	1.109298
Max	2.362095	94.99368	1.23E+12	0.993731	1.022478	199.1696
Min	-2.484865	0.000000	5912912	0.000000	-1.259535	0.030034
Std. Dev.	0.566467	5.479974	9.26E+10	0.260809	0.197274	13.79542
Jarque-Bera	435.2072	981454.6	114101.1	238.0906	2074.521	314642.4
Observations	324	314	325	325	323	325

The table shows that the data for all variables contains outliers. This is observed from high Jarque-Bera values as well as maximum and minimum values deviating widely from each variable's mean and median values. For example, the data on Tobin's Q shows a median value of 1.10 where at the same time showing a maximum value of 199 and minimum value of 0.03.

The variables included have varying impacts on the results based on their nature; Market size is a continuous variable that can assume any value from zero to infinity. BETA is a risk measure for volatility in relation to its benchmark index (Stockholm Stock Exchange in this study) and can assume any continuous value. Debt to Equity, PP&E to Total Assets, ROA and Tobin's Q are all ratios where its value is extremely affected by outliers due to the

changing effect an extreme value has on the numerator or denominator. An extreme value can direct results towards a biased output, which is not desirable for reliable results.

To improve standard distribution in the data sample, market cap was logarithmized whereas all other variables were winsorized on the five percent level. All values post these adjustments became significantly lower, as seen below in table 2:

Table 2 - Descriptive Statistics - Post adjustments

	BETA_W5	DEBT_E QUITY	MAR_C AP	PPE_TOT_ ASSETS	ROA_W5	TOBINS _Q
Mean	0.595344	0.781370	22.30733	0.176014	0.020166	2.383610
Median	0.650351	0.581356	22.21837	0.060867	0.047952	1.109298
Max	1.328216	2.965204	27.84084	0.875474	0.194178	10.57324
Min	-0.255545	0.000000	17.90170	0.000286	-0.421534	0.230789
Std. Dev.	0.420629	0.781512	1.949300	0.255036	0.139159	2.832703
Jarque-Bera	10.26403	116.3972	5.307824	217.7876	425.2711	239.6211
Observations	324	314	325	325	323	325

4.2 Regression Diagnostics

1. Test for Normality

For both regressions, an EViews test for normality strengthened what the descriptive statistics indicated. Table 4 shows that post normal distribution adjustments the Jarque-Bera score was lowered from 1543 (Table 3) down to 50 for the regression model with ROA as dependent variable.

Table 3 - Jarque-Bera test (ROA) - Pre adjustments

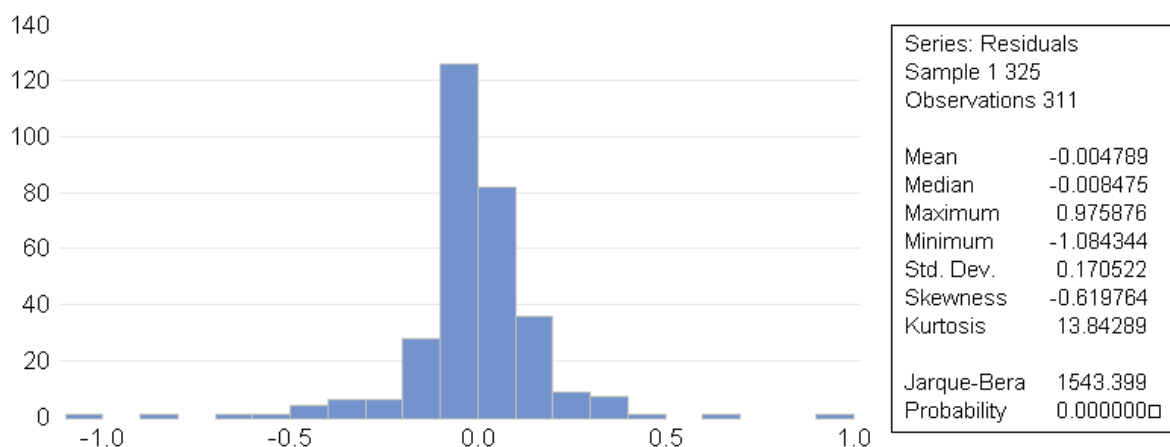
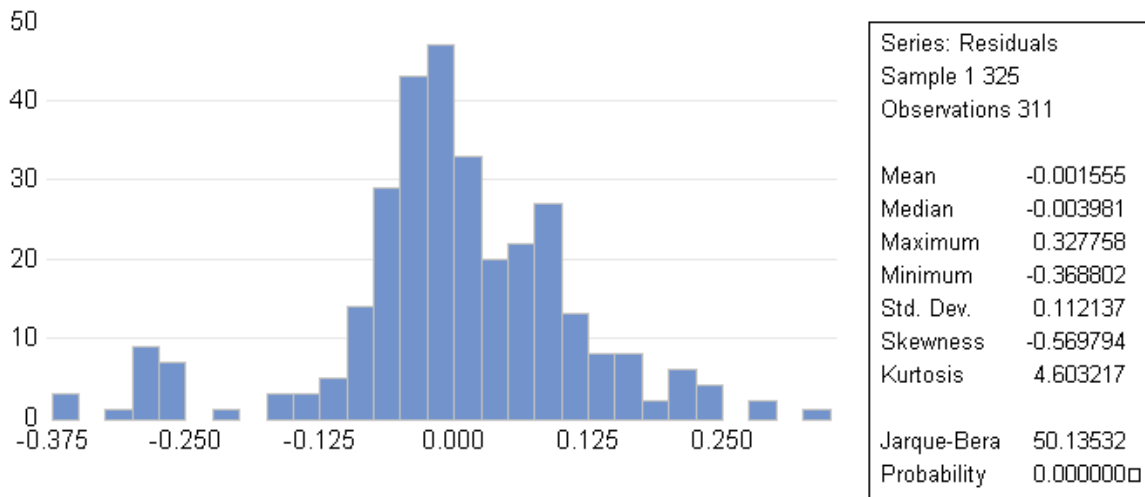


Table 4 - Jarque-Bera (ROA) - Post Adjustments



For the second regression model with Tobin's Q as dependent variable, the Jarque-Bera score was lowered from 235201 (see table 5 below) down to 230 (see table 6 below).

Table 5 - Jarque-Bera test (Tobin's Q) - Pre adjustment

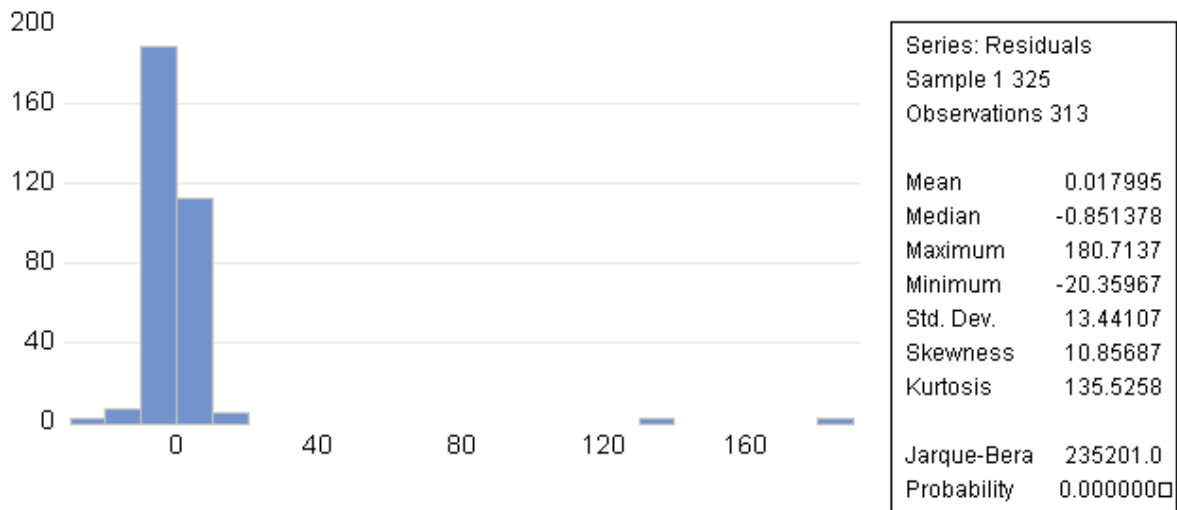
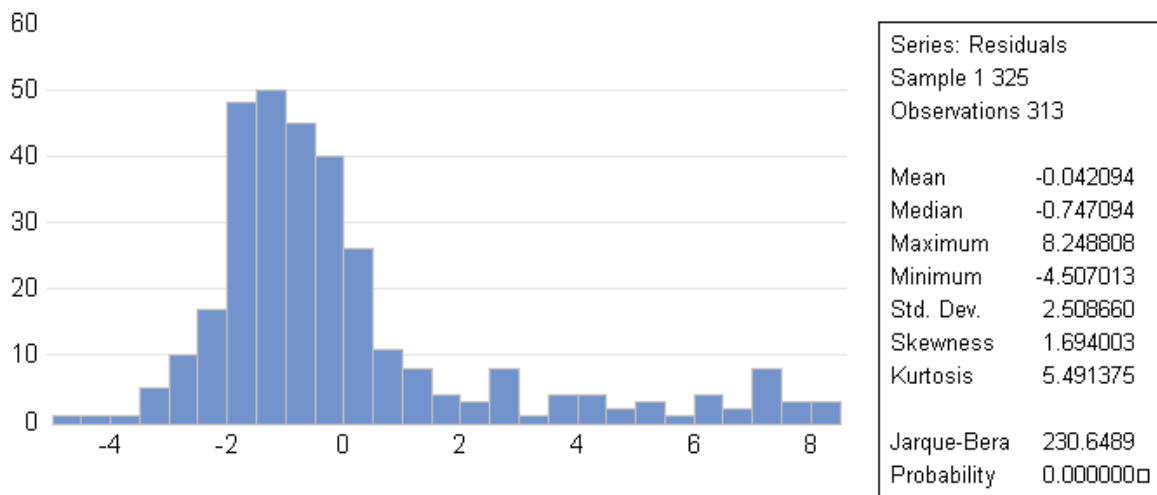


Table 6 - Jarque-Bera test (Tobin's Q) - Post adjustment



Conclusively, normal distribution was improved for both regression models. However, as we can see in tables 4 and 6 (Jarque-Bera post adjustments), the p-values are below 0.05 level, which means that residuals in both models are not standard-distributed, even though the distribution was significantly improved. This means that the null hypothesis should be rejected. This could interfere with the results from the regression. However, if sample size is greater than 200, normality of distribution is not as important (Statistics Solutions, 2013). This study includes 311 and 313 for ROA and Tobin's Q OLS regression models respectively, which minimizes the issue of the rejected normality null hypothesis for the models.

2. Test for Heteroskedasticity

The results from the white tests for heteroskedasticity are presented in Table 7 and 8 below:

Table 7 - White's test (ROA)

Heteroskedasticity Test White			
Null hypothesis: Homoscedasticity			
F-statistic	3.977829	Prob. F(96,216)	0.0000
Obs*R-squared	199.3082	Prob. Chi-Square(96)	0.0000
Scaled explained SS	323.6562	Prob. Chi-Square(96)	0.0000

Table 8 - White's test (Tobin's Q)

Heteroskedasticity Test White			
Null hypothesis: Homoscedasticity			
F-statistic	1.625901	Prob. F(96,216)	0.0019
Obs*R-squared	131.3003	Prob. Chi-Square(96)	0.0098
Scaled explained SS	256.9347	Prob. Chi-Square(96)	0.0000

In table 7 and 8, we see that the Whites' test for heteroskedasticity, a p-value below 0.05 is observed for both regression models. This means that the residuals in both regression models are heteroskedastic. In order to estimate more reliable standard errors given heteroskedasticity, we use robust standard errors (Huber-White) as described in section 3.5.1 "Test for Heteroskedasticity".

3. Test for Multicollinearity

The VIF tests for both regression models are presented in table 9 and 10 below:

Variance Inflation Factors		
Date: 12/19/20 Time: 15:05		
Sample: 1 325		
Included observations: 311		
Variable	Coefficient Variance	Uncentered VIF
TOTALA_KAPITAL_A...	0.007151	1.275614
BETA_W5	0.000294	3.725530
DEBT_EQUITY_RATI...	8.10E-05	2.336558
MARKET_CAP_LOG	1.65E-06	19.46177
PP_E_TOTAL_ASSE...	0.001669	3.858366
DIV__Y_N="Yes"	0.000254	3.979522
STOCK_B__COMP_...	0.000617	1.349624
BRANSCH="Commu...	0.001662	1.378522
BRANSCH="Consum...	0.000757	2.339110
BRANSCH="Consum...	0.002422	1.278188
BRANSCH="Energy"	0.004058	1.530124
BRANSCH="Health C...	0.000698	3.054691
BRANSCH="Industrials"	0.000612	3.552036
BRANSCH="Informati...	0.000747	2.084613
BRANSCH="Materials"	0.001509	1.933883
BRANSCH="Real Est...	0.001677	3.414237
BRANSCH="Utilities"	0.005084	1.149981

Table 9 - VIF (ROA)

Variance Inflation Factors		
Date: 12/19/20 Time: 15:08		
Sample: 1 325		
Included observations: 313		
Variable	Coefficient Variance	Uncentered VIF
TOTALA_KAPITAL_A...	3.571498	1.273348
BETA_W5	0.144475	3.660211
DEBT_EQUITY_RATI...	0.040402	2.331252
MARKET_CAP_LOG	0.000814	19.30551
PP_E_TOTAL_ASSE...	0.833177	3.848662
DIV__Y_N="Yes"	0.125496	3.933922
STOCK_B__COMP_...	0.299369	1.353502
BRANSCH="Commu...	0.831190	1.377919
BRANSCH="Consum...	0.374356	2.369547
BRANSCH="Consum...	1.211467	1.278029
BRANSCH="Energy"	2.027735	1.527960
BRANSCH="Health C...	0.348256	3.096579
BRANSCH="Industrials"	0.306090	3.551983
BRANSCH="Informati...	0.373675	2.083661
BRANSCH="Materials"	0.754687	1.933510
BRANSCH="Real Est...	0.838265	3.410957
BRANSCH="Utilities"	2.542992	1.149733

Table 10 - VIF (Tobin's Q)

As the limiting value for the test is five, it is observed that most observations have acceptable levels of multicollinearity for both regressions (See Appendix 7 and 8 for ROA and Tobin's Q respectively). Market Capitalization is the only distinguishing variable that is above five. Overall, both tests indicate an acceptable level of multicollinearity.

4. Test for Non-Linearity

The EViews Ramsey RESET test for both regression models are presented in table 11 and 12 below:

Table 11 - Ramsey RESET Test (ROA)

Ramsey RESET Test Equation: EQ01 Omitted Variables: Squares of fitted values Specification: ROA_W5			
	Value	df	Probability
t-statistic	7.807588	293	0.0000
F-statistic	60.95843	(1, 293)	0.0000
Likelihood ratio	58.78113	1	0.0000

Table 12 - Ramsey RESET Test (Tobin's Q)

Ramsey RESET Test Equation: EQ01 Omitted Variables: Squares of fitted values Specification: TOBINS_Q_W5			
	Value	df	Probability
t-statistic	2.012483	295	0.0451
F-statistic	4.050086	(1, 295)	0.0451
Likelihood ratio	4.267979	1	0.0388

One common method to address non-linearity is to add quadratic terms to one or several of the existing explanatory variables. However, as doing that resulted in significant changes in the overall models as values are below 0.05 for both models (table 11 and 12), we keep the linear OLS specification, but interpret the outcome with caution.

4.3 Final EViews Regression Output

4.3.1 Final OLS regression (ROA)

Dependent Variable: ROA_W5

Method: Least Squares

Date: 12/19/20 Time: 15:04

Sample: 1 325

Included observations: 311

Huber-White-Hinkley (HC1) heteroskedasticity consistent standard errors and covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TOTALA_KAPITAL_ANNAN_BEFATTNING...	0.157800	0.070944	2.224274	0.0269
BETA_W5	0.024748	0.021772	1.136687	0.2566
DEBT_EQUITY_RATIO_W5	-0.004355	0.007738	-0.562846	0.5740
MARKET_CAP_LOG	-0.001908	0.001375	-1.388095	0.1662
PP_E_TOTAL_ASSETS_W5	0.007463	0.028075	0.265802	0.7906
DIV__Y_N="Yes"	0.111463	0.018055	6.173575	0.0000
STOCK_B_COMP__Y_N="Yes"	0.021099	0.033257	0.634424	0.5263
BRANSCH="Communication Services"	-0.004428	0.033936	-0.130477	0.8963
BRANSCH="Consumer Discretionary"	-0.027957	0.026002	-1.075200	0.2832
BRANSCH="Consumer Staples"	-0.022943	0.023254	-0.986640	0.3246
BRANSCH="Energy"	0.023381	0.041206	0.567412	0.5709
BRANSCH="Health Care"	-0.114612	0.030526	-3.754524	0.0002
BRANSCH="Industrials"	-0.002955	0.018469	-0.159981	0.8730
BRANSCH="Information Technology"	-0.006676	0.024467	-0.272865	0.7851
BRANSCH="Materials"	-0.018043	0.026794	-0.673408	0.5012
BRANSCH="Real Estate"	-0.003465	0.029429	-0.117751	0.9063
BRANSCH="Utilities"	-0.092289	0.039489	-2.337079	0.0201
R-squared	0.327572	Mean dependent var		0.021462
Adjusted R-squared	0.290977	S.D. dependent var		0.136763
S.E. of regression	0.115159	Akaike info criterion		-1.431892
Sum squared resid	3.898919	Schwarz criterion		-1.227466
Log likelihood	239.6592	Hannan-Quinn criter.		-1.350180
Durbin-Watson stat	2.017381			

4.3.2 Final OLS regression (Tobin's Q)

Dependent Variable: TOBINS_Q_W5

Method: Least Squares

Date: 12/19/20 Time: 15:08

Sample: 1 325

Included observations: 313

Huber-White-Hinkley (HC1) heteroskedasticity consistent standard errors and covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TOTALA_KAPITAL_ANNAN_BEFAETNING...	3.246587	2.315175	1.402307	0.1619
BETA_W5	-0.027138	0.397640	-0.068246	0.9456
DEBT_EQUITY_RATIO_W5	-0.752269	0.202501	-3.714886	0.0002
MARKET_CAP_LOG	0.111556	0.029029	3.842879	0.0001
PP_E_TOTAL_ASSETS_W5	0.008529	0.815597	0.010458	0.9917
DIV__Y_N="Yes"	-0.296438	0.386056	-0.767865	0.4432
STOCK_B__COMP__Y_N="Yes"	0.872953	0.797332	1.094842	0.2745
BRANSCH="Communication Services"	-0.065179	0.667594	-0.097633	0.9223
BRANSCH="Consumer Discretionary"	0.854543	0.653610	1.307420	0.1921
BRANSCH="Consumer Staples"	-0.258424	0.563902	-0.458277	0.6471
BRANSCH="Energy"	3.465513	1.936849	1.789252	0.0746
BRANSCH="Health Care"	1.655184	0.627544	2.637559	0.0088
BRANSCH="Industrials"	0.202810	0.480587	0.422005	0.6733
BRANSCH="Information Technology"	0.538403	0.543095	0.991361	0.3223
BRANSCH="Materials"	0.215024	0.838119	0.256555	0.7977
BRANSCH="Real Estate"	-0.738018	0.904863	-0.815613	0.4154
BRANSCH="Utilities"	-0.486451	0.708363	-0.686726	0.4928
R-squared	0.205393	Mean dependent var		2.371670
Adjusted R-squared	0.162441	S.D. dependent var		2.814666
S.E. of regression	2.575933	Akaike info criterion		4.783083
Sum squared resid	1964.087	Schwarz criterion		4.986551
Log likelihood	-731.5525	Hannan-Quinn criter.		4.864394
Durbin-Watson stat	1.983271			

5. Analysis

The analysis section is centered around the results of the study. Furthermore, the results will be compared to the theoretical framework that has been presented, as well a comparison between our results and previous findings.

5.1 ROA - Return on Assets

Dependent Variable	Variable	Coefficient	P-Value	t-Statistic
ROA	Insider Ownership	0.157800	0.0269	2.22474

The final OLS-regression shows a positive coefficient for insider ownership of 0.157800. This implies that when insider ownership increases by one unit, ROA increases with 0.157800 units. This seems to align with what the theory of Jensen and Meckling (1976) and empirical findings of Ang et al. (2002) would have predicted. Ang et al. (2002) argued that agency costs are higher for firms with no or low insider ownership. The reasoning behind this is that these agency-costs would arguably affect a firm's financial result negatively. Hence lowering the numerator for ROA, ultimately resulting in a lower ROA. As the coefficient for insider ownership is positive, it seems to align with the notion that agency-costs are reduced with insider ownership, which would seem to enable a better financial performance - ROA. Furthermore, as the coefficient for insider ownership is positive, our findings are consistent with evidence suggested by Jensen and Meckling (1976) combined with Entrenchment and Intrenchment theory. Earlier in the problem discussion, the relevance on decision making and agency-conflicts was discussed. Good decision making was likely to be a product of when the interests between managers and outside shareholders were aligned - or tolerably aligned. Bad decision making however is consistent with entrenchment effects, suggesting that managers allocate corporate resources to benefit themselves rather than shareholders. Because our findings indicate that insider ownership likely is an incentive effect it aligns with what Jensen and Meckling (1976) would have predicted. Therefore, a reasonably fair assessment from the regression would illuminate that as the effects from Entrenchment diminish due to inside ownership (increased incentives), bad decision making is replaced by good decision making.

Hence, suggesting that corporate resources (assets) -to some extent- are allocated more effectively as insider ownership increases.

As for the validity of the regression results, the relationship is statistically significant at 2.69% which arguably further strengthens our alignment with theory and previous evidence presented. The result seems to be aligned with previous research presented by Demsetz and Villalonga (2001) and Afza and U-Din (2008). It should be noted however that some caution should be given to comparing this study with previous research. Though Demsetz and Villalonga (2001) measured insider ownership as fraction of capital to total capital, they included ownership among board members in the insider ownership determinant. Furthermore, they investigated another geographical sample as well as other controlling variables -though closely similar to our study. For this reason, the results are not directly comparable to our study, even though one of the same measurements of financial performance was used.

By excluding managers that have been compensated with equity in the firm to those who invested themselves, the results are more likely to support the signaling theory and information asymmetry problems. It can be argued that when insiders are compensated with firm equity, it does not indicate as strong impacting signals on a firm's future financial performance as would have been the case if it was bought privately. Neither necessarily supporting the incentive effect for the insider to align interests. Since this is of great importance, management compensation in the form of company stock has been controlled for in 3.4.1.6.

5.2 Tobin's Q

Dependent Variable	Variable	Coefficient	P-Value	t-Statistic
Tobin's Q	Insider Ownership	3.246587	0.1619	1.402307

The coefficient for insider ownership to Tobin's Q is positive at 3.246587, supporting what would have been predicted by Jensen and Meckling (1976) and Ang et al. (2002), with the equivalent reasoning as for the regression on ROA. Furthermore, as Tobin's Q seems to increase as insider ownership increases, entrenchment effects seem to diminish as incentives increase. However, as the result cannot display the relationship with statistical significance, the relationship is not necessarily consistent with theory. It should be noted that Tobin's Q is

dependent on the consensus market view on a firm's future financial performance. As this can partly be attributable to how well management is considered to allocate corporate resources, it is somewhat contradicting that a significant relationship is not to be found. As insider ownership increases, incentive effects should increase which evidently would closer align incentives as suggested by Jensen and Meckling (1976) and Ang et al. (2002). Therefore, contradicting the whole strategy that was brought up in the problem discussion. Based on this strategy, the positive coefficient was to be predicted, however as not proven statistically significant, somewhat contradicting signaling theory. As the theory is derived from the notion that insider ownership and incentive effects are positively correlated (meaning that ownership is an incentive effect), the insignificance seems to suggest that the consensus market estimates are not consistent with Jensen and Meckling (1976) nor Ang et al. (2002) and thus what the whole strategy revolves around.

Though a statistically significant relationship is not presented and somewhat delusive with regard to theory and strategy adopted by outside shareholders, the result is despite this not entirely surprising when compared to previous research. Cheung and Wei (2006) is the most comprehensive study made on the relationship. While including 1430 US firms in their regression, a positive coefficient was found for insider ownership (though with board member holdings included) but could not be statistically significant. Therefore, aligning with what we find.

There are some key differences that should be considered when comparing our results to those of Cheung and Wei (2006). They did run a test model without accounting for adjustment costs, which are costs that arise when changes in a business are being made. They found a significant relationship between insider ownership and financial performance. It was only when these ownership adjustment costs were included as controlling variables that the relationship could no longer be proven significant. Our tests included controlling variables from the start and were never performed without these being accounted for. Some of the controlling variables that we included coincided with those used by Cheung and Wei, such as Financial leverage and Stock price volatility, whereas others were of different character, e.g., Sunk costs and Resource intangibility. This also held true in the research of Agrawal and Knoeber (1996) who performed cross-sectional OLS regressions and found that including only a single mechanism of firm performance could cause the results to be misleading. When they accounted for all of the

mechanisms into a single OLS regression, the results were no longer significant enough to prove an effect of insider ownership related to firm performance.

5.3 Analysis of Reliability and Validity

Under 3.7 Method Discussion, critical aspects were discussed for the choice of defining Financial Performance (3.7.1), Insider Ownership (3.7.2), Validity (3.7.3) and Reliability (3.7.4) and possible endogeneity 3.7.5 *Endogeneity* of the study. Below we will analyze the results to see whether any new insights towards the research design have emerged.

The empirical foundation from which insider ownership is defined is considered to be sufficient for our studies application of the measurement as our results cannot prove any necessary changes. This measurement has been widely used in empirical research and most recent research suggests that this way is the most suitable for the aim of this study - as far as has been presented.

As mentioned under 3.7.1 Financial Performance, Tobin's Q is, in opposition to the ROA, subject for change due to market psychology. We have emphasized several reasons as to why Tobin's Q is a valid measure for financial performance and stand by them. After results were established and an analysis was conducted there are reasons to direct criticism towards the method used for investigating the relationship between insider ownership to financial performance measured as Tobin's Q. As our study used cross-sectional data from one fiscal year, market psychology might have had an impact on the significance of our results. As psychology and general appetite towards the stock market can change rapidly, insider ownership might not be the most important factor at this point in time. Meaning that though our results cannot prove significance towards the signaling theory, with Jensen and Meckling (1976) and Ang et al. (2002), market psychology might have been interfered by other factors such as had disrupting effects on the relationship between insider ownership and Tobin's Q. A study conducted in another point in time might have yielded a completely different result. As the measure is subject to rapid changes due to market psychology, Time-series data would possibly be preferred over cross-sectional data. Time-series data would in opposite to cross-sectional data have included the variations in market psychology aspects over time and thus minimized the effects of one-time psychological states. While we wanted to keep the results comparable, Tobin's Q might actually be affected by other variables. In reality one might

need two different sets of controlling variables to capture other variables (as mentioned above) that might lead to results that better reflect the relationship between insider ownership and Tobin's Q. For ROA, we find no implications of as high a variance on time-series data and conclude that no further analysis could be conducted for its relevance to the aim of this study.

The controlling variables were selected from criteria that were structured around the tests conducted in this study. This was done in order to increase the reliability of the study, by reducing the risk of false positives and false negatives in the test results. By performing a project post-mortem and comparing our study to other studies, we can conclude that there are different measures of controlling for variables that would have added further depth to the reliability and validity of the study. One example of this is the study of Cheung and Wei (2006), which had an interesting perspective on controlling variables. They extended their control for variables linked to specific corporate restrictions. In some cases, executive management are prohibited from trading the company's stock at a certain time both before and after the disclosing of information. Usually this is governed by corporate law, but it can be even more extensive than the legal framework. Cheung and Wei (2006) included variables for the internal restrictions of the company. This is an interesting aspect to consider since it might affect managements' decision to invest or not. In the case of our study, controlling for this variable would increase the validity, but unfortunately such information was not available on neither Holdings nor Bloomberg. Instead of trying to find this elsewhere, we chose to allocate the time and effort to other parts of the research and writing process.

6. Final Discussion

The final chapter of this study presents the conclusions drawn upon the results of the study by answering the research question as well as the hypotheses. In addition to this the authors will discuss and reflect upon the study as a whole. Finally, suggestions for further research on the subject will be presented.

6.1 Conclusion

The research question of the study was formulated as follows:

- *Does insider equity ownership have a positive relationship with a firm's financial performance?*

In order to capture financial performance from different perspectives while also capturing different ways to interpret theories used, two hypotheses were formulated:

H1: A higher fraction of total capital owned by a CEO and other managers is positively related to a higher ROA.

H2: A higher fraction of total capital owned by a CEO and other managers is positively related to a higher Tobin's Q.

The study finds a statistically significant relationship between equity ownership among CEO and other decision-making management to ROA. It is important to note that though significance was found, results are sensitive to the addition or elimination of other elements such as controlling variables and choice of time frame. We therefore accept the H1 Hypothesis.

The study finds no statistically significant relationship between equity ownership among CEO and other decision-making management to Tobin's Q. We therefore reject the H2 Hypothesis.

6.2 Discussion

In the problem discussion, a common strategy among investors was highlighted that served to direct focus on corporate governance issues attributable to the separation of ownership and control. These issues were said to diminish as ownership and control harmonized, where one incentive effect was through ownership among the agents (managers). Our aim was to bridge the gap between this practice with empirical evidence. In addition to the potential research contribution, we aimed to expand existing data on the relationship while differentiating with support from comprehensive and accurate ownership data, that has somewhat been missing in previous research.

This study has in many ways contributed with support to how insider ownership affects financial performance. First of all, while most research has included markets with limitations in ownership data, our data sample rests upon far more detailed, comprehensive and non-limiting ownership data. Therefore, our study is to a greater extent a better reflection of reality on the geographical sample used than most prior research. However, not generalizable to other markets than the Swedish stock market for small, -mid -and large cap stocks. Moreover, as our study is based on cross-sectional data for 2019, it contributes with empirical evidence that is missing for present times.

Another reflection that we wish to highlight is that the timeframe of cross-sectional data has a great impact on the final results, for Tobin's Q in particular. Though ROA is subject to new accounting standards and principles, we accept that the measurement overall is consistent with the asset allocation aspect. While Tobin's Q however, to an extent is also determined by the market's views on management's ability to allocate firm resources. We note that Tobin's Q to some extent is determined by market psychology. Though this study has focused on Tobin's Q with regard to its reflection in asset allocation and to some degree its relevance for the strategy through signaling theory and Entrenchment and Entrenchment effects, we did not aim to incorporate all psychological aspects of the measure.

Because the results did not find a significant relationship, we want to highlight the fact that Tobin's Q is highly sensitive to market psychology and could therefore indicate that our choice of using cross-sectional data for this measure leads to biased results. A study on time-series data would perhaps capture and smoothen one time market psychology effects and therefore capture a more realistic picture of the relationship between insider ownership and Tobin's Q.

In addition to the potential research contribution, emphasis has also been placed on practical implications. Our results indicate that most theories behind the investment strategy can be justified. As the coefficient for insider ownership is positive for both regressions, insider ownership seems to create incentives for management to allocate resources closer with shareholders' interests. Moreover, as this coefficient can be statistically signified for ROA, the results show that a strategy that has been adopted by many investors might incur greater financial performance. That there is no significance for Tobin's Q is however somewhat contradicting the theory. From an investor point of view, the significant relationship to ROA seems to imply that the relationship when viewing historical numbers is true whereas theories do not comply with the forward-looking measure Tobin's Q.

6.3 Suggestions for further research

The possibility that cross-sectional data might not be most suitable for explaining the relationship between insider ownership and Tobin's Q, contributes to one suggestion that we think would improve findings on the relationship. Therefore, a comparable study with an equivalent research design but time-series data would be interesting for further investigation.

As mentioned in section 3.7.5 *Causality and Correlation* of our paper, a reflection could imply that a positive relationship between insider ownership and financial performance could stem from a reverse relationship. Meaning that when ROA for example is high it increases incentives for managers and attracts more equity investments from the firm's management. A reverse relationship would therefore be interesting to investigate where insider ownership is dependent and ROA independent.

Although ROA and Tobin's Q were chosen as the measures for financial performance, several others were considered. One of those was Return on Invested Capital (ROIC). The

metric works to assess how efficiently the firm manages to allocate its available capital onto profitable investments. This could be deemed a good indicator of firm performance and therefore suitable for this study. The denominator in ROA and ROIC differ since the first uses all assets meaning both equity and liabilities while the latter limits itself to only equity and debt. This difference is not apparent, but it is of significant nature. Since ROIC only puts emphasis on the interest-bearing aspects of firm liabilities it offers another approach to how the firm is performing. Furthermore, we think that research on ROIC or another financial performance measure would be able to further the research with new approaches.

Lastly, we also think that a study on smaller firms on the Swedish market would be of interest. While small, -mid -and large cap listed firms are subject to greater surveillance of governance and rules, smaller firms are to a lesser extent monitored and need not follow as strict rules and regulations. If the same study was to be conducted on the Nordic Growth Market (NGM), the results would most likely be different. Unlike firms listed on the Stockholm Stock Exchange, which has a limit of 25%, only 10% of the outstanding shares of firms on the NGM must be available to the public. This could imply that managers to a lesser extent work in the interest of shareholders since they constitute such a small group. Furthermore, we believe that this might make it easier for management in smaller firms to circumvent pressure from shareholders and other regulatory authorities. It should therefore be interesting to investigate the relationship between insider ownership and financial performance for firms listed on less regulated marketplaces to see if the same relationship prevails.

7. References

Adizes, I. (1989). *Corporate Lifecycles: How and Why Corporations Grow and Die and What to Do About It*. Englewood Cliffs, NJ: Prentice Hall. [Accessed 4 December 2020]

Afza, T. & U-Din, S. (2008). Insider Ownership And Corporate Performance: Evidence From An Emerging Economy. Available online:

<https://www.researchgate.net/publication/238560286> [Accessed 10 December 2020]

Agrawal, A., & Knoeber, C. (1996). Firm Performance and Mechanisms to Control Agency Problems between Managers and Shareholders. *The Journal of Financial and Quantitative Analysis*, vol. 31, no. 3, pp. 377-397

Available online: <https://www.jstor.org/stable/2331397> [Accessed 1 December 2020]

Akerlof, G.A. (1970). The Market for "Lemons": Quality Uncertainty and the Market Mechanism. *The Quarterly Journal of Economics*, vol. 84, no. 3, pp. 488-500

Available online: <https://doi.org/10.2307/1879431> [Accessed 3 December 2020]

Anderson, R. C. & Reeb, D. M. (2001). Founding-Family Ownership and Firm Performance: Evidence from the S&P 500. *The Journal of Finance*, vol. 58, no. 3, pp. 1301-1328

Available online: <https://doi.org/10.1111/1540-6261.00567> [Accessed 14 December 2020]

Ang, J., Rebel, C. & Wuh, J. (2000). Agency Costs and Ownership Structure. *The Journal of Finance*, vol. 55, no. 1, pp. 81-106

Available online: <https://doi.org/10.1111/0022-1082.00201> [Accessed 17 December 2020]

Bearle, A. & Means, G. (1932). *The Modern Corporation & Private Property*. Transactional Publishers, New Brunswick, New Jersey

Bennedsen, M. & Nielsen, K. (2010). Incentive and entrenchment effects in European ownership. *Journal of Banking & Finance*, vol. 34, no. 9, pp. 2212-2229.

Available online: <https://doi.org/10.1016/j.jbankfin.2010.02.007>

[Accessed 3 December 2020]

Berk, J. & DeMarzo, P. (2017). *Corporate Finance*. (Fourth edition). Pearson.

Bloomberg. (2020). The Terminal, Bloomberg Professional Services. Available online:

<https://www.bloomberg.com/professional/solution/bloomberg-terminal/>

[Accessed 15 November 2020]

Boatright, J. (2013). *Ethics in Finance*. Wiley.

Available online: [https://ebookcentral.proquest.com/lib/hecm-](https://ebookcentral.proquest.com/lib/hecm-ebooks/reader.action?docID=1582381&query=boatright)

[ebooks/reader.action?docID=1582381&query=boatright](https://ebookcentral.proquest.com/lib/hecm-ebooks/reader.action?docID=1582381&query=boatright) [Accessed 17 December 2020]

Bryman, A. & Bell, E. (2017). *Företagsekonomiska forskningsmetoder*. (Third edition)

Stockholm: Liber

Celona, P. & McNamee, P. (2005). *Decision Analysis for the Professional*. (Fourth edition).

Smartorg Inc.

Cheung W.K. & K.C. Wei (2006). "Insider Ownership and Corporate Performance: Evidence from the Adjustment Cost Approach" *Journal of Corporate Finance*, vol. 12, no. 5, pp. 906–925

Available online: <https://www.jstor.org/stable/3094542> [Accessed 5 December 2020]

Claessens, S., Djankov, S., Fan, J. P. H. & Lang., L. H. P. (2002). Disentangling the Incentive and Entrenchment Effects of Large Shareholdings. *Journal of Finance*, vol. 57, no. 6, pp.

2741-2771 [Accessed 27 November 2020]

Connelly, B.L., Certo, T., Ireland, R.D. & Reutzel, C.R. (2011). Signaling Theory: A Review and Assessment. *Journal of Management Studies*, vol. 37, no. 1, pp. 39-67

Available online: <https://doi.org/10.1177/0149206310388419> [Accessed 12 December 2020]

Core, J.E., Guay, W.R. & Rusticus, T.O. (2006). Does weak governance cause weak stock returns? An examination of firm operating performance and investor's expectations. *Journal of Finance*, vol. 61, no. 2, pp. 655-687

Available online: <https://doi.org/10.1111/j.1540-6261.2006.00851.x> [Accessed 14 December 2020]

Demsetz, H. & Lehn, K. (1985). The Structure of Corporate Ownership: Causes and Consequences. *Journal of Political Economy*, vol. 93, no. 6, pp. 1155-1177

Available online: <https://www.jstor.org/stable/1833178> [Accessed 17 December 2020]

Demsetz, H. & Villalonga, B. (2001). Ownership structure and corporate performance. *Journal of Corporate Finance*, vol. 7, no. 3, pp. 209-233

Available online: [https://doi.org/10.1016/S0929-1199\(01\)00020-7](https://doi.org/10.1016/S0929-1199(01)00020-7)

[Accessed 3 December 2020]

Doffou, A. (2003). Insider Trading: A Review of Theory and Empirical Work. *Journal of Accounting and Finance Research*, vol. 11, no. 1.

Available online: <https://ssrn.com/abstract=1028898> [Accessed 12 December 2020]

Dybvig, P. H. & Warachka, M. (2012). Tobin's Q Does Not Measure Firm Performance: Theory, Empirics, and Alternative Measures. *Singapore Management University*.

[Accessed 9 December 2020]

Faccio, M., Land, L. & Young, L. (2002). Dividends and Expropriation. *The American Economic Review*, vol. 91, no. 1, pp. 54-78.

Available online: <https://www.jstor.org/stable/2677898> [Accessed 17 December 2020]

Franks, J. & Mayer, C. (2001). Ownership and Control of German Corporations. *The Review of Financial Studies*, vol. 14, no. 4, pp. 943-977

Available online: <https://doi.org/10.1093/rfs/14.4.943> [Accessed 13 December 2020]

Frye, M. B. (2004). Equity-Based Compensation for Employees: Firm Performance and Determinants. *The Journal of Financial Research*, vol. 27, no. 1, pp. 31-54

Available online: <https://doi.org/10.1111/j.1475-6803.2004.00076.x>

[Accessed 16 December 2020]

Garnsey, E. (1998). A Theory of the Early Growth of the Firm. *Industrial and Corporate Change*, vol. 7, no. 3, pp. 523-556

Available online: <https://doi.org/10.1093/icc/7.3.523> [Accessed 26 December 2020]

Gordon, M. J. (1962). *The investment, financing, and valuation of the corporation*. (First edition). R.D. Irwin

Jensen M. & W. Meckling. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, vol. 3, no. 4, pp. 305-360.

Mavruk, T., Overland, C. & Sjögren, S. (2019). Keeping It Real Or Keeping It Simple? Ownership Concentration Measures Compared. *European Financial Management*, vol. 26, no. 4, pp. 958-1005

Available online: <https://doi.org/10.1111/eufm.12249> [Accessed 12 December 2020]

Miller, M. & Modigliani, F. (1961). Dividend Policy, Growth, and the Valuation of Shares. *The Journal of Business*, vol. 34, no. 4, pp. 411-433

Available online: <https://www.jstor.org/stable/2351143> [Accessed 26 December 2020]

Miller, M. & Modigliani, F. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Economic Review*, vol. 48, no. 3, pp. 261-297

Available online: <https://www.jstor.org/stable/1809766> [Accessed 26 December 2020]

Mitton, T. (2002). A Cross-Firm Analysis of the Impact of Corporate Governance on the East Asian Financial Crisis. *Journal of Financial Economics*, vol. 64, no. 2, pp. 215-241

Available online: [https://doi.org/10.1016/S0304-405X\(02\)00076-4](https://doi.org/10.1016/S0304-405X(02)00076-4)

[Accessed 22 December 2020]

Morck, R., Shleifer, A. & Vishny, R. (1988). Management ownership and corporate performance: An empirical analysis. *Journal of Financial Economics*, vol. 20, pp. 293– 315
Available online: <https://www.nber.org/papers/w2055> [Accessed 15 December 2020]

Modular Finance. (2020). Om Modular Finance.
Available online: <https://www.modularfinance.se/products/holdings>
[Accessed 6 November 2020]

Paminto, A., Setyadi, D. & Sinaga, J. (2016). The Effect of Capital Structure, Firm Growth and Dividend Policy on Profitability and Firm Value of the Oil Palm Plantation Companies in Indonesia. *European Journal of Business and Management*, vol. 8, no. 33, pp. 125-126
Available online: <https://iiste.org/Journals/index.php/EJBM/article/view/33961/34928>
[Accessed 6 December 2020]

Sarkar, J. & Sarkar, S. (2000). Large Shareholder Activism in Corporate Governance in Developing Countries: Evidence from India. *International Review of Finance*, vol. 1, no. 3, pp. 161-194
Available online: <https://doi.org/10.1111/1468-2443.00010> [Accessed 10 December 2020]

Statistics Solutions. (2013). Normality.
Available online: <https://www.statisticssolutions.com/normality/>
[Accessed 25 December 2020]

Shefrin, H. & Statman, M. (1995). Making Sense of Beta, Size, and Book-to-Market. *Journal of Portfolio Management*, vol. 21, no. 2, pp. 26-34
Available online: <https://doi.org/10.3905/jpm.1995.409506> [Accessed 7 January 2021]

Von Lilienfeld-Toal U. & Ruenzi, S. (2014). CEO Ownership, Stock Market Performance, and Managerial Discretion. *The Journal of Finance*, vol. 69, no. 3, pp. 1013-1050.
Available online: <https://doi.org/10.1111/jofi.12139> [Accessed 16 December 2020]

Wang, X. & Cheng, Z. (2020). Cross-Sectional Studies: Strengths, Weaknesses, and Recommendations. *Chest*, vol. 158, no. 1, pp. 65-71

Available online: <https://doi.org/10.1016/j.chest.2020.03.012> [Accessed 29 December 2020]