'Effect of ownership structure on firm performance'

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Abstract

In this study, I examine the relation between ownership structure and firm performance. The sample consists of 80 Dutch listed firms. Ownership structure is divided into inside ownership and outside ownership. Inside ownership is divided in family ownership and managerial ownership. The results show a significant positive relation for family ownership and firm performance, this indicates that family ownership does improve firm performance. Outside ownership is divided in corporate ownership, institutional ownership and governmental ownership. The results show a significant relation between governmental ownership and firm performance, this indicates that governmental ownership does improve firm performance.

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1.   Introduction

During the years, a great deal has been written and said about corporate governance. Corporate governance is the internal and external mechanisms to direct and control a firm. Ownership structure is one of these mechanisms. The issue of ownership structure and firm performance goes all the way back to Berle and Means (1932). The authors came up with the term "Modern Corporation" and private property. They separated the management of a company (control) from its owners. The authors suggest that shareholdings and firm performance are converse correlated. In the Netherlands, the first corporate governance code was called the 'Tabaksblat code'. This code was a follow up of the fourty recommendations of commission Peters (van Bekkum, Hijink, Schouten & Winter, 2010). A committee led by Morris Tabaksblat developed the Tabaksblat code. The Tabaksblat code is a behavior code for Dutch listed companies to which the companies need to refer their annual report to. In the Dutch corporate governance code is reported that companies need to explain to what extent they satisfied the best practice provisions in the code and if not, they need to explain why. In 2005, the first monitoring committee was introduced. This committee, led by Jean Frijns introduced the revised Tabaksblat code in 2008. The revised code stated that the corporate governance code "is based on the principle accepted in the Netherlands that a company is a long-term alliance between the various parties involved in the company" and highlight that the supervisory board and the management board are responsible for weighting these various interests, keeping in mind the continuity of the enterprise and aim at long-term shareholder value (corporate governance code, 2008). The corporate governance code contributes to the clarification of every manager's tasks. In 2009 a new monitoring commission led by Jos Streppel was introduced. Before the acceptance of the Tabaksblat code some scandals happened, most prominent scandals were the misleading financial statements issued by Ahold and the oil reserves statements of Royal Dutch Shell. After these scandals, the Tabaksblat code was introduced. After the introduction, the code was in the news several times due to some who considered the code to be too strict and did not comply the code. As a result of this topic being in the news several times, it caught my attention and curiosity to study this. Some major scandals in the news were Ahold and more recently Rabobank with the LIBOR affair ("Het Financieele Dagblad"). Because corporate governance is a rather broad concept with many characteristics, I chose to pick one of these characteristics, ownership structure. In my

thesis, I shall examine the effect of ownership structure on firm performance in the Netherlands. The research question I want to answer is "does ownership structure affect firm performance?"

1.1 Purpose of the research

The main purpose of my research is to study the effect of ownership structure on firm performance in the Netherlands. In ownership structure, I will focus on ownership identity and ownership concentration. The identity will be split into inside ownership (family and managerial ownership) and outside ownership (corporate, institutional and governmental ownership). I believe that certain characteristics in the Dutch corporate environment, such as board composition, may lead to other results than already shown for the US or continental Europe. My research contributes to a detailed understanding of whether ownership structure affects firm performance, because ownership identity is separated into several factors and combined with ownership concentration.

1.2 Structure of thesis

The remainder of this thesis is organized as follows. In chapter 2, I review the literature on corporate governance mechanisms. In chapter 3, I develop the hypotheses I want to investigate. In chapter 4, the data sources and methodology are described. In chapter 5, the results of whether ownership structure affects firm performance are presented. In chapter 6 the conclusion is presented.

2.   Literature review

2.1 Corporate governance

Corporate governance can be defined as "the mechanisms by which a business enterprise is directed and controlled" (Krivogorsky, 2006, p. 180). To give direction and control to management and directors in a firm is especially important when ownership and control are separated. Without corporate governance, managers who are not owners might not work hard enough in order to maximize profits for shareholders. Managers may spend money in a way that is only profitable for the manager himself. This will be explained in chapter 2.1.1, the agency theory.

The corporate governance code in the Netherland in 2004 included:

- "the introduction of the authority of the shareholders meeting to approve major transactions that will have a material impact on the nature of the company, including acquisitions or divestures of a value exceeding one-third of the company's balance sheet total;
- the right of shareholders holding 1% of share capital or shares with a market value of €50 million, to submit items for the agenda of the general meeting;
- the right of holders of depositary receipts for shares to receive a power of attorney to vote on the underlying shares, which can be refused when the company is or will become subject to a takeover threat;
- the right of the general meeting to adopt the remuneration policy for executive directors and to specifically approve share-based schemes; and
- the right of the general meeting of companies governed by the structure regime to appoint supervisory directors (who previously appointed themselves) and to dismiss the supervisory board as a whole" (van Bekkum et al., 2010, p. 3-4).

To be able to introduce the concept of corporate governance, I will first introduce the main variants of corporate governance in different countries. Second, I will introduce the relationship between directors and shareholders in the field of corporate governance.

2.1.1 Three underlying theories

Next to these variants of corporate governance in different countries, there are also different theories to explain the relationship between directors and shareholders in the field of corporate governance: the agency theory, stakeholder theory and stewardship theory.

Agency theory

One approach to study corporate governance is by means of the agency theory. This theory has it roots in the 1970s in the field of economics and finance. The essence of this theory is selfishness from the management and therefore not act in favor of the shareholders. This selfishness is seen as the human nature of the managers. The main question in the agency theory is "how to let management act in the best interest of the shareholders and not in their own interest". The agency theory neglects a large amount of other non-financial motives for managerial behavior. Emphasizing the economic and financial side, a rather important question arises: how can investors be sure their money is well invested and prevent managers from acting in their own interest? (Jensen & Meckling, 1976; Donaldson & Davis, 1991; Davis et al., 1997)

The main objective to protect shareholder interests, minimize agency costs and ensure agent-principal interest alignment is the governance structure. Three mechanisms for this are mentioned below.

First, boards of directors can check management by performing audits and performance evaluations. Boards share the objectives of shareholders with management and monitor them to keep agency costs as low as possible. To ensure this mechanism to work, outside board membership is desired (Davis et al., 1997).

A second mechanism is a financial incentive scheme. It provides rewards and punishments aimed on aligning both principal and agents interests. It grants a manager a contingent, long-term incentive contract. These incentive contracts keeps management involved in the firm and encourage management to perform in favor of the shareholders, because they receive compensation subjected to their behavior and gives them a share in the firm now (Davis et al., 1997).

The agency problem occurs when the two parties, management and shareholder, have other interests or when there is information asymmetry.

Information asymmetry comes in two types; moral hazard and adverse selection (Thomsen & Conyon, 2012).

Moral hazard is also known as hidden action. The shareholders cannot observe the activity of the management. Moral hazard is after the deal. To explain this, an example will be given.

The agent (management) acts on behalf of the principal (shareholders). The agent usually has more information, because it is impossible for principal to monitor the agent completely. This can lead to the interests of agent and principal being not aligned.

Adverse selection is also known as hidden knowledge. The shareholders do not know a particular element in the situation that the management does know. To explain this, an example will be given. The principal (shareholders) lack information and therefor are unable to vote against decisions of agents (management). Adverse selection occurs before the contract is signed, because the principal has less information than the principal.

Stakeholder theory

The stakeholder theory argues that there are other parties involved next to the owners of a firm. Stakeholders are individuals or groups who have an interest in the firm or can substantially affect or be affected the welfare of the firm. Stakeholders can be divided into internal and external. Internal stakeholders are managers, employees and shareholders. Examples of external stakeholders are customers, competitors and suppliers.

The theory is based on how the decision affects the stakeholders.

This all seems rather straight forward, however it is not. Any theory of action must tell the board of directors or managers, how to make tradeoffs between conflicting and inconsistent demands of the different parties. For example customers want low prices, high quality, high service etc. Employees want high wages, high quality working conditions and fringe benefits like vacations etc. On the investors side low risk and high returns are demanded. This all relates to the enlightened approach (Jensen, 2001). The enlightened approach "specifies long-term value maximization or value seeking as the firm's objective and therefore solves the problems that arise from the multiple objectives that accompany traditional stakeholder theory" (Jensen, 2001, p. 298). The stakeholder theory is in conflict with the value-maximization approach. The value-maximization approach only considers whether a decision increases profits, without considering the stakeholders. The enlightened approach eliminates the conflict between the stakeholder theory and the value-maximization approach (Thomsen & Conyon, 2012). It focuses on longer-range business objectives. For example, if a business provides lower prices to its customers, provides better benefits to its employees and have low risk in their investments, it may not contribute to initial profits, however will improve the long term competitive position. Jensen (2001) states "managers should make all decisions so as to increase the total long-run market value of the firm" (p. 299).

A tool to measure the long-term market value is the balanced scorecard (Jensen, 2001). The balanced scorecard not only focuses on financial results, but also on other perspectives that contribute to the long-term market value. These perspectives are financial, customer, internal business process, and learning and growth.

Stewardship theory

The stewardship theory is the competing theory of the agency theory. The stewardship theory has its roots in the field of sociology and psychology. It was originally developed to investigate situations in which executives (stewards) are motivated to act in the best interest of their principals (Donaldson & Davis, 1991). In this theory, managers are seen as 'stewards' and the aspect of selfishness and individual goals as in the agency theory is questioned. Managers are seen as responsible agents on the assets they manage. They place higher value on cooperation than defection even when the interests are not aligned with those of the principal.

The stewardship theory is based on managers trying to attain objectives of the firm, sales growth and profitability. Shareholders value is maximized by firm performance and by doing so, the steward's utility functions are maximized.

A stewards' behavior is always organizationally centered, because even in the most challenging environments, stakeholders have one common interest, which is increasing organizational wealth.

Even though the stewardship theory is about organizational interests, it does not mean that the steward has no financial needs, such as income. However the steward realizes the trade-off between organizational objectives and personal needs.

To summarize all the above, the behavior of the executive (the steward) is aligned with the interests of the principals.

Given the advantage of this theory, a question that can arise is why not always use the stewardship theory? The answer is the risk of empowerment of the CEO. Davis et al. (1997) explain it as "turning the hen house over to the fox". They believe that some managers whose psychological profile fits that of an agent will behave as a "fox in the henhouse".

A short overview of the differences between the agency theory and the stewardship theory is given in table 1.

Table 1

Comparison of agency theory and stewardship theory

	Agency Theory	Stewardship Theory
Model of Man	Economic man	Self-actualizing man
Behavior	Self-serving	Collective serving
Psychological Mechanisms		
Motivation	Lower order/economic needs (physiological, security, economic)	Higher order needs (growth, achievement, self-actualization)
	Extrinsic	Intrinsic
Social Comparison	Other managers	Principal
Identification	Low value commitment	High value commitment
Power	Institutional (legitimate, coercive, reward)	Personal (expert, referent)
Situational Mechanisms		
Management Philosophy	Conrol oriented	Involvement oriented
Risk orientation	Control mechanisms	Trust
Time frame	Short term	Long Term
Objective	Cost control	Performance Enhancement
Cultural Differences	Individualism	Collectivism
	High power distance	Low power distance

Source: Davis et al., 1997, p. 37

2.1.2 Two main variants of corporate governance

The two main variants of corporate governance are: the Anglo Saxon model and the Continental European model.

In order to make the difference clear, a small table is provided underneath.

Anglo Saxon model	Continental European model
Dispersed ownership	Blockholder ownership
Greater management power	Greater shareholder power
Short term focus	Continuity and trust focus

Dispersed vs blockholder ownership

In the Anglo Saxon model, ownership is dispersed, while in the Continental European model a firm has a higher percentage of blockholder ownership. Ooghe & de Langhe (2002) give several reasons for this. First, Anglo Saxon countries are bigger and have a higher number of listed companies compared to Continental European. Second, shareholders can more easily

spread their money in Anglo American countries because more firms are publicly traded. Third, firms in Anglo American countries tend to be bigger compared to Continental European countries, which results in large percentages of shares in a firm, representing large amount of capital.

Renneboog (2000) states that if voting power is dispersed, free riding will occur. This means that if one shareholder will have the costs of control, he will only benefit just for his stake in the firm. Shareholders mostly not take action because costs of control exceed the benefits.

Greater management power vs. greater shareholder power

This difference can be explained by ownership concentration. The low concentration of shareholders because of dispersed ownership in the Anglo Saxon countries causes most shareholders not having significant power. Because of this low power for shareholders, management gains more power and decides about many problems concerning the firm. The problem arising with management power is that managers frequently make decisions in their own interest. For example, managers prefer to enlarge the firm, because this will increase their power. In some cases investments will be made even if profit prospects are low, which leaves shareholders with lower profitability.

In the Continental European model, blockholder ownership is applicable. Because some shareholders hold large percent of the firm's shares, shareholders have more power to control the firm and make decisions concerning the firm.

The main benefit of the Continental European model relative to the Anglo Saxon model is the reduction of managerial power. Managers may prefer to enlarge a firm, because this enhances their power, however, this might not be a profitable investment. Because shareholders have the power to make decisions, this is not likely to happen. The other side of the Continental European model is lack of transparency and the danger of small and large shareholders conflicts of interest (Ooghe & de Langhe 2002; van Hulle, 2003).

Short-term vs. continuity and trust

The Anglo Saxon model is focused on short-term value. The performance orientation is based on "next quarter" and the firm is seen as a money making machine. Payment is dependent on productivity. Competition is existent on a high basis, companies are competitors rather than they cooperate with each other (Ooghe & de Langhe 2002; van Hulle, 2003).

The Continental European model focuses more on continuity and trust. The performance orientation is based on continuity, the firm is seen as a working community and is necessary

to realize complex products. Payment is dependent on function. Competition is existent on a lower basis; companies cooperate with each other instead of being competitors (Ooghe & de Langhe 2002; van Hulle, 2003).

2.2 Internal and external mechanisms

To have a broader view on what corporate governance is, the internal and external governance mechanisms need to be clear. The internal and external mechanisms together will lead to firm performance. Governance mechanisms are used to ensure managers act in the best interest of the shareholder in order to mitigate against agency problems. Thomsen and Conyon (2012) distinguish different categories to explain the mechanisms. These categories are: informal governance, regulation, ownership, boards, incentive systems and stakeholder pressure. These different mechanisms can be divided into internal and external mechanisms. In the next chapters, these mechanisms will be explained. Some of these categories are more important than others, that is why some will be elaborated more extensively.

2.2.1 Internal mechanisms

Internal mechanisms can be defined as "practices aimed at dealing with a complex set of problems internal to an organization. They are used to solve conflicts between manager and shareholders as well as between different groups and types of shareholders within the firm" (Filatotchev & Nakajima, 2010, p. 591). According to Thomsen & Conyon (2012) and van Bekkum et al. (2010), the internal mechanisms of corporate governance are: ownership, boards and incentive systems. They can be seen as the internal corporate structure because this happens within the firm.

2.2.1.1 Ownership

Ownership structure can be defined as "all officers and directors" (Bauguess, Moeller, Schlingemann & Zutter, 2009, p. 48). Literature distinguishes between two different aspects of ownership structure that influence firm performance; ownership concentration and ownership identity. Mintzberg (1983) mentions involvement and concentration. Involvement is about how influential the owners are and concentration is about closely and widely held shares, in other words, blockholder ownership or dispersed ownership.

Building on this theory, Demsetz & Lehn (1985) came with one approach to ownership structure. Ownership structure is about the concentration of shares held by shareholders; the authors made a distinction between top five and top twenty shareholders.

Another approach is the ownership identity. Ownership identity concerns who the owners are; insiders or outsiders.

2.2.1.1.1 Ownership concentration

Ownership concentration is the fraction of equity held by the owners. Demsetz & Lehn (1985), Demsetz & Villalonga (2001) and Malatesta & Walkling (1988) emphasize the concentration side of ownership structure, which is defined as the number of shares owned by a firm's shareholders. Investors who hold a large number of shares (5 percent or more of outstanding equity) are called blockholders (Kabir, Cantrijn, & Jeunink, 1997). According to the research of Kabir et al. (1997), in the Netherlands, on average, the largest blockholder holds more than 25 percent of shares in 52 percent of the firms. 52 percent seems like a large number. However the research of Faccio & Lang (2002) shows blockholder controlling 20 percent or more of the shares in 72.4 percent of the firms in Switzerland and Sweden showing 20 percent or more of the shares in 60,8 percent of the firms, this is not much.

Ownership concentration can have both positive and negative influence on company performance. Blockholders who are part of management or supervisory board, are more interested in managing the firm well, because their own money is in it.

Motivation for outsiders to be a large blockholder is: concentrated control and private benefits. Blockholders can monitor management closely because of their decision rights. They have a large interest in the company and therefor are interested in how the firm is operating, because they receive a large amount of profit. On the contrary, blockholders can conspire with management.

Private benefits can be gained when blockholders power is used over management (Connelly, Hoskisson, Tihanyi, & Certo, 2010). Sometimes blockholders are interested in taking over a firm because of the rights a blockholder has. In order to avoid a takeover threat by a blockholder, the firm sometimes must repurchase stock above market price.

The additional effect of blockholding is that non-blockholding shareholders have more incentive to free ride because of small stake in firm.

2.2.1.1.2 Ownership identity

Ownership identity argues about "who are the owners". Ownership identity considers two types of ownership, insiders and outsiders. Insiders are shareholders who work or have worked at the company; outsiders are shareholders who have never been employees of the firm (Bauguess et al., 2009).

There are different types of owners for listed firms: institutional ownership, family ownership, corporate ownership and government ownership.

One highly discussed topic is information asymmetry between insiders and outsiders. Insiders know exactly how the firm is operating; outsiders do not. Outsiders are dependent on published results. In addition to information asymmetry, a way to measure management performance is the profit or stock price. This is all publicly available and therefor owners don't need to control managers. However, profit depends on more factors than only management performance, so it is not a good measure for management performance if solely used.

2.2.1.1.2.1 Inside ownership

As mentioned above, insiders are the shareholders who work at the company; this can be in the board of directors or management board, so inside owners play an active role in running the business. Inside ownership can be divided in managerial ownership and family ownership. Managerial ownership are the managers of the firm who have share in the firm. Family ownership are the founders of the firm and their direct families (Morck, Shleifer & Vishny, 1988; Müller & Wärneryd, 2001; Maury, 2006; Villalonga & Amit, 2006; Connelly et al., 2010)

Because insiders work at the firm, most of the surplus will be kept in the firm, which increases shareholder value.

Inside ownership is a solution to the in chapter 2.1 mentioned agency problem. Because managers become owners they enjoy the profits, but also incur the costs when things go bad. The opposing effect of managers become owners is that they also gain voting power. This can be positive, however, because of this involvement, managers can manipulate the results to make it look like the firm is operating better than it actually is (Krivogorsky, 2006).

As the power of management increases, managers will be harder to replace (Morck et al., 1988). Literature about inside ownership and firm performance largely started with Morck et al. (1988). They investigated the relationship between management ownership and market valuation of tangible assets for US firms. The authors split managerial ownership into three categories; 0-5 percent; 5-25 percent and over 25 percent. The category 0-5 percent managerial ownership showed a larger Tobin's Q, so improved firm performance. Poorer firm performance results were found for the category 5-25 percent and the category over 25 percent showed little effect. The authors give as reason for decline, entrenchment of the

management team. This means that the management team gained too much power, that they are able to use the firm for own interest instead of interest of shareholders.

In extension to this study, Cho (1998) explored how ownership structure affects corporate value. The author uses the following hypothesis: "ownership structure affects investment which, in turn, affects corporate value" (p. 106). Cho found in the category 0-38 percent managerial ownership a significant relation between managerial ownership and investment, which in turn affected corporate value. For the categories above 38 percent, an insignificant relationship was found. This is one part of the research, however Cho (1998) also investigate the endogeneity of ownership. He found that investment affects corporate value, which in turn affects ownership structure.

Krivogorsky (2006) examined the relation between ownership and profitability. She did not find a strong relation for the level of managerial ownership and a firm's profitability in European companies.

Reason for this finding can be that managerial ownership can provide a direct economic incentive for managers to engage in active monitoring. It can also align ownership and control through meaningful directors' stock ownership. However, managerial ownership can also encourage risk-taking (Krivogorsky, 2006).

Bauguess et al. (2009) examined the relation between ownership structure and target returns. They define target return as "target abnormal announcement returns and premiums" (p. 49). They investigate target return as a pricing method for valuing a firm before and after a merger or acquisition. In their research they split inside ownership and outside ownership. The figures of this study reveal that the relation between both inside and outside ownership, and target return is significant. Several noteworthy results were a 6,7 percent increase in target return was generated by a 10 percent increase in inside ownership. The authors also found that a 10 percent increase in active outside ownership resulted in a 7,7 percent decrease in the target returns.

Reason for the relation between inside ownership and target return is because of takeover anticipation and not by entrenchment (pre-takeover accounting performance of the firm). The authors mentioned above investigated inside ownership structure in general, however one important part of inside ownership is family ownership. Family ownership is characterized by the double role the family has, they need to be owners and managers. Since most money is invested in the firm and the family does not want to give up control, family ownership is mostly risk averse. Because of the double role the family owners have they, reduce the classical agency problem (see section 2.1.2).

Maury (2006) investigated the relationship between family ownership and firm performance for Western European corporations. He found that active family ownership (family ownership in which the family holds at least one of the top tow officer positions) improves profitability; passive family ownership did not improve profitability. This view is supported by Villalonga & Amit (2006).

2.2.1.1.2.2 Outside ownership

Outside owners have never been employees of the firm; this can be corporations, institutions and government (Thomsen & Conyon, 2012).

Outsiders have the power to withdraw contribution to the firm, because of their share in the company. This powerful tool gives insiders the ability to force CEO to act in the best interest of the firm even if the CEO acts in his own interest (Acharya, Myers, & Rajan, 2011). Corporate ownership are large companies that have temporarily unneeded cash. Corporate ownership brings capital that can be used for growth. However it also reduces control for the target firm, and gains control for the acquiring firm, that is why corporate ownership often precedes a takeover or a complete sale within a short period of time (Connelly et al., 2010). Institutional owners are institutions that have large amount of capital to invest. The capital invested by institutional investors is not their own capital. Institutional investors invest for others; such as pension funds, banks or insurance companies. Institutional ownership is defined as "the fraction of a firm's shares that are held by institutional investors" (Chung & Zhang, 2011, p. 250). The advantage of institutional ownership is easy access to capital. Institutional investors can be confronted with the free rider problem. This means that other investors benefit from the information collected and paid for by the institutional investor. However, because institutional investors have a large stake in the firm, they have a strong incentive to monitor the firm especially in case exit is costly (Chung & Zhang, 2011). Aggarwal, Erel, Ferreira, & Matos (2011) investigated whether institutional ownership affects corporate governance and firm value for non-US firms. The authors found that institutional ownership had a "direct effect on corporate governance outcomes, functioning as a disciplinary mechanism in terminating poorly performing CEOs" (Aggarwal et al., 2011, p. 178). The authors also found that an increase in institutional ownership lead to increase in firm valuation.

An extra interesting aspect of this research is that the research is conducted over the years 2003-2008. The authors present a figure that shows the total institutional ownership by

country and year for 2003-2007, these are the prior years to the crisis started in 2008. In this period, the Netherlands shows an increase in institutional ownership.

Governmental ownership is the acquisition of shares of a firm by the government that can have multiple reasons, for example bankruptcy of the firm. Governments can make new rules in favor of the firm. These regulations can be used to steer a firm in certain direction ore demand information in order to prevent agency problems (Borisova, Brockman, Salas & Zagorchev, 2012). Governmental ownership is similar to institutions in many ways because of their power and resources. However governments have more capital to invest and governments can use guarantees to secure debt financing. The ease of financing could discourage monitoring which in turn can trigger agency problems. Governmental ownership also has an informational advantage. They can demand information about the firm through regulations (Borisova et al., 2012). The main difference between institutional ownership and governmental ownership is that institutions want to make a profit from their investment. The government may want profit as well, however they can also have the objective to reduce unemployment, increase tax collection, and overall stability of the financial system (Borisova et al., 2012).

Since 2008, government ownership has increased drastically in the European Union. Governments bought firms and banks, because otherwise these firms or banks would go bankrupt. If the firms or banks go bankrupt, this would increase unemployment drastically and would reduce competition on the market. In the Netherlands this was also the case with the banks ABN AMRO and SNS Reaal. Dutch government wanted to prevent these banks go bankrupt and invested in the ABN AMRO bank and SNS Reaal.

Müller & Wärneryd (2001) investigated inside versus outside ownership with emphasis on the surplus in the firm. According to the authors, the insiders are in control on what is being published. Sometimes insiders make it look like fewer surplus is in the firm so that the produced surplus does not have to be distributed. If outsiders question this, they have to take costly action and go to court to prove that the surplus does exists as they claim. Because of information asymmetry and inability to monitor management, outside owners seem to have a disadvantage, however they can share takeover gains with rival management teams in order to replace underperforming incumbent management (Bauguess et al., 2009).

2.2.1.2 Board

In general, the board can be defined as it "represents an organization's owners and is responsible for ensuring that the organization is managed effectively. Thus, the board is

responsible for adopting control mechanisms to ensure that management's behavior and actions are consistent with the interests of the owners" (Filatotchev & Nakajima, 2010). There are two board structures, the one-tier board structure and the two-tier board structure. Similarities between one-tier and two-tier board are; both systems recognize a managerial function and a supervisory function. The distinction between the two functions seems to be more formalized in the two-tier board, because of the separate boards appointed (Krivogorsky, 2006).

2.2.1.2.1 Board composition

In this section I will discuss the composition (the internal and external parties) of both the one-tier board structure and two-tier board structure in a comparison between the Netherlands and the United States.

Two-tier board

On a two-tier board, a difference is made between management board (internal) and supervisory board (external). A two-tier board structure can be defined as a structure with two boards, one for direction and one for control. A two-tier board is also called a "dual model" and has a two-layered board structure. The board consists of a supervisory board (raad van commissarissen) and a management board (raad van bestuur) (Dutch Chamber of Commerce; de Jong, Kabir, Marra, & Röell (1998); DeJong, de Jong, Mertens, & Wasley (2001). Advantage of the two-tier board is that the management board is always checked, this in favor of the shareholder. The supervisory board has the duty to act in the best interest of the shareholders and the firm.

A disadvantage of the two-tier board is that both boards are separated; this will reduce speed in the decision-making process and increases bureaucratic burden. Another risk is information asymmetry; consequence of information asymmetry might be that principal charge higher cost for risk they take.

The two-tier board is most common in the Netherlands, however a one-tier board structure is also allowed in the Netherlands after 1 January 2012.

Internal (management board)

The primary task of the management board is to control top management in order to insure that management act in best interest of the shareholders. The management board is concerned with day-to-day operational decisions, strategy and the policy of the company. Their task is to

manage a company's mission and develop long-term goals. They also need to submit quarterly reports to the supervisory board. The management board consists of three to five persons, all appointed by the supervisory board. The most prominent director is the Chief Executive Officer (CEO)

External (supervisory board)

The supervisory board is supposed to appoint and dismiss members of the management board and supervise the policy of the management board. All tasks and obligations of the supervisory board are captured in article 2:248 BW of the Dutch law. New members of the board are appointed by the board itself, if there is no objection in the shareholders meeting or works council. Although there is a legal minimum of three members, there is no maximum.

Membership in both the management board and supervisory board at the same time is not permitted.

One-tier board

For a one-tier board, a difference is made between executive directors (internal) and non-executive directors (external).

A one-tier board structure can be defined as a structure with one board of directors for both direction and control. A one-tier board is also called the "unitary model" and has a one-layered board structure. The board consists of one board containing both executives (management) and non-executives (supervisors). The advantages of a one-tier board are a closer relation between the board members and a smoother information exchange between the executive and non-executive members of the board. The one-tier board structure is most common in the United States.

Internal (executive/insider)

Executive directors are employees of the company. Executive directors are concerned with implementation responsibilities. Executive directors can be compared to the management board in a two-tier board.

A commonly discussed problem in literature is the communication problem between insiders and outsiders. Because insiders are not willing to share information with outsiders, Raheja (2005) came up with an approach to overcome the information-sharing problems. He set up a board in which insiders compete with each other for CEO succession. Insiders compete in the

amount of information they give to outside board members. To investigate this, the test was split up in "everyone reveals information" or "no one reveals information", evidence for everyone reveals information is found.

In accordance with these findings, other studies have proposed that insiders are the most influential board members because of their firm specific knowledge that outsiders do not have and therefore are better in exploiting insiders' information. This is why insiders are considered valuable in increasing a board's supervisory and advisory functions.

Because not every director or executive is an owner and executive's compensation is mostly based on short-term performance, some executives are not interested in gaining long-term value maximization.

All mentioned above is from a company's point of view, but what drives outsiders to be part of the board? Outsiders' motivation can be, ownership of firm shares or reputational benefits. If the director aspires directorship in another firm in the future, a good reputation can give benefit.

External (non-executive/outsider)

A non-executive director is not an employee at the company, but should "constructively challenge and help develop proposals on strategy" (Combined Code of Corporate Governance (2006), Sec. A.1). The non-executive directors have the role of supervisor. Shareholders choose the members of the board. Shareholders also have the ability to dismiss members, but this measure is only used in extreme cases of underperformance, normally the board itself is responsible for this. According to the Dutch Corporate Governance code, these non-executive directors should be independent of management and free from relationships that might interfere with their independence. Because of non-executive directors need to be independent, the question arises, how can they put pressure on management? Non-executive directors can go to the media, called 'whistle blowing' (this is explained in section 2.2.2.1).

Porter (1992) argues "boards, which have come to be dominated by outside directors with no other link to the company, exert only limited influence on corporate goals. They often lack the time or ability to absorb the vast amounts of information required to understand a company's internal operations" (p. 71). Outsiders have no firm specific knowledge and therefore are dependent on insiders to give this information. If insiders are not willing to share this information, outsiders need to conduct costly verification. A solution to this problem can be an audit committee composed entirely of outside directors (Huson, Parrino & Starks, 2001; Harris & Raviv, 2008).

To conclude, it is hard to say what composition in executive and non-executive directors is best. According to the Combined Code on Corporate Governance, best practice for larger companies is half of the board should exist of non-executive directors.

2.2.1.2.2 Board size

Different authors examined the correlation between board size and a firm's financial performance. Yermack (1996) examined large US firms from 1984 to 1991. His research shows a negative correlation between board size and profit. The author proposed that large boards are less effective because of agency problems. It is important to bear in mind that this can vary by firm size and country. Yermack (1996) found that this negative correlation might not extend to smaller firms.

Eisenberg, Sundgren & Wells (1998) used a sample of 879 small and medium sized firms (split up in healthy and bankrupt firms). The outcome of this study is also a negative correlation between board size and profitability. The hypothesis about communication and coordination problems increase as board size increases is supported.

In reference to these studies, Harris & Raviv (2008) examined the relationship between board size and firm performance, because they have doubts on these findings and therefor presented their research. The relation between board size and firm performance is not proven. Board size and profit both are driven by other factors, such as "the importance of various parties' information, profit potential, and the opportunity cost of outside directors" (Harris & Raviv, 2008, p. 1799).

Keeping all this in mind, there is no clear-cut answer to the ongoing discussion about what the optimal board size is.

2.2.1.3 Remuneration

By remuneration, the incentive system is meant. Thomsen & Conyon (2012) define it as all managerial compensation, varying from salary, bonuses, stock options, health insurance, pension scheme etc.

In literature there are two different views on executive compensation, the optimal view and the managerial power view. The optimal view is based on executive compensation ultimately being determined by the market. CEO pay reflects the costs and benefits of the bargaining process between board and CEO. In other words, costs are proportional to benefits.

The managerial power view is based on compensation for CEO not being in best interest of shareholders as in the agency theory. Costs are not proportionate to the benefits of the bargaining process between board and CEO for CEO compensation (Thomsen & Conyon,

2012). Managerial power view can happen if boards are 'weak'. Weak boards are boards that are too large or when directors serve on too many other boards which makes them too busy for effective monitoring.

Managerial compensation consists of fixed and variable compensation (Thomsen & Conyon, 2012). Fixed compensation is in the form of salary; variable compensation is in the form of bonuses. Bonuses are meant to motivate managers to act in the best interest of the firm. Because bonuses are based on performance, managers are eager to achieve better results for the firm.

After the beginning of the financial crisis in 2008, a lot of criticism was given on the bonuses that were being paid in different companies, such as mortgage companies and banks. (Aguilera & Jackson, 2010, "Het Financieele Dagblad"). Top managers manipulated results and received large bonuses, while the company was suffering loss. These excessive bonuses were seen as a start of the financial crisis. Bankers sold too expensive insurances in order to get higher bonuses. In the Netherlands, after the beginning of the financial crisis, the intention was to reduce the difference between the relative low salary and the relative high bonuses ("Het Financieele Dagblad").

The drawback of motivating management by giving bonuses is that management focuses on short-term profit. It can trigger excessive risk taking or accounting fraud, because managers want to have higher bonuses. One option would be to set long term bonuses, however that is hard to measure. Mostly long-term vision is based on relationships with customer or supplier. In 2009 the "inducement-norm" was introduced. This norm must provide more transparency in the remuneration structure. The norm prohibits provisions, unless if it is not at the expense of the customer. The committee that monitors is the remuneration committee. This committee is part of the supervisory board and is responsible for proposing salary and bonuses for individual managers (annual report "Autoriteit Financiële Markten", 2008).

2.2.2 External mechanisms

External mechanisms are part of the external corporate structure. External mechanisms can be defined as the "formal and informal governance arrangements that organizations use in managing their relationships with external parties" (Filatotchev & Nakajima, 2010, p. 591). Informal governance, regulation and stakeholder pressure are the main external mechanisms of corporate governance (Huson et al., 2001; Filatotchev & Nakajima, 2010; Thomsen & Conyon 2012).

2.2.2.1 Regulation

Regulation can be split up in national law and company law. The national law requires guidelines for listed firms that lead to the company law. Both, national law and company law must ensure the legal protection of shareholders. An example of company law is the mandatory annual shareholder meeting. The company law is guidance for directors about their duties. If shareholders are not satisfied about the way the firm is managed, they can sue the firm. All these protection measures are of course a good thing for the shareholders, but there is a downside to it. Too much rules and regulation will lead to a loss of flexibility and risk averse culture of the firm, this makes it difficult to do business.

It is not easy to determine the right amount of regulation in a company that is why it seems important to keep both costs and benefits in mind.

2.2.2.2 Informal governance

With informal governance, the social norms within the company and reputation and trust of managers are meant. Social norms are the morality of managers. Morality is a difficult point in regard to corporate governance. To explain this more clearly, an example will be used. Suppose a manager can steal money (enough to live on for the rest of his/her life) without getting caught, will the manager steal the money? Probably a lot of people would steal the money, but there are also some who don not, so morality plays a role in our society (Thomsen & Conyon, 2012).

Reputation and trust of the managers is also important and can be a solution to agency problem (Filatotchev & Nakajima, 2010; Thomsen & Conyon 2012). If a manager's reputation is impaired because of cheating investors, or opportunistic behavior it will be very difficult to find new investors. The reputation in this market and in other markets is ruined.

Media exposure is another unpleasant incidental for bad firm performance. If the management is not performing well, the media will expose this to the world and the company will loose investors.

On the personal level, it is important for managers who want to make a career, to have a good reputation. A tool they can use is "whistle blowing" which will lead to media exposure and will cost the older manager its reputation (Thomsen & Conyon, 2012). This is a useful tool because in many cases older managers aspire post-executive career, and a good track record will help to assure this career.

Recently some national media initiated a new website for 'whistle blowing', called Publeaks. Publeaks is a website for people who anonymously want to report misbehavior in business to

the press. The media believes that only a small tip of the iceberg is being corresponded to the media while a lot is covered up.

The system is simple, the 'whistle blower' can decide to what media he wants to share his information, the documents can be shared in a safe digital environment and the journalist can alter the information. The journalists that receive the information are aware of other media that received the same documents, so that they can decide to do joint research. The mean difference with WikiLeaks is that Publeaks has no access to the information.

Publeaks sounds like a good instrument against mismanagement, but one argument against Publeaks cannot be ignored: the 'whistle blower' is anonymous and protected, so it is hard to check weather the information is real. In order to make it easier to check information and collect more information, the website provides the opportunity for the journalist to question the 'whistle blower', however this cannot ensure the authenticity of the story.

Keeping all this in mind, reputation is a good mechanism for corporate governance, however it will work best in small companies where everybody knows each other.

2.2.2.3 Stakeholder pressure

Stakeholder pressure can be defined as the measures stakeholders take to force companies to act in their best interest and improve stakeholder value. Stakeholder pressure can be divided into creditor monitoring, auditors, analysts and competitors.

2.2.2.3.1 Creditors

Creditors can be defined as a party who lend capital to a firm. Because of this invested capital, the creditor can exercise influence on what the firm does. This is called creditor monitoring. Creditors have the power to monitor and influence the firm decisions. Creditors can demand a certain composition of board or management and capital structure. The creditor can include certain decisions in a contract, such as new investments; need to be approved by creditors.

When firms want to borrow money but don't want the creditor to have much power, they can issue corporate bonds. Bondholders have no voting power and the only obligation is that the firm pays the bondholder interest, at fixed intervals, and at a later date the principal.

A reason for bank loans can be that small firms might find obstacles to enter the stock market, but they can go to the bank. An advantage of bank loans is that the loans are very simple; money is leant according the principle "pay back or go bankrupt". It does not require an elaborated system, which is the case with equity loans. The disadvantage of bank loans is that high agency costs in the form of interest need to be paid (Thomsen & Conyon, 2012). Reason

for high agency costs is the risk the bank bears. If the lender takes excessive risks which, will benefit shareholders if they go well. However if the risk the lender took does not go well, creditors lose.

2.2.2.3.2 Auditors

Auditors are the persons who monitor the results of the firm, such as accountants. For shareholders and debt holders, verification of results is much easier if the auditors of the firm can ensure a true and fair view of the firm's performance, this can reduce the information asymmetry problem (Thomsen & Conyon, 2012). In order to increase investor confidence, a firm is obliged by law to audit its accountants by an external auditor. In the general shareholder meeting this external auditor is appointed. If they fail to appoint one, the supervisory board or the management board is authorized to do so (van Bekkum et al., 2010). The move from historical cost accounting to market-based valuation may have made accounting easier for managers to manipulate. This means that external auditors are hired and paid by a firm's management and therefore have an incentive to accommodate the wishes of the firms' managers for 'creative accounting' (Thomson & Conyon, 2012).

2.2.2.3.3 Analysts

Analysts can be defines as persons who "issue reports which help shareholders and creditors understand companies and evaluate company performance" (Thomsen & Conyon, 2012, p. 59). These reports are useful for shareholders who don't have the knowledge or time to do their own analysis. A pitfall for shareholders who trust the reports and don't conduct their own research is that they may buy something only because the analysts recommended it. Analysts sometimes recommend buying in order to stimulate trading and commissions in order to make money for their employers.

Jagedeesh, Kim, Krische & Lee (2004) find a positive correlation between analyst recommendations and Momentum indicators. The authors find a negative correlation between analyst recommendations and Contrarian indicators. This means that "The stocks that receive more favorable recommendations typically have more positive price momentum, higher trading volume (turnover), higher past and projected growth, more positive accounting accruals, and more aggressive capital expenditures" (Jagedeesh et al., 2004, p. 1118).

2.2.2.3.4 Competitors

In a market for services and products, competition can be an asset for the customer, because the product will be cheaper. From a firm and shareholders point of view, competition can be

bad news, because it reduces profit and returns. In most branches, competition is an issue. Almost any firm suffers from competition but not every firm to the same extent. Competition can arise when firms are underperforming. If firms are constantly underperforming because of for example bad governance, competition can cause bankruptcy for these firms. Competitors can merge or acquire the bankrupt firm, which leads to a merger or an acquisition.

A merger is a combination of two or more firms. In other words, a legal merge of two or more firms into one entity. Mostly shareholders are offered securities in the acquiring firm in exchange for their stock. These securities can be in the form of cash or shares in the new entity. In a cash merger, the acquiring firm offers the shareholders cash for their shares. In a stock merger, the acquiring firm offers the shareholders new shares in the new entity. There are three types of mergers; horizontal merger, vertical merger and conglomerate merger. A horizontal merger is a merger "between companies producing one or more of the same, or closely related, products" (Amihud & Lev, 1981, p. 610). A vertical merger is a merger "between companies having a buyer-seller relationship before the merger" (Amihud & Lev, 1981, p. 610). A pure conglomerate merger is a merger "between firms that are functionally unrelated (Amihud & Lev, 1981, p. 610).

Conglomerate mergers come in two forms; a conglomerate merger for product extension and a conglomerate merger for market extension. A conglomerate merger for product extension can be defined by "when products of the acquiring/acquired companies are functionally related in production or distribution, but do not compete with one another" (Amihud & Lev, 1981, p. 610). A conglomerate merger for market extension can be defined by "when the acquiring and acquired companies manufacture the same products, but sell them in different geographic markets" (Amihud & Lev, 1981, p. 610).

Acquisition comes in two different forms, friendly takeovers and hostile takeovers. Friendly takeovers can be defined as takeovers that are approved by the management. A friendly takeover is also called a synergistic takeover. The goal is to benefit from combining business of the two firms.

Hostile takeovers can be defined as takeovers that are not approved by management of the target firm. In a hostile takeover, no agreement is made with management, but the acquiring firms directly goes to shareholders or starting a 'fight' to replace management. A hostile takeover is also called a disciplinary takeover. The goal is not to combine the business of two firms, but is to correct the non-value-maximizing practices of managers of the target firms (Morck et al., 1988).

In order to prevent takeover from happening, some defense mechanisms are available. The Dutch law offers different defense mechanisms for takeovers (Kabir et al., 1997). One of these mechanisms is legal measure. These legal measures provide the ability to create a special kind of corporation, "the structure company". The law requires firms to have a supervisory board that in turn appoints the management board. Because the shareholders were blocked in the decision making process, there was criticism and the law changed so that the shareholder gained more influence in appointing the supervisory board.

Another common used mechanism in the Netherlands is issuing preferred (defense) shares ('beschermingsprefs'). Preferred shares are shares with extra priority, the owners of these shares are always first to decide. Only 25 percent of par value needs to be paid for the shares that have the same voting rights as common shares. In this way, the firm keeps voting power. Three consecutive steps for issuing preferred shares;

Create: common shareholders need to approve the change.

Grants: management grants the preferred shares to a friendly party, often a foundation or institutional investor.

Issue: the actual issue of preferred share.

A recent example of preferred shares in the Netherlands is the case of KPN. The Mexican company "América Móvil" wanted to acquire KPN. The "stichting preferrente aandelen" of KPN, a foundation for preferred shares, wanted to prevent this from happening. The foundation wanted to activate a call option. This gives 49.9 percent of the voting rights to KPN. This means that América Móvil can't get their hands on more than 50 percent of the shares.

Another mechanism is the issue of depository receipt of shares ('certificaten van aandelen'). These shares are like common shares that also follow the value of common shares, however, it does not give right to participate in voting in shareholder meetings.

3.   Hypotheses development

The first hypotheses test the effect of inside ownership on firm performance.

Family owned firms, firm performance

Based on findings from Maury (2006) and Villalonga & Amit (2006) a positive effect is expected.

Family owned firms have a thorough and detailed inside knowledge of the firm. This enables efficient monitoring, which in turn reduce the classical agency problem.

Family ownership can also turn into a negative effect on firm performance. This happens when there is too much family ownership. The risk of too much family ownership can be expropriation when transparency is low (Maury, 2006). When transparency is low, information asymmetry occurs which results in minority shareholders being not as well informed as the owners of the firm.

Another reason for a negative effect is the cost of family ownership can be offset if family members are favored at the expense of other professionals (Villalonga & Amit, 2006).

Hypothesis 1a Firm performance is positively affected by family ownership.

Managerial ownership, firm performance

Based on findings from Morck et al. (1988) and Krivogorsky (2006) a negative effect is expected for hypothesis 1b.

The first reason is information asymmetry. Information asymmetry occurs when shareholders not have the same information as management. In case of moral hazard, shareholders cannot observe the activity of the management. In case of adverse selection shareholders do not know a particular element in the situation that management do know (Thomsen & Conyon, 2012). This information asymmetry leads to the agency problem. Managers are involved in the profits when a firm is operating well, however managers are also involved in losses if a firm is managed badly. Because managers are also involved in the losses, they can manipulate the results to make it look like the firm is operating better than it is (Krivogorsky, 2006).

Second reason is the expropriation effect. Too much managerial ownership can lead to expropriation of minority shareholders. Controlling shareholders (managers) have informational advantage and have power to act in best interest of large shareholders. Minority shareholders do not have the power to monitor management in order to assure they act in best

interest of minority shareholders as well. This results in large shareholders maximize their own welfare and redistribute wealth from minority shareholders.

Another reason for expecting managerial ownership has a negative effect on firm performance is that management is in control and therefore has much voting power, which indulge them to make non-value maximizing decisions. Management can pursue costly strategies in order to keep their positions, which makes them hard to replace (Morck et al., 1988).

Managerial ownership can also have a positive effect. According to the stewardship approach, managers act as farsighted stewards. Managers try to act in best interest of the firm and try to attain sales growth and profitability and that is why firms with managerial ownership have a more long-term view.

Hypothesis 1b Firm performance is negatively affected by managerial ownership.

The second hypotheses test the effect of outside ownership on firm performance.

Corporate ownership, firm performance

The following hypothesis is based on the findings of Connelly et al. (2010) and Bauguess et al. (2009). A positive effect is expected for this hypothesis.

First, corporate ownership mostly precedes a takeover (Connelly et al., 2010). Corporate ownership is mostly born out of the fact that large companies have temporarily unneeded cash, this fresh capital can be used for growth of the firm.

Second, if management of a certain firm is underperforming, but is hard to replace, owners can decide to sell the firm. In this way, corporate takeover can be used to replace incumbent management of a target firm (Bauguess et al., 2009).

The negative effect of corporate ownership can be that the target firm loses some level of control (Connelly et al., 2010).

Hypothesis 2a Firm performance is positively affected by corporate ownership.

Institutional ownership, firm performance

A positive effect is expected for the following hypothesis. This effect is based on the findings from Chung & Zhang (2011). First reason for expecting a positive effect is: institutional investors are institutions that have a large amount of money to invest. These institutions invest for banks, insurance companies, and pension funds. Therefore they have strong fiduciary responsibilities. Because of these responsibilities, they are eager to perform well (Chung & Zhang, 2011).

Second, being aware of the free rider problem, institutional investors have a strong incentive in monitor companies they own because of their large stakes in a company especially if exit is costly (Chung & Zhang, 2011).

Third, the same reason as for corporate ownership, institutional ownership can be used to replace incumbent underperforming management.

Hypothesis 2b Firm performance is positively affected by institutional ownership.

Governmental ownership, firm performance

Based on the findings from Borisova et al. (2012), a positive effect is expected for the following hypothesis.

The first reason for expecting this positive effect is: governments can create regulations. These regulations can affect the firm and can be used by governments to steer a company in a certain direction. This can also give governments an informational advantage, because they can demand information about a firm through regulations (Borisova et al., 2012).

Third, profit is not the sole objective of government ownership. Other objectives can be to reduce unemployment, increase tax collection, and overall stability of the financial system (Borisova et al., 2012). Because of profit not always being the sole objective, a long-term view is guaranteed by governmental ownership.

Fourth, government is not the only party who has interest in a firm that is governmental owned. Looking at the stakeholder theory, there are other parties who can have an interest in the firm; this theory focuses on the longer range. In case of governmental ownership, this can be prevent firms from bankruptcy and reduce unemployment.

Fifth, similar as to corporate ownership and institutional ownership, governmental ownership can also be used to replace incumbent underperforming management.

Hypothesis 2c Firm performance is positively affected by governmental ownership.

4. Methodology

4.1 Bivariate test

4.1.1 Correlation analysis

A correlation analysis will be conducted to investigate how variables are related to each other. Correlations are between -1 and +1. The closer to 1 indicates a stronger relationship and – and + indicates a negative or a positive relation. High correlation means that the variables are probably multicollinear. If this is the case, a test can be conducted to prove this. The test that can be used is the variance inflation factor (VIF).

Advantage of correlation is it depends only on z-scores. It is not affected by changes in the center or scale of variables (De Veaux, Velleman & Bock, 2008). Another advantage is that it allows determining direction and strength of the association (De Veaux et al., 2008). Disadvantage of correlation is that is does not indicate causation, in other words, a change in one variable is not caused by a change in another variable (De Veaux et al., 2008). Another disadvantage is that most correlation coefficients only measure linear relationships (De Veaux et al., 2008). Third disadvantage is that correlation is sensitive to outliers (De Veaux et al., 2008).

4.2 Multivariate test

4.2.1 Multivariate regression analysis

To be able to answer the research question and the hypotheses stated in previous chapters, cross sectional research is used. The instrument used in my study is multivariate regression analysis. Two conditions for multivariate regression analysis are required; the variables need to be ratio/interval and the sample needs to be at least 30 or more companies (Baarda, de Goede & van Dijkum 2007). These conditions are met.

Appendix a gives an overview of variables used by other authors. Because of the quantitative nature of my research, the variables are ratio/interval.

4.2.1.1 Ordinary least squares

The ordinary least squares analysis measures whether there is a linear association between the dependent variable and the independent variables. In my study, the dependent variable is ratio measurement and the independent variables are also ratio measurement.

Due to the fact that other authors investigating the same subject do not use logistic regression and due to the fact that the variable firm performance is not dichotomous, a logistic regression is not used for my research.

Most authors who investigate the same subject use ordinary least square regression analysis, sometimes in combination with other regression models (Demsetz & Lehn, 1985; Renneboog, 2000; Demsetz & Villalonga, 2001; Krivogorsky, 2006; Maury, 2006; Villalonga & Amit, 2006; Bauguess et al., 2009; Chung & Zhang, 2011; Aggarwal et al., 2011).

The ordinary least square regression analysis is a measure for the "line of best fit". This means the line for which the sum of the squared residuals is smallest. The ordinary least square method assumes the errors to be homoscedastic, meaning the same variance between the error terms is assumed (Krivogorsky, 2006)

Continuing on this, De Veaux et al. (2008) mention three conditions for ordinary least square regression:

- Quantitative variables condition.
- Straight enough condition.
- Outlier (normality) condition.

I check whether these conditions are met. The variables used in my research are quantitative; a Shapiro-Wilk test shows how the data is distributed.

A 5 percent level of significance will be used. A 5 percent level of significance will give a 95 percent chance of being true.

The standard model for investigating ordinary least square regression is (Baarda et al., 2007; De Veaux et al. 2008; Chung et al., 2011):

$$Y = \alpha + \beta_1 X_{x,t} + \beta_2 X_{x,t} + \ldots\ldots + \varepsilon_{x,t}$$

$Y =$	Dependent variable
$\alpha =$	Constant
$\beta =$	Slope
$X =$	Independent variable of firm in year t
$\varepsilon =$	Error term of firm x in year t

Model for testing the hypotheses

$$Firm\,performance_{x,t} = \alpha + \beta_1\,\text{FamOwn}_{x,t} + \beta_2\,\text{ManOwn\_ManB}_{x,t} + \beta_3\,\text{ManOwn\_SupB}_{x,t} +$$
$$\beta_4\,\text{CorpOwn}_{x,t} + \beta_5\,\text{InstOwn}_{x,t} + \beta_6\,\text{GovOwn}_{x,t} + \beta_7\,\text{Log}(\text{FirmSize}_{x,t}) +$$
$$\beta_8\,\text{Dummy Industry}_{x,t} + \beta_9\,\text{Leverage}_{x,t} + \varepsilon_{x,t}$$

α=	Constant
Firm performance=	Firm performance for firm x in year t
FamOwn=	Family ownership of firm x in year t
ManOwn_ManB=	Managerial ownership management board of firm x in year t
ManOwn_SupB=	Managerial ownership supervisory board of firm x in year t
CorpOwn=	Corporate ownership for firm x in year t
InstOwn=	Institutional ownership for firm x in year t
GovOwn=	Governmental ownership for firm x in year t
FirmSize=	Firm size for firm x in year t
ε =	Error term of firm x in year t

All variables are included in the model. This is because the model for hypothesis one a and b also includes the variables CorpOwn, InstOwn and GovOwn as control variables. The model for hypotheses two a, b and c also includes the variables FamOwn, ManOwn_ManB and ManOwn_SupB as control variables (Bauguess et al., 2009; Chung & Zhang, 2011).

In order to test the hypotheses, we need to look at the β. For hypothesis 1a the β needs to be significantly positive, because a positive relation between family ownership and firm performance is expected. For hypothesis 1b, the β needs to be significantly negative, because a negative relation between managerial ownership and firm performance is expected.

In case of hypothesis 2 a, b and c, the β need to be significantly positive, because in all three cased, a positive relation is expected.

4.3 Variables

This section presents the dependent and independent variables used in my research. The variables used in my research were based on research on the same topic conducted by others (Demsetz & Lehn, 1985; Renneboog, 2000; Demsetz & Villalonga, 2001; Krivogorsky, 2006; Maury, 2006; Villalonga & Amit, 2006; Bauguess et al., 2009; Chung & Zhang, 2011;

Aggarwal et al., 2011). In appendix a, a table is provided to give an overview of variables used by the authors.

4.3.1 Dependent variable

The dependent variable will be firm performance.

The primary measures for firm performance are return on assets (ROA), return on equity (ROE) and market to book (MTB). (Demsetz & Villalonga, 2001; Krivogorsky, 2006; Maury, 2006; Aggarwal et al., 2011).

Table 2

Measures of firm performance

Variable	Definition	Source
ROA (%)	net income/total assets*100	Hillier et al. (2010)
(Return on assets)		Maury (2006)
		Krivogorsky (2006)
ROE (%)	net income/shareholders funds*100	Hillier et al. (2010)
(Return on equity)		Maury (2006)
		Krivogorsky (2006)
MTB	price per share*number of shares	Hillier et al. (2010)
(Market to book)	outstanding/book value of equity	Krivogorsky (2006)

Using these measures it is good to keep in mind the limitations of using accounting based measures. These measures are affected by accounting rules for valuing assets (different methods are used) and therefore are sensitive to manipulation (sometimes employees will not provide the right information, but adjust the numbers in favor of themselves). Another limitation is that these accounting based measures are a mixture of current and historic costs but not expressed in dollars or euros (Krivogorsky, 2006).

An alternative to these measures is the market to book ratio. This ratio is not affected by these limitations. However a limitation of this ratio is that it can only be calculated for publicly traded companies (Hillier et al., 2010). I don't expect this to be a problem, because these firms are not of interest for my research.

4.3.2 Independent variable

The independent variable will be ownership structure. All measures will be expressed in percentages, in order to make a fair distinction for larger and smaller companies. 0 percent indicates that no shares are owned in that particular ownership identity.

Table 3

Measures of ownership structure

Variable	Definition	Source
FamOwn *(Family ownership)*	Number of shares held by family/ total number of shares	Demsetz & Villalonga, 2001 Krivogorsky, 2006 Villalonga & Amit, 2006
ManOwn_ManB *(Managerial ownership management board)*	Number of shares owned by management management board/ total number of shares	Demsetz & Villalonga, 2001 Krivogorsky, 2006 Villalonga & Amit, 2006
ManOwn_SupB *(Managerial ownership supervisory board)*	Number of shares owned by management supervisory board/ total number of shares	Demsetz & Villalonga, 2001 Krivogorsky, 2006 Villalonga & Amit, 2006
CorpOwn *(Corporate ownership)*	Number of shares owned by corporation/ total number of shares	Demsetz & Villalonga, 2001 Krivogorsky, 2006 Villalonga & Amit, 2006
InstOwn *(Institutional ownership)*	Number of shares owned by institution/ total number of shares	Demsetz & Villalonga, 2001 Krivogorsky, 2006 Villalonga & Amit, 2006
GovOwn *(Governmental ownership)*	Number of shares owned by government/ total number of shares	Demsetz & Villalonga, 2001 Krivogorsky, 2006 Villalonga & Amit, 2006

4.3.3 Control variables

Control variables are used to test whether the effect is caused by other variables. Control variables ensure that my model is not exposed to omitted variable bias.

Table 4

Control variables

Variable	Definition	Source
FirmSize *(Firm size)*	Book value of total assets	Renneboog, 2000 Maury, 2006 Aggarwal et al., 2011
Leverage	Total debt/total capital (assets)	Maury, 2006 Krivogorsky, 2006 Chung & Zhang, 2011
Industry	Dummy variables for two-digit NACE codes are used to control for industry effects. Appendix b shows distribution of the sample in various industry.	Maury, 2006

4.4 Robustness checks

4.4.1 Normality

In order to check for normality, a Shapiro-Wilk test is used (Krivogrosky, 2006). This test shows how the data is distributed. If the test shows that the data is skewed or non linear, raw data will be converted into log values. Because my sample size is 80 companies, extreme values can have an impact (Demsetz & Lehn, 1985; Demsetz & Villalonga, 2001).

4.4.2 Multicollinearity

In practice, in correlation matrix, 0 shows no collinearity and 1 shows perfect collinearity. De Veaux et al. (2008) state "when two or more predictors are linearly related, they are said to be collinear. The general problem of predictors with close (but perhaps not perfect) linear relationships is called the problem of collinearity" (p. 839). In ordinary least square regression analysis, a more precise measure for multicollinearity can be computed by the variable

inflation factor (VIF) (Maury, 2006, Krivogorsky, 2006). Collinearity is a problem if VIF>3.78 (Krivogorsky, 2006).

5.   Data

5.1 Data collection

The data I will use for my research will be secondary data of quantitative nature. The use of secondary data has the advantage that it saves time and money.

Financial information for the dependent and independent variables is collected from "Orbis". "Orbis" is a website that provides business and financial information about companies around the globe. The University of Twente grants free access.

Additional source is the Dutch financial daily "Het Financieele Dagblad". "Het Financieele Dagblad" provides a list with all Dutch listed companies.

The target population for my study will be Dutch firms listed on the Euronext Amsterdam, these include AEX (Amsterdam Exchange Index), AMX (Amsterdam Midkap Index) and the category "other shares" ("Het Financieele Dagblad"). In total I obtain a sample of 80 companies. The sample contains firms that were traded on the Euronext Amsterdam between 2010 and 2013. Information is used from the last year available. In 62 cases, information of 2012 was used. In 16 cases, information of 2013 was used and in 2 cases information of 2010 and 2011 was used (appendix c shows a table with all firms used in my research). Maury (2006), p. 325 state that 'the fact that the ownership data do not come from the same year is not likely to be a problem, because ownership stakes of largest shareholders are relatively stable over time'. In my research, I checked this for some of my firms and this is also applicable for my research.

Index is used because this provides information about the 25 largest shares traded in that particular category. Financial firms are excluded, because these firms have high leverage. If these firms were included, it would bias the results, because financial firms have higher leverage ratio's, which would not give a fair view if included.

In order to check weather "Orbis" provides valid information; I checked the extreme values for the ratios on the basis of annual reports. These numbers are the same as "Orbis" shows. Firms that were double checked were; Pharming group N.V.; Crown van Gelder N.V.; Cryo-Save Group N.V.; Reed Elsevier N.V.; Royal Imtech N.V. and Dico International N.V.

Not every shareholder is used. In order to be sure that shareholders will have an influence, shareholders with more than one percent of shares in the firm are used. Maury (2006) and Villalonga & Amit (2006) use five percent, however this is for blockholder research. Morck et al. 1988 use for each category a one percent increase in ownership to find Q. In my research, I do not focus on blockholders and therefore I believe that because all the firms I investigate are scaled as 'very large companies' more than 1 percent will have a noticeable effect. Regression analyses will be conducted for

- The entire sample with all industries included
- The entire sample with NACE categories 10-33 (manufacturing) and 58-63 (information and communication) as dummy variables
- For a subsample 2012

Reason for using the two biggest NACE categories is because the other categories with significantly less firms in it do not represent the whole industry. The category manufacturing contains 33 companies, the category information and communication contains 13 companies. All other categories contain 7 or fewer companies.

Reason for using a subsample analysis for 2012 is because the other analyses show a comparison between information of different years (e.g. Akzo Nobel N.V. information from 2012 and ASML Holding N.V. information from 2013). 2012 is the year with the most observations, namely 62. This subsample analysis will show if there are significant changes in the data compared to the whole sample.

5.2 Classification of ownership structure

In order to classify the ownership structure, "Orbis" uses letters.

A=   Insurance company

B=   Bank

C=   Industrial company

E=   Mutual & Pension Fund/Nominee/Trust/Trustee

I=   One or more named individuals or families (in some cases, is placed in front of the shareholder. This sign means the shareholder is also a manager).

S=   Public authority/State/Government

In section 2.2.1.1.2.1 definitions of family ownership and managerial ownership are given. Family ownership are the founders of the firm and their direct families; managerial ownership are the managers of the firm who have share in the firm, this can be in the board of directors or management board (Morck et al., 1988; Müller & Wärneryd, 2001; Maury, 2006; Villalonga & Amit, 2006; Connelly et al., 2010).

Section 2.2.1.1.2.2 defines corporate ownership as large companies that have temporarily unneeded cash. This means that these firms do not invest for others.

Institutional investors do invest for others; such as pension funds, banks or insurance companies (Chung & Zhang, 2011, p. 250).

Governmental ownership is the acquisition of a firm by the government.

The next table shows how the "Orbis" letters are used in relations to the definitions mentioned above.

Table 5

Classification of ownership structure

FamOwn	I (without the ▲ sign)
ManOwn_ManB	I (with the ▲ sign), checked for management board
ManOwn_SupB	I (with the ▲ sign), checked for supervisory board
CorpOwn	C
InstOwn	A+B+E
GovOwn	S

6.   Results

6.1 Descriptive statistics

Before controlling for outliers, the data shows some interesting numbers, such as a maximum market to book ratio of 1125 and. In case of one firm, a negative market to book ratio is shown, this is because shareholders funds are negative. This firm also shows a leverage ratio of more 128 percent. This is because the debt of this firm is higher than the total assets, which means that the majority of the assets are financed with debt.

Return on equity shows a minimum of -300,60 %. A negative ROE means a negative net income. A negative net income means that reserves are decreasing. More money is leaving the company than is entering it.

In case of PostNL N.V., Orbis labels ROE as "not significant". ROE of this firm is noted as a 0 in my data. In this way, SPSS does not consider these numbers as missing.

In order to control for extreme values the interquartile range method is used.

De Veaux et al. (2008) and Baarda et al. (2007) consider outliers as any point more than 1.5 IQR from either end of the box in a boxplot is considered an outlier.

In order to control for extreme outliers, any point more than 3 IQR from either end of the box in a boxplot is considered an extreme outlier (De Veaux et al., 2008; Baarda et al., 2007). Because of the small sample of my research, only the extreme outliers are considered outliers. First, the percentiles are calculated. Market to book shows for the 25 percentile a number of 1.03 and for the 75 percentile a number of 3.11. Return of equity shows for the 25 percentile a number of -4.97 and for the 75 percentile a number of 17.45. Return on assets shows for the 25 percentile a number of -2.41 and for the 75 percentile a number of 6.71.

The outliers belonging to these percentiles are in case of market to book ratio, any number lower than -5.21 and higher than 9.35 is considered an outlier. In case of return to equity ratio, any number lower than -72.23 and higher than 84.71 are outliers. In case of return to assets ratio, any number lower than -29.77 and higher than 34.07 are outliers.

After controlling for extreme values, descriptive statistics table looks like:

Table 6

Descriptive statistics

	Mean	Median	Std. Deviation	Min.	Max.
FamOwn (%)	9.68	.00	17.98	.00	89.91
ManOwn_ManB (%)	2.20	.00	10.54	.00	81.18
ManOwn_SupB (%)	1.80	.00	9.45	.00	79.50
CorpOwn (%)	15.20	5.67	21.88	.00	95.56
InstOwn (%)	40.68	37.05	26.54	.00	99.51
GovOwn (%)	1.85	1.40	2.46	.00	12.75
FirmSize (mln USD)	5401.81	1112.41	10633.52	.05	47470.69
Leverage	.58	.55	.18	.04	1.28
ROA (%)	1.52	2.37	8.27	-25.92	16.76
ROE (%)	3.18	6.73	21.80	-59.81	45.68
MTB	2.17	1.79	1.60	-2.05	6.95

Table 6 provides descriptive statistics after controlling for extreme values.

The independent variables indicate that the firms in the sample are dominated by institutional owned (mean InstOwn= 40.68%). Firms with corporate ownership show 15.20%, family ownership show 9.68% and the rest of the independent variables show an almost equal distribution.

Compared to other literature, presence of institutional ownership is also strong in the research of Krivogorsky (2006). She finds a mean of 31.67 percent for institutional ownership in continental European countries. Governmental ownership shows a 44.29 percent in the research of Krivogorsky (2006). The median shows a 0, which means that half or more of the firms investigated have no governmental ownership.

Table 7

Frequency of ownership structure in industries

Industry description	FamOwn (%)		ManOwn_ManB (%)		ManOwn_SupB (%)		CorpOwn (%)		InstOwn (%)		GovOwn (%)	
	Mean	Freq.	Mean	Freq.	Mean	Freq.	Mean	Freq.	Mean	Freq.	Mean	Freq.
Mining and quarrying	-	-	-	-	-	-	1.09	1	27.13	1	2.03	1
Manufacturing	27.09	14	28.16	3	48.73	2	18.55	23	43.26	31	3.66	19
Construction	21.19	3	28.55	1			16.06	6	52.42	7	3.24	4
Wholesale and retail trade, repair of motor vehicles and motorcycles	3.32	2	17.07	1	15.76	1	17.68	3	43.87	6	1.69	2
Transporting and storage	10.18	3			-	-	22.30	4	41.78	4	2.18	2
Information and communication	21.75	5	4.11	2	18.93	1	22.40	11	37.57	12	2.69	6
Real estate activities	13.50	4	-	-	6.44	1	9.95	5	48.25	6	4.35	5
Professional, scientific and technical activities	63.00	1	-	-	5.36	1	6.50	2	53.66	4	3.21	4
Administrative and support service activities	26.44	2	-	-	-	-	18.87	2	30.53	3	2.36	2
Human health and social work activities	5.85	1	37.66	1	-	-	33.81	1	16.87	1	-	-
Arts, entertainment and recreation	9.95	1	-	-	-	-	73.00	1	25.28	1	-	-
Other services activities	-	-	-	-	-	-	95.56	1	-	-	-	-
Total	21.51	36	22.00	8	23.99	6	20.26	60	42.82	76	3.28	45

Table 7 compares ownership in different industries. In order to make a comparison between the different industries, I have excluded the 0% for the independent variables. In this way, if one of the six ownership identities is not present in a certain firm, it is not counted.

Table 7 presents frequency and means in different ownership categories for each two-digit NACE codes. Institutional ownership is a common feature of most industries of Dutch listed firms. It is particular common in large industries like manufacturing and information and communication. The industry manufacturing shows also a high frequency for corporate ownership (N=23).

It is good to note that most of the industries only hold 1 or 2 firms. Because of these low numbers, it is not possible to generalize.

6.2 Robustness tests

6.2.1 Normality

In order to test the OLS residuals for consistency with normality, a Shapiro-Wilk test is conducted.

Table 8

Test of normality

	Shapiro-Wilk		
	Statistic	df	Sig.
FamOwn (%)	.63	74	.00
ManOwn_ManB (%)	.19	74	.00
ManOwn_SupB (%)	.20	74	.00
CorpOwn (%)	.70	74	.00
InstOwn (%)	.96	74	.01
GovOwn (%)	.76	74	.00
FirmSize	.56	74	.00
Leverage	.94	74	.00
ROA (%)	.93	74	.00
ROE (%)	.88	74	.00
MTB	.90	74	.00

Table 8 shows the data is not normally distributed. P-values of $0.00 < 0.05 = \alpha$, and so, with 95% confidence the data is not normally distributed. This is because the sample size is very small e.g. in case of managerial ownership management board, there are 9 cases. Extreme values are controlled for.

Because of testing for normality, a non-linear pattern is found for firm size. This is why a logarithm of firm size (LOG of mln USD) will be used.

Normal Q–Q Plot of Firm size in ml USD

[Figure: Normal Q–Q Plot with Observed Value on the x-axis and Expected Normal on the y-axis]
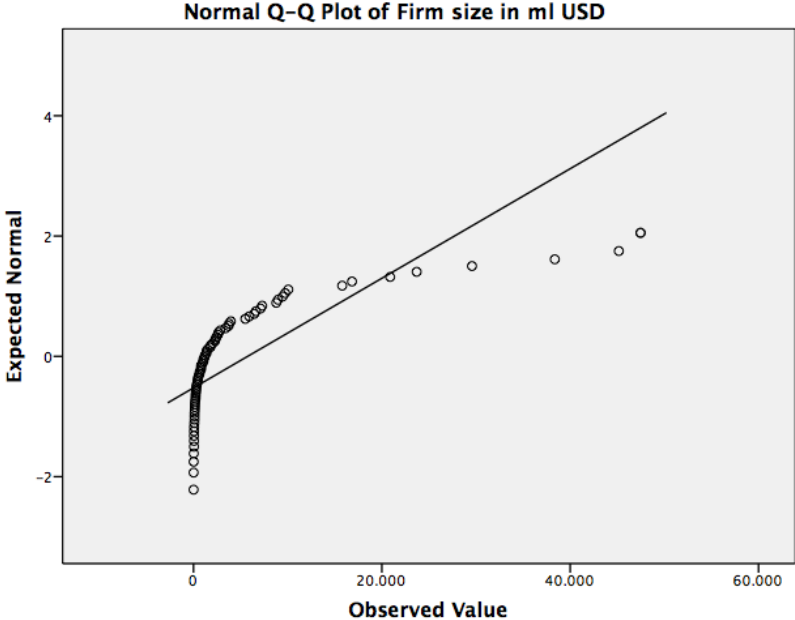
6.2.2 Multicollinearity

To test for multicollinearity, I computed the variable inflation factor for each variable and controlled for industry effects (appendix d). To identify multicollinearity, a VIF of more than 3.78 is considered multicollinear (Krivogorsky, 2006). Results show no multicollinearity.

6.3 Correlation

Table 9

Pearson correlation

	Fam Own (%)	Man Own_ ManB (%)	Man Own_ SupB (%)	Corp Own (%)	Inst Own (%)	Gov Own (%)	LOGFirm Size	Leverage	ROA (%)	ROE (%)	MTB
FamOwn (%)	1										
ManOwn_ManB (%)	-.03	1									
ManOwn_SupB (%)	-.05	-.03	1								
CorpOwn (%)	.34**	-.03	-.07	1							
InstOwn (%)	-.29**	-.09	-.14	-.32**	1						
GovOwn (%)	-.25*	-.15	-.10	-.23*	.36**	1					
LOGFirmSize	-.48**	.02	-.13	-.39**	.26*	.31**	1				
Leverage	-.03	-.02	.03	.09	.00	.14	.21	1			
ROA (%)	-.03	.05	.02	-.03	.05	.08	.11	-.35**	1		
ROE (%)	.03	-.08	.04	.00	.08	.17	.21	-.13	.94**	1	
MTB	.04	-.08	-.05	-.11	.12	.17	.18	-.16	.41**	.51**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 9 reports Pearson correlations among all variables. A high correlation would mean that all the data points would fall on a single straight line (De Veaux, Velleman & Bock, 2008). The consequence of high correlation would be multicollinearity between variables (Krivogorsky, 2006; Maury, 2006).

Most interesting correlations show percentage of family ownership (FamOwn) is negatively correlated with firm size (LOGFirmSize) (r=-48%). This means that the amount of family ownership was lower when firm size was higher. Corporate ownership (CorpOwn) also shows a negative correlation with firm size (LOGFirmSize) (r=-0.39). This means that in case of higher firm size, corporate ownership was lower.

6.4 Regression analyses

Because the independent variables have a lot of 0%, standardize coefficients are used. Standardized coefficients tell us about the difference between the variables in standard deviations and not per unit.

Table 10

OLS regression (all industries included)

		ROA (%)	ROE (%)	MTB
Constant	β			
	(t)	-.82	-2.14[**]	-1.61
FamOwn (%)	β	.15	.19	.21
	(t)	1.03	1.49	1.67[***]
ManOwn_ManB (%)	β	.06	.08	-.02
	(t)	.54	.64	-.19
ManOwn_SupB (%)	β	.10	.15	.05
	(t)	.87	1.30	.45
CorpOwn (%)	β	.02	.08	-.01
	(t)	.12	.51	-.08
InstOwn (%)	β	.01	.05	.10
	(t)	.05	.39	.82
GovOwn (%)	β	.17	.22	.19
	(t)	1.28	1.67[***]	1.45

LOGFirmSize	β	.30	.36	.38
	(t)	1.97**	2.62*	2.90*
Leverage	β	-.45	-.29	-.23
	(t)	-3.45*	-2.31**	-1.85***
Industry dummy		Included	Included	Included
Adjusted R^2	β	.06	.10	.15
Number of observ.	β	67	68	69

* Significant at 1% level

** Significant at 5% level

*** Significant at 10% level

Table 10 provides an industry-adjusted ordinary least squares (OLS) regression for each of ROA, ROE and MTB on the independent variables. The t statistics measure whether the predictors are statistically significant.

For ROA, significance numbers of (FamOwn) .31; (ManOwn_ManB) .59; (ManOwn_SupB) .39; (CorpOwn) .90; (InstOwn) .96 and (GovOwn) .21 are shown. These numbers tell that no significant results are found for ROA.

For ROE, significance numbers of (FamOwn) .14; (ManOwn_ManB) .52; (ManOwn_SupB) .20; (CorpOwn) .61; (InstOwn) .70 and (GovOwn) .10 are shown. These numbers tell that some significant results are found for ROE (%).

For MTB, significance numbers of (FamOwn) .10; (ManOwn_ManB) .85; (ManOwn_SupB) .66; (CorpOwn) .94; (InstOwn) .41 and (GovOwn) .15 are shown. These numbers tell that some significant results are found for MTB.

The most important findings here are the significant positive relation between family ownership and MTB. This means that an increase in percentage of ownership will increase MTB value. And percentage of governmental ownership is significantly positive related to ROE, which means that an increase in governmental ownership will most likely increase ROE. Other interesting findings are leverage consistently relates negatively to firm performance. This explains that a decrease in debt will increase firm performance. Second finding, logarithm of firm size is positively related to firm performance. This explains that most likely an increase in firm size will increase firm performance.

Because the analysis above has 12 NACE categories with sometimes just one firm in it, new analysis will be conducted. In the next regression analysis the two NACE categories with most firms in it will be used. These categories are manufacturing (10-33) and information and communication (58-63). The category manufacturing contains 33 companies, the category information and communication contains 13 companies. All other categories contain 7 or fewer companies.

Table 11

OLS regression with dummy variables NACE 10-33 and 58-63

		ROA (%)	ROE (%)	MTB
Constant	β			
	(t)	-0.93	-2.28[*]	-1.70[***]
FamOwn (%)	β	0.08	0.17	0.20
	(t)	0.64	1.35	1.71[***]
ManOwn_ManB (%)	β	0.06	-0.04	-0.03
	(t)	0.52	-0.33	-0.24
ManOwn_SupB (%)	β	0.10	0.15	0.04
	(t)	0.87	1.30	0.40
CorpOwn (%)	β	0.14	0.15	0.00
	(t)	1.06	1.22	0.00
InstOwn (%)	β	0.01	0.07	0.11
	(t)	0.11	0.58	0.90
GovOwn (%)	β	0.13	0.16	0.14
	(t)	1.03	1.24	1.18
LOGFirmSize	β	0.30	0.41	0.36
	(t)	2.03[**]	2.99[*]	2.81[*]
Leverage	β	-0.45	-0.26	-0.23
	(t)	-3.72[*]	-2.13[**]	-1.96[**]
Industry dummy		Included	Included	Included
Adjusted R^2	β	0.07	0.08	0.17
Number of observ.	β	67	68	69

* Significant at 1% level

** Significant at 5% level

*** Significant at 10% level

The t statistics in relation to the significances show no support for my hypotheses.

For ROA, significance numbers of (FamOwn) .52; (ManOwn_ManB) .60; (ManOwn_SupB) .39; (%CorpOwn) .29; (InstOwn) .91 and (GovOwn) .31 are shown. These numbers tell that no significant results are found for ROA.

 For ROE, significance numbers of (FamOwn) .18; (ManOwn_ManB) .74; (ManOwn_SupB) .20; (CorpOwn) .23; (InstOwn) .56 and (GovOwn) .22 are shown. These numbers tell that no significant results are found for ROE.

For MTB, significance numbers of (FamOwn) .09; (ManOwn_ManB) .81; (ManOwn_SupB) .69; (CorpOwn) 1.00; (InstOwn) .37 and (GovOwn) .24 are shown. These numbers show a significant relation between family ownership and MTB.

These findings show that the results partially support the assumptions regarding the hypotheses. The most interesting finding is a significant positive relation between family ownership and MTB. This means that an increase in family ownership will increase MTB. Other important findings are LOG firm size is positively related to firm performance. This explains that most likely an increase in firm size will increase firm performance.

Second interesting finding is leverage consistently relates negatively to firm performance. This explains that a decrease in debt will increase firm performance.

Table 12

OLS regression for independent variables tested separately

		ROA			ROE			MTB		
		Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Constant	β									
	(t)	-0.80	-0.44	-0.27	-2.41**	-2.21**	-1.93**	-1.35	-1.51	-1.20
FamOwn (%)	β									
	(t)									
ManOwn_ManB (%)	β									
	(t)									
ManOwn_SupB (%)	β									
	(t)									
CorpOwn (%)	β	0.11			0.11			-0.03		
	(t)	0.93			0.95			-0.26		
InstOwn (%)	β		-0.13			0.04			0.11	
	(t)		-0.12			0.35			1.04	
GovOwn (%)	β			0.08			0.13			0.14
	(t)			0.72			1.07			1.32
LOGFirmSize	β	0.27	0.22	0.20	0.36	0.32	0.29	0.33	0.32	0.30
	(t)	2.13**	1.88***	1.65	2.88*	2.60*	2.36**	2.81*	2.81*	2.62*
Leverage	β	-0.42	-0.4	-0.40	-0.23	-0.21	-0.22	-0.21	-0.21	-0.23

	(t)	-3.62[*]	-3.48[*]	-3.55[*]	-1.88[**]	-1.75[***]	-1.85[***]	-1.86[***]	-1.89[***]	-2.04[**]
Industry dummy		Included	Included	Included	Included	Included	Included	Included	Included	Included
Adjusted R^2		0.18	0.17	0.18	0.13	0.12	0.14	0.22	0.23	0.24
Number of observ.		72	72	72	73	73	73	74	74	74

* Significant at 1% level

** Significant at 5% level

*** Significant at 10% level

Table 12 tests the independent variables separately on firm performance. With this regression, only to industry dummies are used, NACE 10-33 and 58-63. This table represents three different models; these models are tested because correlation matrix shows high correlation for corporate ownership, institutional ownership and governmental ownership. Model 1 considers whether corporate ownership is related to ROA, ROE and MTB. Model 2 considers whether institutional ownership is related to ROA, ROE and MTB. Model 3 considers whether governmental ownership is related to ROA, ROE and MTB.

The most important finding is that none of the three separately tested independent variables show a significant relationship neither with ROA, ROE or MTB. Other findings are the same as the other regressions; LOG firm size shows a constant significant positive relation with all ratios. Leverage shows a constant significant negative relation with all ratios

Because the analysis above shows a comparison between information of different years (e.g. Akzo Nobel N.V. information from 2012 and ASML Holding N.V. information from 2013), I will conduct a subsample analysis for 2012 (the year with the most observations (62)). This will show if there are significant changes in the data compared to the whole sample. The outliers used in the analysis above remain the same for this analysis.

Table 13

Descriptive statistics for subsample 2012

	Mean	Median	Std. Deviation	Min.	Max.
FamOwn (%)	9.84	.00	17.54	.00	89.91
ManOwn_ManB (%)	2.34	.00	11.45	.00	81.18
ManOwn_SupB (%)	2.02	.00	10.49	.00	79.50
CorpOwn (%)	14.02	5.01	20.76	.00	95.56
InstOwn (%)	40.17	37.50	26.57	.00	97.27
GovOwn (%)	1.74	1.23	2.28	.00	8.20
FirmSize	5528.60	879.01	11670.36	.05	47470.69
Leverage	.57	.55	.15	.24	.89
ROA (%)	1.37	2.22	7.86	-25.92	13.84
ROE (%)	1.01	4.88	22.09	-59.81	28.67
MTB	2.17	1.71	1.53	.36	6.95

The independent variables indicate that the firms in this sample are dominated by institutional owned (mean %InstOwn= 40.17%). Firms with corporate ownership show 14.02%, family ownership show 9.84% and the rest of the independent variables show an almost equal distribution.

Table 14

OLS regression for subsample 2012

		ROA (%)	ROE (%)	MTB
Constant	β			
	(t)	0.07	-1.09	-0.76
FamOwn (%)	β	0.11	0.24	0.30
	(t)	0.60	1.54	2.06**
ManOwn_ManB	β	0.08	0.13	0.01
(%)	(t)	0.56	0.86	0.04
ManOwn_SupB	β	0.16	0.21	0.02
(%)	(t)	1.12	1.50	0.14
CorpOwn (%)	β	-0.01	0.16	-0.06
	(t)	-0.03	0.87	-0.33
InstOwn (%)	β	-0.02	0.11	0.16
	(t)	-0.11	0.63	0.97
GovOwn (%)	β	0.19	0.20	0.24
	(t)	1.08	1.15	1.49
LOGFirmSize	β	0.14	0.18	0.12
	(t)	0.71	1.08	0.73
Leverage	β	-0.35	-0.13	0.22
	(t)	-2.08**	-0.79	1.43
Industry dummy		Included	Included	Included
Adjusted R^2	β	-0.03	0.04	0.13
Number of observ.	β	51	52	52

* Significant at 1% level

** Significant at 5% level

*** Significant at 10% level

For ROA, significance numbers of (FamOwn) .55; (ManOwn_ManB) .58; (ManOwn_SupB) .27; (CorpOwn) .98; (InstOwn) .91 and (GovOwn) .29 are shown. These numbers tell that no significant results are found for ROA.

For ROE, significance numbers of (FamOwn) .13; (ManOwn_ManB) .39; (ManOwn_SupB)

.14; (CorpOwn) .39; (InstOwn) .53 and (GovOwn) .26 are shown. These numbers tell that no significant results are found for ROE.

For MTB, significance numbers of (FamOwn) .05; (ManOwn_ManB) .97; (ManOwn_SupB) .89; (CorpOwn) .75; (InstOwn) .34 and (GovOwn) .14 are shown. These numbers tell that some significant results are found for MTB.

Most important findings are family ownership is significantly positively related to MTB value. This means that an increase in family ownership will most certainly lead to an increase in MTB value. Second, as in all the regression tables above, leverage is negatively related to ROA.

Table 15

OLS regression for subsample 2012 with dummy variables NACE 10-33 and 58-63

		ROA	ROE	MTB
Constant	β			
	(t)	-0.35	-1.88[***]	-0.87
FamOwn (%)	β	0.13	0.26	0.31
	(t)	0.75	1.77[***]	2.22[**]
ManOwn_ManB (%)	β	0.07	0.00	0.00
	(t)	0.54	-0.03	0.02
ManOwn_SupB (%)	β	0.17	0.22	0.03
	(t)	1.21	1.61	0.24
CorpOwn (%)	β	0.10	0.18	-0.03
	(t)	0.61	1.25	-0.25
InstOwn (%)	β	-0.04	0.11	0.11
	(t)	-0.25	0.67	0.70
GovOwn (%)	β	0.22	0.19	0.28
	(t)	1.39	1.25	1.91[***]
LOGFirmSize	β	0.21	0.28	0.15
	(t)	1.16	1.75[***]	0.96
Leverage	β	-0.38	-0.15	0.13
	(t)	-2.52[**]	-0.99	0.91
Industry dummy		Included	Included	Included
Adjusted R^2	β	0.00	0.02	0.11

Number of observ.	β	51	52	52

* Significant at 1% level

** Significant at 5% level

*** Significant at 10% level

For ROA, significance numbers of (FamOwn) .46; (ManOwn_ManB) .59; (ManOwn_SupB) .23; (CorpOwn) .54; (InstOwn) .80 and (GovOwn) .17 are shown. These numbers tell that no significant results are found for ROA.

For ROE, significance numbers of (FamOwn) .08; (ManOwn_ManB) .98; (ManOwn_SupB) .11; (CorpOwn) .22; (InstOwn) .51 and (GovOwn) .22 are shown. This analysis shows a significant positive relation for family ownership and ROE.

 For MTB, significance numbers of (FamOwn) .03; (ManOwn_ManB) .98; (ManOwn_SupB) .81; (CorpOwn) .80; (InstOwn) .49 and (GovOwn) .06 are shown. These numbers tell that some significant results are found for MTB.

The most important findings in table 15 are family ownership significantly positively related to MTB. This means that an increase in family ownership will lead to an increase in MTB value. Another important finding is governmental ownership being significantly positively related to MTB value. This means that an increase in governmental ownership will lead to an increase in MTB value.

7. Conclusion and recommendations

7.1 Conclusion

While at the beginning of my research, most of the theory showed no significant relationship between ownership structure and firm performance. However, most of this theory did not focus on the Dutch market. My study has been an attempt to investigate this for the Dutch market.

The research question for my thesis is:

"Does ownership structure affect firm performance?"

To answer this question, five hypotheses are investigated.

Using OLS regression on the data collected; in some cases a significant relation was found between family ownership and MTB (and for subsample 2012 for ROE and MTB). Therefore the first hypothesis 'firm performance is positively affected by family ownership' is accepted. It is hard to compare these findings with other authors, because other authors investigated different markets and sometimes specified family ownership in a different way. However when I do compare it, my conclusion is consistent with the findings of Maury (2006) who found that active and passive family control was associated with higher firm valuations and Villalonga & Amit (2006) who found that family ownership created value when founder serves as CEO or Chairman.

For managerial ownership and firm performance, no significant relation was found. I have split up managerial ownership in management board and supervisory board, but none of these two variables shows a significant relation with firm performance. Therefore the second hypothesis 'firm performance is negatively affected by managerial ownership' is rejected. This finding is consistent with the findings of Krivogorsky (2006). She did not find a significant relation for managerial ownership and profitability.

For corporate ownership and firm performance, no significant relation is found. Therefore the third hypothesis 'firm performance is positively affected by corporate ownership' is rejected. Also no significant relation was found for institutional ownership and firm performance. Therefore the fourth hypothesis 'firm performance is positively affected by institutional ownership' is rejected.

Governmental ownership shows a positive relation with ROE and MTB in some regressions. This indicates that governmental ownership does improve firm performance. Therefore the fifth hypothesis 'firm performance is positively affected by governmental ownership' must be accepted. Chung & Zhang (2011) find that the fraction of a company's shares that are held by institutional investors increases with the quality of its governance structure.

Borisova et al. (2012) find that government ownership is associated with lower governance quality.

7.2 Limitations and recommendations for future research

Limitations of this study are that this study only includes Dutch listed firms. Because non-listed firms and financial firms are excluded, the results cannot be generalized.

Second, because I excluded non-listed Dutch firms, my sample size was small; this can also make it hard to generalize. If the sample size was larger, the results are more reliable.

Third, information from the last year available was used. In 62 cases, information of 2012 was used. In 16 cases, information of 2013 was used and in 2 cases information of 2010 and 2011 was used. My research would be more robust if information of other years was added.

Recommendations for future research

One recommendation would be to conduct research not only for Dutch listed firms. Future research should try to make a comparison between different countries. Country specific factors can have an impact. An additional advantage will be that the sample size increases, which makes it more robust and generalizable.

Furthermore, it would be worthwhile to study the endogeneity of ownership structure. In my research this is not accounted for, however it could provide new insights. In my study it is suggested that ownership structure affect firm performance, however, there is also a possibility that it is the other way around. Cho (1998) treated ownership structure as endogenous and found that investment affects corporate value, which in turn affects ownership structure.

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Appendices

Appendix A

	Demsetz & Lehn, 1985	Renneboog, 2000	Demsetz & Villalonga, 2001	Krivogorsky, 2006	Maury, 2006	Villalonga & Amit, 2006	Chung & Zhang, 2011	Aggarwal et al., 2011
Ownership structure	Percentage of share controlled by top five and top twenty	Percentage of ownership by category of owner (e.g. holding company, banks etc.)	Average percentage of shares owned by management	Percentage of stockholding by institutions	Dummy variables for different family ownership structures	Family firm→firm whose founder or a member of the family by either blood or marriage is an officer, a director, or the owner for at least 5% of the firm's equity, individually or as a group	Number of shares held by institutional investors to the total number of shares outstanding	Institutional ownership→ dummy variable
	Percentage of shares controlled by top five families and individuals	Percentage held by the largest shareholder	Average percentage of shares owned by five largest shareholders	Percentage of stockholding by blockholders other than institutional investors	Control minus ownership→difference between control rights and cash-flow rights held by the largest shareholder	Family ownership stake→ ratio of the number of shares of all classes held by the family to total shares outstanding	Compounded annual stock return	Insider ownership→number of shares held by insiders (shareholders who hold 5% or more of the outstanding shares, such as officers, directors, and immediate families, other corporations or individuals) as a fraction of the shares outstanding
	Percentage of shares controlled by institutional investors		Dummy variables are used for different industries	Dummy variable to record the fact that the company is family owned and CEO is the founder of the firm		Nonfamily blockholder ownership→ratio of number of shares held by all nonfamily blockholders to the total shares outstanding	S&P500→dummy variable of whether firm is included in S&P500 index	Ownership according to legal origin of the institution's home country→common institutional ownership or civil institutional ownership
	Dummy variables are used for different industries			Managerial ownership→average number of shares owned by all		Nonfamily outside directors→number of nonfamily outside directors/total number of		Sum of the holdings of all institutions in a firm's stock dividend by the

			directors/average number of common shares outstanding			directors on the Board.		stock's total market capitalization at the end of each calendar year
Performance measures	Stock market rate of return	Market adjusted returns	Tobin's Q→Year end market value of common stock and the book value of preferred stock and debt/ year end book value of its total assets.	Return on assets→accounting returns to total average assets	Tobin's Q→market value of common equity+book value of total assets-common equity and deferred taxes/book value of total assets	Tobin's Q→firm's market value to total assets. Market to book is used as a proxy for Q	Return on assets→net income/bookvalue of total assets	Growth→two year annual sales growth in U.S. dollars
	Accounting rate of return	Earnings and losses	Accounting profit→net income to book value of equity	Return on equity→book value of the shareholders' invested capital	Return on assets→(net income before preferred dividends+(interest expense on debt-interest capitalized)*(1-tax rate))	Industry adjusted Q→difference between firm's tobin's Q and the asset weighted average of the imputed qs of its segments, where a segment's imputed q is the industry average q.	Leverage→total debt to book value of total assets	Leverage→total debt/total assets
	Mean value of annual accounting profit after taxes, as a percentage of the book value of equity	Return on equity	Average annual advertising expenditures to annual sales	Market to book→price per share*number of shares outstanding/book value of equity	Return on equity→net income before preferred dividends-preferred dividend requirement all/last year's common equity*100	Return on assets→operating income after depreciation/total assets	Tobin's Q	Market to book ratio→market value of equity/book value of equity
		Return on equity-industry median return on equity(with earnings after tax)	Average annual research and development expenditures to annual sales			Market risk (beta)→estimate from market model in which the firm's monthly returns over the past five years are regressed on the S&P 500 monthly returns	Stock price	Return on assets→net income before extraordinary items+interest expenses/total assets
		Return on assets	Average annual debt to book value of total assets			Idiosyncratic risk→standard error of estimate from market model in which the firms monthly returns over the past five years are regressed on the S&P500 monthly returns	Firm age→number of years since the firm first appeared in the CRSP database	Tobin's Q→total assets+market value of equity-book value of equity/total assets
		Return on assets-industry median return on				Diversification→dummy variable. Used for		

			assets(with earnings from operations before interest and taxes)				identifying two or more segments in Compustat	
Control variables				Age→number of years a given firm's stock has been traded at NYSE or NASDAQ	Growth in net sales→average growth over the 3 year period			
				Growth→average percentage change in total assets for 2 years ending before the year of interst	Leverage→total debt/total capital			
				Debt ratio→debt capital (noncurrent liabilities)/debt capital+equity capital				
Firm size	Average annual market value of the firm's common equity	Logarithm of total assets or of total employees	Book value of assets	Logarithm of the company's total assets	logarithm of total assets			log of total assets in U.S. dollars
Research method	Correlation	Regression analysis	Correlation	Pearson correlation	First stage and second stage regression analysis	Ordinary least squares regression analysis	Pooled ordinary least squares regression analysis	Pooled ordinary least squares regression analysis
	Ordinary least squares regression analysis. Log values are used	Herfindahl→concentration measure	Ordinary least squares and two-stage least squares regression analysis. Log values are used	Ordinary least squares regression analysis. Observations with unusually large errors are excluded	T-test	T-test	Fama-MacBeth regression	F-test
	Ordinary least squares regression analysis. Log values are used		T-test	Generalized least squares→Hausman test	Weight of extreme value is reduces by capping variables at 5th and 95th percentiles		two stage regression	
	Herfindahl index of ownership concentration→summing squared percentages of shares controlled by each shareholder			T-test			Wilcoxon t-test	
	0.05 significance level			Shapiro Wilk test				
Test for mulitcollinearity				Variance inflation factors, if >3.78	Variance inflation factors for all variables			

				than multicollinearity	in the models are calculated			
Time period	5 years	6 years	5 years	2 years	5 years	7 years	5 years	5 years

Appendix B

NACE Codes	Definition	Number of companies from research
01-03	Agriculture, forestry and fishing	
05-09	Mining and quarrying	1
10-33	Manufacturing	33
35	Electricity, gas, steam and air conditioning supply	
36-39	Water supply, sewerage, waste management and remediation activities	
41-43	Construction	7
45-47	Wholesale and retail trade, repair of motor vehicles and motorcycles	6
49-53	Transporting and storage	4
55-56	Accommodation and food service activities	
58-63	Information and communication	13
64-66	Financial and insurance activities	
68	Real estate activities	6
69-75	Professional, scientific and technical activities	4
77-82	Administrative and support service activities	3
84	Public administration and defense, compulsory social security	
85	Education	

86-88	Human health and social work activities	1
90-93	Arts, entertainment and recreation	1
94-96	Other services activities	1
97-98	Activities of households as employers, undifferentiated goods- and services- producing activities of households for own use	
99	Activities of extraterritorial organizations and bodies	

Source: official website of the European Union (europa.eu)

Appendix C

Company name	Year	Fam Own	Man Own _Ma nB	Man Own _Sup B	Corp Own	Inst Own	Gov Own	In du str y	ML USD FirmSize	LOG Firm Size	Lev era ge	ROA	ROE	MTB
SBM Offshore N.V.	2013				1.09	27.13	2.03	9	7118,00	9.85	0.71	1.56	5.38	1.81
Koninklijke Wessanen N.V.	2012	25.58			8.01	26.96	2.49	10	445,83	7.03	0.70	-15.74	-52.36	3.13
Corbion N.V. (former CSM)	2012				4.19	61.72	2.86	10	1055,84	9.02	0.34	-2.92	-7.42	1.44
MTY Holdings N.V. (former Witte motor)	2010	81.25			89.00			10	10,68	9.57	0.55	-1.70	-3.80	1.05
Unilever N.V.	2012					13.43	1.84	10	45164,38	8.65	0.77	4.34	18.92	6.95
Nutreco N.V.	2012				2.99	42.59	2.73	10	3717,81	10.65	0.63	6.27	18.19	2.43
Heineken Holding	2012				15.00	31.60	1.15	11	47470,69	10.68	0.84	4.11	25.62	2.46
Heineken N.V.	2012				14.87	29.18	1.37	11	47470,69	10.68	0.68	8.20	25.23	2.63
Royal ten Cate N.V.	2012					90.48	3.16	13	1221,63	9.09	0.51	2.41	4.88	1.34
Hunter Douglas N.V.	2012		81.18			5.47		16	2440,00	9.39	0.55	4.14	9.24	1.61
Crown van Gelder N.V.	2012	4.44			18.17	14.00		17	95,32	7.98	0.44	-33.58	-50.59	0.36
Telegraaf Media Groep N.V.	2012				5.00	12.22		18	1055,09	9.02	0.47	-1.89	-3.55	0.83
Docdata N.V.	2012	15.94			24.38	42.86		18	109,66	8.04	0.55	9.03	20.00	3.33
Pharming Group N.V.	2013	8.09			4.87	20.70		20	43,32	7.72	0.84	-47.95	-300.60	31.84
Koninklijke DSM N.V.	2012					40.80	2.21	20	15787,94	10.20	0.51	2.32	4.73	1.59
Holland Colours N.V.	2013				15.31	11.80		20	52,37	7.64	0.39	7.14	11.72	1.03
Akzo Nobel N.V.	2012					38.48	1.20	21	23700,38	10.37	0.62	-12.08	-31.47	2.01
Hydratec Industries N.V.	2012	3.20	79.50			6.00		22	112,90	8.05	0.67	5.49	16.53	1.33
Kendrion N.V.	2012	9.99			5.02	59.72		22	303,59	8.48	0.55	7.78	17.36	3.23
Koninklijke Delftsch Aardewerkfabriek 'De Porceleyne Fles anno 1653'	2012	1.96			71.15	9.37		23	27,12	7.43	0.51	0.85	1.71	0.60
Advanced Metallurgical Group N.V.	2012	4.71				52.84	5.37	24	947,92	8.98	0.78	0.25	1.14	1.28

	Year												
TKH Group N.V.	2012				5.00	90.67	7.81	24	1371,01	9.14	0.59	2.77	6.73	2.36
Neways Electronics International N.V.	2012					70.96		26	135,29	9.36	0.53	-0.40	-0.85	1.51
ASM International N.V.	2012			17.96		59.30	3.23	26	2045,53	8.13	0.49	1.03	2.02	2.38
BE Semiconductor Industries N.V.	2012	21.75	1.08		5.12	47.66		26	479,47	8.68	0.27	4.29	5.91	1.71
Value8 N.V.	2012	49.00			8.91	79.94		26	52,38	7.72	0.53	5.74	12.08	2.37
TomTom N.V.	2012	48.00			1.69	10.04	2.19	26	2275,23	9.31	0.49	7.47	15.40	1.25
ASML Holding N.V.	2013				9.21	49.52	1.36	26	16829,66	8.24	0.38	9.78	15.82	3.71
Nederlandse Apparatenfabriek 'Nedap' N.V.	2012				20.17	95.85	8.20	26	172,93	10.23	0.52	10.29	21.42	3.47
Koninklijke Philips N.V.	2012				1.41	29.87	3.10	27	38366,83	10.58	0.58	0.78	2.03	2.18
Aalberts Industries N.V.	2012	15.40	2.23			51.52	4.33	28	2580,08	9.41	0.50	6.91	13.94	2.87
Accell Group N.V.	2012				4.81	48.33	6.81	30	794,39	8.90	0.59	3.85	9.35	1.49
Dico International N.V.	2012	89.91			89.00			31	0,05	8.17	0.83	-14.29	-83.33	1125.00
Beter Bed Holding N.V.	2012				3.44	97.27	8.11	31	146,26	4.70	0.50	13.01	25.82	6.69
Koninklijke BAM Groep N.V.	2012	13.80			14.47	38.90	2.36	41	8793,04	9.26	0.86	-2.81	-20.33	1.18
Heijmans N.V.	2013				9.95	63.11	5.53	41	1825,40	9.94	0.76	0.14	0.59	0.77
Ballast Nedam N.V.	2012				35.00	22.84		42	1168,99	9.07	0.85	-4.63	-31.30	0.72
Koninklijke Boskalis Westminster N.V.	2012				1.49	72.88	1.72	42	6450,24	9.81	0.61	5.12	13.18	2.60
OCI N.V.	2011	34.10	28.55		25.90	97.43		42	9732,40	9.99	0.66	6.53	19.05	2.62
Royal Imtech N.V.	2013				9.52	35.37	3.35	43	4526,62	8.03	0.91	-21.36	-230.20	2.16
Batenburg Techniek N.V.	2012	15.67				36.41		43	107,28	9.66	0.49	1.26	2.44	0.85
Stern Groep N.V.	2012		17.07			42.17		45	665,20	8.82	0.73	-1.37	-5.14	0.70
Koninklijke Reesink N.V.	2012					37.96		46	215,19	8.33	0.55	-2.66	-5.84	1.13
Sligro Food Group N.V.	2013	4.07				37.05	1.43	46	1387,46	9.14	0.43	6.76	11.91	2.23
Amsterdam Commodities N.V.	2012	2.56		15.76	24.59	39.67		46	350,76	8.55	0.53	10.17	22.17	3.64
Macintosh Retail Group N.V.	2012				17.22	79.81		47	641,59	8.81	0.57	-25.92	-59.81	0.93
Koninklijke Ahold N.V.	2013				11.23	26.56	1.96	47	20882,33	10.32	0.57	16.76	38.91	2.05
TNT Express N.V.	2012	9.62			20.07	41.75	1.48	52	5922,79	9.77	0.40	-1.85	-3.06	1.38
Koninklijke Vopak N.V.	2012				46.90	69.19		52	6625,50	9.82	0.63	6.40	17.48	3.05
H.E.S. Beheer N.V.	2012	11.07			14.87	9.50		52	284,95	8.45	0.43	11.85	20.96	3.43
PostNL N.V.	2013	9.84			7.36	46.69	2.88	53	3398,10	9.53	1.28	-6.90	0	-2.05

	Year													
Roto Smeets Group N.V.	2012				1.11	25.00		58	232,58	8.37	0.70	-16.56	-55.79	0.39
Tie Kinetix N.V.	2013	14.96	2.66	18.93	35.41	22.20		58	12,19	7.09	0.55	-14.18	-31.30	1.45
ICT Automatisering N.V.	2012	12.85			25.40	44.91		58	63,12	7.80	0.35	-11.14	-17.09	1.51
Unit4 N.V.	2012		5.55		8.33	64.65	2.56	58	810,10	7.75	0.59	3.96	9.74	4.81
Wolters Kluwer N.V.	2013				5.20	68.79	1.55	58	9466,14	9.98	0.77	5.03	22.06	3.83
Exact Holding N.V.	2012	30.60				37.05		58	271,28	8.91	0.51	9.09	18.43	6.63
Koninklijke Brill N.V.	2012	30.02			26.65	33.71		58	56,22	8.43	0.37	13.46	21.49	1.76
Reed Elsevier	2013				3.00	31.70	1.71	58	2060,38	9.31	0.04	43.84	45.68	6.87
Ordina N.V.	2012					23.91	1.69	61	418,23	8.62	0.35	0.14	0.22	0.91
Koninklijke KPN N.V.	2012				53.69	23.50	5.59	61	29571,71	10.47	0.89	3.08	28.67	4.46
Ziggo N.V.	2013				43.50	62.66	3.04	61	7290,22	9.86	0.74	6.57	25.54	4.52
C/tac N.V.	2012	20.32			4.63			62	52,64	7.22	0.82	2.03	11.58	3.47
AND International Publishers N.V.	2012				39.47	12.72		62	16,72	7.72	0.24	13.84	18.27	1.03
Nieuwe Steen Investments N.V.	2012	12.88		6.44	4.29	24.93	1.49	68	2833,96	9.42	0.69	-4.80	-15.46	0.97
Wereldhave N.V.	2012					45.74	2.98	68	3963,42	10.00	0.54	-3.28	-7.08	1.01
VastNed N.V.	2012				6.14	83.42	2.79	68	2643,45	8.35	0.55	-2.02	-4.47	0.77
Corio N.V.	2012	2.91			7.51	87.08	1.72	68	10068,34	9.45	0.47	0.21	0.39	0.86
Groothandelsgebouwen N.V.	2012	36.01			28.96	10.08		68	225,20	9.60	0.60	1.81	4.52	0.88
Eurocommercial Properties N.V.	2013	2.22			2.85	38.27	12.75	68	3778,85	9.58	0.53	4.26	9.00	1.04
Brunel International N.V.	2012	63.00				3.66	1.71	70	553,53	8.74	0.37	10.52	16.72	4.58
Grontmij N.V.	2013					99.51	2.03	71	802,42	8.90	0.80	-2.54	-12.74	1.64
Arcadis N.V.	2012				8.00	34.63	7.48	71	2336,49	9.74	0.70	5.02	16.61	3.88
Fugro N.V.	2012			5.36	5.00	76.84	1.61	71	5501,52	9.37	0.53	6.99	14.90	2.04
USG People N.V.	2012				31.48	28.23	3.47	78	1779,07	9.25	0.63	-14.23	-38.52	1.86
Randstad Holding N.V.	2012	38.00			6.25	30.68	1.25	78	8968,09	7.94	0.56	0.44	1.10	2.69
DPA Group N.V.	2012	14.88				32.69		78	87,28	9.95	0.42	1.76	3.04	2.14
Cryo-Save Group N.V.	2012	5.85	37.66		33.81	16.87		86	73,39	7.87	0.46	-30.75	-57.34	0.53
AFC Ajax N.V.	2013	9.95			73.00	25.28		93	154,67	8.19	0.39	15.35	25.31	2.32
Oranjewoud N.V.	2012				95.56			95	1475,30	9.17	0.77	2.11	9.04	0.63

Appendix D

Multicollinearity

Model		Collinearity Statistics	
		Tolerance	VIF
1	%ManOwn_ManB	0.96	1.04
	%ManOwn_SupB	0.94	1.07
	%CorpOwn	0.75	1.34
	%InstOwn	0.79	1.27
	%GovOwn	0.79	1.27
	LOGFirmSize	0.73	1.37
	Leverage	0.91	1.10

a. Dependent Variable: %FamOwn

Multicollinearity

Model		Collinearity Statistics	
		Tolerance	VIF
1	%ManOwn_SupB	0.92	1.09
	%CorpOwn	0.74	1.35
	%InstOwn	0.77	1.29
	%GovOwn	0.80	1.25
	LOGFirmSize	0.62	1.61
	Leverage	0.90	1.11
	%FamOwn	0.70	1.43

a. Dependent Variable: %ManOwn_ManB

Multicollinearity

Model		Collinearity Statistics	
		Tolerance	VIF
1	CorpOwn	0.76	1.32
	InstOwn	0.79	1.27
	GovOwn	0.78	1.27
	LOGFirmSize	0.64	1.55
	Leverage	0.91	1.10
	FamOwn	0.71	1.40
	ManOwn_ManB	0.97	1.04

a. Dependent Variable: ManOwn_SupB

Multicollinearity

Model		Collinearity Statistics	
		Tolerance	VIF
1	InstOwn	0.80	1.24
	GovOwn	0.78	1.27
	LOGFirmSize	0.67	1.48
	Leverage	0.93	1.07
	FamOwn	0.71	1.41
	ManOwn_ManB	0.96	1.04
	ManOwn_SupB	0.94	1.07

a. Dependent Variable: CorpOwn

Multicollinearity

Model		Collinearity Statistics	
		Tolerance	VIF
1	GovOwn	0.83	1.20
	LOGFirmSize	0.62	1.61
	Leverage	0.90	1.11
	FamOwn	0.71	1.40
	ManOwn_ManB	0.97	1.03
	ManOwn_SupB	0.93	1.07
	CorpOwn	0.77	1.30

a. Dependent Variable: InstOwn

Multicollinearity

Model		Collinearity Statistics	
		Tolerance	VIF
1	LOGFirmSize	0.63	1.58
	Leverage	0.91	1.09
	FamOwn	0.70	1.42
	ManOwn_ManB	0.98	1.02
	ManOwn_SupB	0.92	1.09
	CorpOwn	0.74	1.35
	InstOwn	0.82	1.22

a. Dependent Variable: GovOwn

Multicollinearity

Model		Collinearity Statistics	
		Tolerance	VIF
1	Leverage	0.96	1.04
	FamOwn	0.82	1.22
	ManOwn_ManB	0.96	1.04
	ManOwn_SupB	0.95	1.05
	CorpOwn	0.80	1.25
	InstOwn	0.77	1.30
	GovOwn	0.79	1.26

a. Dependent Variable: LOGFirmSize

Multicollinearity

Model		Collinearity Statistics	
		Tolerance	VIF
1	FamOwn	0.70	1.42
	ManOwn_ManB	0.96	1.04
	ManOwn_SupB	0.92	1.08
	CorpOwn	0.76	1.31
	InstOwn	0.77	1.30
	GovOwn	0.79	1.26
	LOGFirmSize	0.66	1.51

a. Dependent Variable: Leverage