



## *Master thesis*

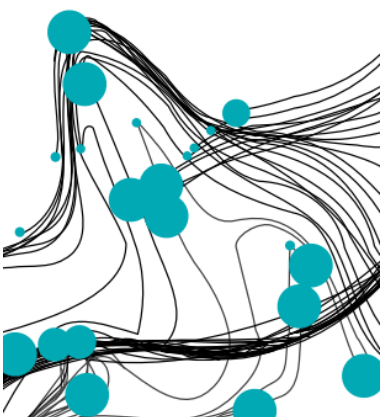
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# **The effect of institutional owners on the voluntary disclosure of Dutch listed firms**

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## ACKNOWLEDGEMENTS

This thesis represents the final part of my master Business Administration. The research project received my attention and interest throughout my whole master year. Finishing this research means the end of my master, but also symbols the hard learning process and personal growth resulting from it.

I would like to thank a handful of people who stood by me during this research project. First, I would like to thank Prof. Dr. Rez Kabir for guiding me throughout the process by sharing his (critical) feedback, and the great amount of knowledge and expertise. Furthermore, his evaluation of my thesis was essential for the structuring and improving the academic level. Second, I would like to thank dr. Siraz Zubair for the feedback and the time he made available for me. Moreover, the confidence he showed in my research and in me enabled my motivation even more.

Lastly, I want to give a special thanks to my family and friends who always believed in me and were so confident that I would pass this process with success. This motivated me throughout the thesis and improved my self-confidence.

*Denise Harms*

*Denekamp, May 2018*



# ABSTRACT

This study examines the effect of institutional owners on voluntary disclosure in Dutch listed firms. Institutional ownership is expected to have a positive effect on voluntary disclosure. This study distinguishes itself by focussing on only institutional ownership and its focus on Dutch listed firms. Moreover, different studies suggest that firm size is also related to voluntary disclosure of firms, as larger firms tend to disclose more information. The voluntary disclosure is measured by using a checklist including various information areas, which results in a disclosure index per firm for a sample of 66 firms. The results show that institutional ownership has a small effect on voluntary disclosure, as firms with a higher percentage of institutional owners do have a higher disclosure index. Notably, firm size has a more powerful effect on disclosure, which indicates that larger firms disclose more information. So the results in this study support the fact that institutional owners and firm size have a positive effect on the voluntary disclosure of Dutch publicly listed firms.

**Keywords:** Information disclosure, voluntary disclosure, institutional ownership, firm size



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# 1. INTRODUCTION

An ongoing topic on the role of voluntary disclosure of information is the demand or desire of investors to access more firm-specific information (Lev & Zarowin, 1999). Especially institutional investors are expecting voluntary disclosure of firms, as they are not part of the business activities (Boone & White, 2015). This research focuses on the ownership structure of the firm, specifically the institutional ownership whereas such investors possess a large number of shares. For example, in the Netherlands, institutional investors spend 1503,2 billion on investments in firm shares<sup>1</sup>. The focus on only institutional owners is a contribution to the literature, as that focusses mostly on the ownership structure in general.

There are different types of owners and ownership structures. Ownership structure refers to the identity of the owners and the number of owners. It can be very diverse, as there are different types of owners according to Thomsen & Conyon (2012): family ownership, government ownership and institutional ownership. Institutional ownership is addressed in this research, since the former two mentioned do not really relate to disclosure practices stated by different studies. Family-owned companies are mostly not aimed at including foreign investors and when they do, they do not want to share private information easily (Sciascia & Mazzola, 2008; Chen et al. 2008). Also, government-owned companies are more private entities and do not want to share information since they are not willing to attract foreign capital from investors (Ben-Nasr & Cosset 2014; Luo et al. 2006). Institutional-owned firms are owned by investors like pension funds, hedge funds etc. Institutional owners mainly invest to earn and increase profits and not because of their interest in firm operations or taking part in daily firm activities and so such owners rely only on the disclosed information available to them to base their investment decision upon (Boone & White, 2015; Dahlquist & Robertsson, 2001).

The aim of this study is to shed additional light on the relation between ownership structure and voluntary disclosure. Specifically, the effect of institutional ownership on voluntary disclosure will be investigated. The decision of a firm to disclose information can be either voluntary or mandatory. Voluntary disclosure refers to the information a firm voluntarily discloses to the public. In this study, it refers to the amount of detailed information that is disclosed in addition to the “general” and mandatory information. Examples of voluntary disclosure are: growth percentages, graphs, projected future statements etc. Mandatory disclosure items are items that are obligated to disclose according to certain regulations, since those are standards set by the government or other regulatory regimes. Therefore, mandatory disclosure is not suitable as a measure for disclosure, as firms cannot influence those items themselves and are mostly the same among many firms. An example of a regulatory authority determining the mandatory items is the AFM (Autoriteit Financiële Markten) in the Netherlands, which authorizes every buy and sell from firm shares. In Europe there is the IFRS (International Financial Reporting Initiative), which is a mandatory disclosure standard implemented by listed firms since 2005 (Thornton, 2015).

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<sup>1</sup> CBS (2017). *Kwartaaluitkomsten beleggingen van institutionele beleggers*. Retrieved from <http://statline.cbs.nl/StatWeb/publication/?VW=T&DM=SLNL&PA=82824NED&LA=NL> at 01-03-2018

The disclosure of a firm is in most studies mainly expressed as the absence or presence of an information item (Cheng & Courtenay, 2006; Chau & Gray, 2002; Gisbert & Navallas, 2013). If a firm discloses many detailed information complementary to the mandatory information, the quality of the information increases. Disclosing firm specific information comprises multiple definitions or concepts, but this research will focus on disclosure as: "Disclosure items include things that relate to a company's financial condition, operating results, management compensation and other important areas". This definition is in line with Gisbert & Navallas (2013), whose constructed disclosure index is used in this research. This index consists of the following areas: historical information, corporate social responsibility, intangibles, projected information, background information, non-financial information, management analysis. The disclosure items in the index are based on only voluntary disclosure items and so is applicable for the aim of this study.

Disclosure is relevant in relation to ownership structure as studied by Boone & White (2015) and Lardon & Deloof (2014). Lardon & Deloof (2014) state that firms most likely disclose information when they are obliged by law or when they can benefit from this decision to disclose. An example of such a benefit is the ease of attracting equity, as firms that disclose more information are more attractive for investors. Boone & White (2015) confirm this statement, as their results show that outside investors mostly invest in firms with transparency through information in their annual reports. They claim that investors ask for transparency of firms, regarding the availability of information items in publicly annual reports. Their findings suggest that more transparency, in terms of more information availability in annual reports, attracts institutional investors. A reason for this is the risk for investors is reduced if the firm is more transparent. However, some firms choose to keep their information private for several reasons. An example of such a reason is that the information might harm their competitive position.

Comparing the costs and benefits of disclosure, there are several reasons why firms choose to disclose more information. Firstly, a frequently studied concept related to disclosure, is the decrease of the cost of capital (Chen et al. 2014; Francis et al. 2008; Hail, 2002; Botosan, 1997). The cost of capital will decrease for firms that disclose more information publicly. This is because the risks for investors or debtors reduces when the firm is more transparent, as there are less unforeseen or unknown events or weaknesses in the firm. The cost of capital will be less as investors/debtors will be more certain about their investment as they are facing less risks. Secondly, the costs of debt will decrease when firms are more transparent, as the interest costs will be lower. This is because there are less agency problems, as the information asymmetry between the agents and principals is reduced when information is publicly disclosed (Sengupta, 1998). So the decrease of the total cost of capital, either cost of equity and cost of debt, is a benefit resulting from more disclosure. This benefit results mainly from the fact that firms are more transparent towards their investors or debt providers.

There are also aspects that have an effect on the voluntary disclosure of a firm. Firstly, institutional ownership can affect the degree of voluntary disclosure, which is the main aim of this study. As addressed before, disclosure and ownership structure are related. Institutional ownership refers to mutual/pension funds, insurance companies, investment firms, private foundations, endowments or

other large entities that manage funds on the behalf of others.<sup>2</sup> Those investors are legal entities and have the incentive to maximize their portfolio returns by reducing their risks. This is done by investing in larger and higher valued firms, with more transparency so they will not be affected by unannounced financial events or financial risks (Boone & White 2015). They are becoming more important in the corporate governance and are known for earning great amounts of money without taking too many risks. (Celik & Isaksson, 2014; Gonnard et al 2008). Institutional investors who invest extensively in a firm can benefit from the information transparency of a firm. As they invest a lot of money, they have incentives to bring this firm to a success. And therefore want more information concerning the strategy, performance and structure of the firm than other investors might want (Ashbaugh et al. 2004). Nowadays, all information is available on the internet which makes it more accessible for firms to disclose their financial information in databases and on their own websites. But disclosing all the information on the internet might also go along with negative consequences since it can also shed a light on scandals or misreporting. Secondly, firm size can also be related to disclosure practices. Larger firms tend to disclose more voluntary information than smaller firms. This is mostly because they are more well-known and investors therefore are asking for and expecting more information from larger firms (Dahlquist & Robertsson, 2001; Wald, 1999).

As there seem to be certain benefits and effects related to voluntary disclosure and institutional ownership, it is interesting to find out whether disclosing financial information is attractive for institutional owners. This leads to the following research question: “To what extent does institutional ownership have an effect on the voluntary disclosure in Dutch firms?”

Especially in the Netherlands this research question seems to be interesting, as many likewise studies mentioned above are focussed on UK, US, Asian or other European countries, but none of them focussed on the Netherlands. In the Netherlands the financial system comprises for a great part of the pension sector and the insurance sector. Since these sectors are included in this research as institutional investors, the financial system of the Netherlands is an interesting research area. Also, firm specific information in the Dutch language will be easier to understand and firms might be more familiar when based in the home country. This also refers to the contribution of this research in the research field, since such a research was not performed in the Netherlands yet, moreover most of the research mentioned above was not even performed in Europe. Also, the investigation of the specific relation between institutional ownership and disclosure is rare, since most similar studies focus on independent boards or outside ownership in general. So, the focus on the institutional ownership is unique when comparing this study with similar studies. (Boone & White, 2015; Ben-Nasr & Cosset, 2014; Botosan, 1997; Lardon & Deloof, 2014; Cheng & Courtenay, 2006)

Before being able to answer this research question, the literature relevant for this research question will be examined in chapter two. Starting with the definitions of the different concepts, hereafter the decision to disclose is examined, followed by the internal and external causes of disclosure. Lastly, the effects related to the voluntary disclosure of firms are described, specifically the institutional ownership and firm size.

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<sup>2</sup> Investopedia (2017). Institutional Investor. Retrieved from <https://www.investopedia.com/terms/i/institutionalinvestor.asp> at 30-08-2017

## 2. LITERATURE REVIEW

A lot of literature exists on the relation between corporate governance and the disclosure decision a firm takes. The corporate governance focus in this research is the ownership structure of the firm, focussing on institutional ownership. The hypotheses at the end of the chapter are based on the different studies included in this literature review. The relationship between information disclosure and outside investors, specifically institutional investors, is supported by Boone & White (2015). They state that institutional owners have an effect on the degree of disclosure since firms are disclosing more information when wanting to attract the capital of institutional owners. This implies that institutional owners are demanding more transparency from firms in return for their investment in that firm, as firms want to attract capital from those institutional owners. Different studies (Lardon & Deloof 2014; Burns et al. 2010) show that this relationship can also be the other way around, as institutional investors invest more in companies with a higher disclosure. It bears less risk for institutional investors and reduces information asymmetry and thereby agency problems, when a firm discloses more information. So, in this way the information disclosure influences the degree of institutional ownership. The relationship between disclosure and institutional ownership will be furtherly examined in this literature review. But firstly, the costs and benefits of disclosure and the decision to disclose will be examined, where there is a distinction between the internal and external causes. The focus will be on the choice of a firm whether to or not to disclose firm specific information publicly. Secondly, the effects related to disclosure will be examined, mostly focussing on the effect of institutional ownership and firm size on disclosure.

### 2.1 DEFINING THE CONCEPTS

First of all, the definitions of the main concepts “voluntary disclosure” and “institutional ownership” are examined. Already in the introduction a brief description of the definitions is given, but in this section, there is a more extensive elaboration on those definitions also explaining the measurement of those concepts referring to different studies.

#### 2.1.1 VOLUNTARY DISCLOSURE

Disclosure is referred to as the amount of information, additionally to the standard/mandatory information, following Gisbert & Navallas (2013), Cheng & Courtenay (2006) and Chau & Gray (2002). For example, the disclosure is not based on the amount of sales, but on the growth percentage or growth graph that is included as an addition to the amount of sales. The disclosure in this study is based on the voluntary information that is available in annual reports. There are numerous different studies about disclosure, all of them using other measurements and definition. Several studies choose to use a disclosure index based upon annual reports published by the firms. For example Eng & Mak (2003) use the disclosure index from the information Singapore firms provide in their annual reports to shareholders and rate the information on a special score sheet. However, Bushee & Noe (2000) choose to take the AIMR (Association for Investment Management and Research) as the rating of disclosure as it “represents analysts’ assessments of the informativeness of corporate disclosure practices” (Bushee &

Noe (2000), pp. 173). Several studies try to hand-collect information from annual reports displayed on corporate websites or stock exchange websites. All methods can have a different focus for their disclosure measurements. The most common disclosure focus areas are: annual announcement of the performance in the previous accounting period, price-sensitive information, results and financing of the firm, future expectations and forecasts, investor relations activities etc. Most measurements of disclosure focus on the amount of detailed information items. This detailed information is provided as an addition to the mandatory and “standard” information already present in annual reports, e.g. growth percentages, graphs, projected information etc. (Bushee & Noe, 2000; Eng & Mak, 2003; Lardon & Deloof, 2014; Sengupta & Zhang, 2015; Cheng & Courtenay, 2006; Gisbert & Navallas, 2013). So, the concept disclosure covers a wide range of information areas that are of interest for investors and is specifically focussing on the voluntary disclosure of detailed information.

## **2.1.2 OWNERSHIP STRUCTURE**

As mentioned in the introduction, Thomsen & Conyon (2012) suggests ownership structure consists of two elements: ownership identity and ownership concentration. Ownership identity refers to who the owners are, and ownership concentration refers to the percentage of shares of the firm the owner holds. There are different identities characterizing the owners of a firm, according to Hillier et al. (2011) and Thomsen & Conyon (2012). Those different owners are: single individuals, families, corporations, governments or managers. Ownership concentration can vary from low to high: with a low ownership concentration referring to a very dispersed ownership and there is no owner possessing a great number of shares, whereas high concentration of ownership is aimed at a few shareholders owning a huge number of shares (Hillier, et al 2011).

### **2.1.2.1 INSTITUTIONAL OWNERSHIP**

The literal definition of institutional investors is: “large organizations which have considerable cash reserves that need to be invested”.<sup>3</sup> Institutional owners are outside owners, which means that they mostly do not take part in the operational or daily activities of the firm. Although they do not operate in the firm itself, they can be involved in the firm in terms of ownership engagement. Institutional investors are known for their portfolio investing, so they invest in many firms at the same time, owning a small number of shares from each firm. Their main goal is to get as much return possible from their portfolios (Thomsen & Conyon, 2012), which means that they invest their money in firms with high dividend pay-outs and firms with the lowest risk. The field of institutional investors gain a lot of importance and the number of institutional investors in firms is increasing every year (Aguilar, 2013; Gonnard et al., 2008, Celik & Isaksson, 2014). Outside owners have the incentive to monitor the firm and its management to make sure that the firm uses their investments in the most profitable way (Celik & Isaksson, 2014). Bushee & Noe (2000) state that institutional investors are interested in the financial performance, such as revenue, profits etc. This indicates that disclosing financial or projected

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<sup>3</sup> Business Dictionary (2017). Institutional Investors. Retrieved from <http://www.businessdictionary.com/definition/institutional-investors.html> at 23-06-2017

information about future profitability mostly attracts short-sighted investors aiming at improving their portfolio return and making quick profits. For those investors it is important to know all the financial information and possible forecasting to see whether the firm is performing well and what can be expected in terms of future profitability. Institutional investors mostly hold a portfolio, which means making investments in a single or multiple firm(s) with the expectation of earning a return<sup>4</sup>.

Institutional owners like to invest in firms with the highest transparency, so the risk is reduced and there are no unforeseen financial events which can reduce the value for the investors (Boone & White, 2015). This means that firms who disclose more information, are more attractive for institutional investors. Especially information about future projections are relevant for such investors, as this determines the return on their investments. Moreover, Lardon & Deloof (2014) argue that institutional investors are also demanding disclosure of information from the management of the firm to reduce information asymmetry. Institutional investors are mostly not involved in any decision-making and operating activities in the firm, as Cornett et al. (2007) state that institutional investors rarely hold seats on the board of the firm they invested in. Therefore, information asymmetry can be reduced by sharing information with institutional investors.

There are multiple types of institutional investors that can be identified. Gonnard et al (2008) report three main types of institutional investors: investment funds, insurance funds and pension funds. Those three types possess most shares as outside investors from different firms and sometimes they pool their investments and resources together in a so-called mutual funds (Celik & Isaksson, 2014). For example, a pension fund possesses an extensive amount of money which can be invested since it will mostly not be used in the upcoming years as the money is only needed in case of retirement. Pension funds are aiming at profits from their investments, so those profits can be invested again or paid out in case of retirement. The definition of institutional investors in this research is referring to outside investors managing funds to invest in firms to increase their portfolio turnover, focussing on pension funds, insurance companies and hedge funds. In this study, there is no distinction between investors who are actively engaged in decision-making or boards or those who are not. Every institutional investor investing a great amount of money is interested in monitoring the management and aligning the incentives between themselves and the firms' managers to gain as much profit possible.

#### **2.1.2.2 FAMILY, MANAGERIAL AND GOVERNMENT OWNERSHIP**

However, next to the institutional owners there are also family-owned firms, government/state-owned firms and managerial-owned firms. All these ownership types can have a different effect on disclosure practices as every ownership type might prefer a different degree of disclosure.

Starting with individuals and families, those are the single owners or family owners of a firm. So, ownership is mostly highly concentrated in family firms. A family business is a business in which

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<sup>4</sup> Investopedia (2017). Portfolio Investment. Retrieved from <http://www.investopedia.com/terms/p/portfolio-investment.asp> retrieved at 20-06-2017

one or more family members are included in the ownership and management of the firm (Sciascia & Mazzola, 2008). As family members are both owners and managers, there is less need for transparency in terms of disclosing financial information. According to Chen et al. (2008), voluntary disclosure of information is less present in family-owned firms as the information asymmetry between the management and owners are minimized and there are mostly no outside investors. They provide less information about their earnings and other financial numbers, since all information is known by the family itself. Therefore, family business is negatively related to the degree of disclosure in a certain firm. The family business is not a relevant ownership structure to address in this research, since such an ownership structure will not directly lead to an increased disclosure of information.

Firms can also be owned by managers or employees of that same firm, in terms of equity compensation. This means that those managers/employees receive a number of shares of the firm as a compensation instead of for example an increase in their salary. This is mostly done to increase motivation and productivity to increase the profitability of a firm.<sup>5</sup> Managerial owned companies on average disclose less information and so are negatively related to each-other (Eng & Mak, 2003; Baek et al. 2009). This is mostly because of the increased agency problems, as managers are shareholders themselves. Managers do not feel the need to share information and be transparent to the other shareholders, since they are involved in the daily management themselves and are fully informed.

Government ownership means firms that are owned by the government or the state, mostly called state-owned-enterprises, which are referred to as: “a legal entity that is created by the government in order to partake in commercial activities on the government's behalf.”<sup>6</sup> This means that the government can own (parts of) a firm and be commercially active on the market. Ben-Nasr & Cosset (2014) investigate the amount of disclosure for state-owned firms and concluded that in certain countries, for example with low investor protection rights, state-owned companies choose not to disclose information publicly. This claim is also supported by Luo et al. (2006) who investigate several ownership structures and the disclosure of those firms and they concluded that government-owned companies disclose less information due to high agency costs and not willing to share private information. So, government-ownership structure also has an influence on the disclosure of information but might not be most relevant for this research since there are not many different aspects to investigate among this relationship.

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<sup>5</sup> Retrieved from <http://employeeownership.co.uk/what-is-employee-ownership/> at 30-09-2017

<sup>6</sup> Investopedia (2017). Institutional Investor. Retrieved from <https://www.investopedia.com/terms/i/institutionalinvestor.asp> at 30-08-2017

## **2.2 WHY SHOULD DISCLOSURE MATTER**

In this section the decision to disclose information will be examined based on the benefits and costs related to this decision first. Hereafter, the choice of a firm whether to disclose certain information will be addressed.

### **2.2.1 BENEFITS AND COSTS OF DISCLOSURE**

The decision of a firm whether to disclose information is associated with balancing the benefits and the costs of such a decision. A firm mostly discloses information when it benefits from this, otherwise there is no point in revealing private information. Imaginable is that a cost of information disclosure is that firms have less privacy and are obligated to share information that might harm them.

A firm can have several benefits when choosing to disclose more information. The decision to disclose can be caused by either internal or external drivers, which will be discussed in further detail below. Firms can have different benefits when choosing to disclose information to the market. Lardon & Deloof (2014) and Botosan (1997) investigate the first benefit for the firm, namely that disclosure of information can provide them with new equity when wanting to attract new capital. Secondly, the costs of this new capital can be reduced, as more transparency means more secure investments for the shareholders. When investors start looking for firms to invest in, they want to reduce their risk and maximize their return (Black & Litterman, 1992). By being transparent to investors, the risk for unaccounted events will be lower and firms will be more attractive for different investors (Boone & White, 2015). Bushee & Noe (2000) also confirm that more disclosure attracts investors, especially institutional investors. So, firms benefit from disclosure of information by having easier access to equity capital from investors and according to literature studies this is one of the main reasons firms decide to disclose information.

There are also costs to bear when firms choose to disclose certain information. Firstly, there are provision costs involved when disclosing information. This means that there are actual costs calculated for providing the information, since it takes effort and time to make the information publicly available (Armitage & Marston, 2008). Secondly, there are also costs that are not per se money related, but more competitive related. As addressed by Armitage & Marston (2008) firms must be very careful by choosing which information to provide, since certain information can be used by their competitors and might lead to a competitive disadvantage for the firm. Also certain information disclosure can give firms a bad reputation (Chalmers & Godfrey, 2004)

Although there are some costs encountered while disclosing information, firms mostly do not disclose information if it can harm them and only voluntarily disclose information where they can benefit from.

## 2.2.2 THE DECISION TO DISCLOSE INFORMATION

Firms decide whether they want to or do not want to disclose information and the amount of information that is disclosed differs per firm. There are several ways in which a firm can disclose their information, in terms of different documents that can be disclosed publicly. The most common channels through which disclosure takes place in the Netherlands are for example: corporate websites, annual reports, half-year reports or quarterly reports to shareholders. Annual reports and half-year reports are mandatory for listed firms in the Netherlands, whereas quarterly reports are intermediate (voluntary) reports which are used to inform shareholders timely about future events in the firm<sup>7</sup>. Annual reports for shareholders are the most common way for disclosure of financial information, since this is the channel through which company information is communicated towards potential investors or shareholders (Heflin et al. 2011; Linton, I. 2017; Camfferman & Eeftink, 2010).

The decision whether to disclose information is firstly influenced by the benefits and costs described above influencing the disclosure of a firm as assessed in chapter 2.2.1. Lardon & Deloof (2014) did a likewise study and find that firms only disclose information when they can benefit from it or when they are obliged to by law. This is the difference between voluntary and mandatory disclosure: firms choosing themselves to disclose information or they are obligated to disclose certain information by law. However, the study from Lardon & Deloof (2014) do not consider the pressure firms might feel towards their competitors who disclose certain information.

Information disclosure is not only covering the good news, but firms might also consciously choose to disclose bad news to their investors. The bottom line of the decision to disclose information is to openly inform the shareholders about what is going on in the firm and being honest to the shareholders and investors (Armitage & Marston, 2008; Graham et al. 2005). According to Skinner (1994), firms voluntarily disclose bad news to their investors to prevent the reputation of the firm. Investors have the right to know what is going on in the firm and by disclosing information directly, so they will not be for example overwhelmed by the price depreciation of their shares. When firms are openly sharing their information with investors, investors know what to expect and cannot be disappointed because of unforeseen share price lowering. The research of Skinner (1994) also find that firms disclose good news to differentiate themselves from firms who are doing not that well, so this considers the competitive aspect which lacked in the study from Lardon & Deloof (2014).

Suijs (2007) states that the decision of the firm to disclose information is made if the firm wants to attract investors, which is the main benefit mentioned before. The research concludes that most of the times firms decide to disclose their information if investors are willing to invest in risk-free assets, to attract those investors and make them invest in their assets instead of the risk-free ones.

So, the decision of the firm to disclose is mostly based upon new or existing shareholders and the expectations of their shareholders.

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<sup>7</sup> Deloitte (2017). *Handboek Externe Verslaggeving 2017*.

<https://www2.deloitte.com/nl/nl/pages/audit/articles/handboek-externe-verslaggeving.html> retrieved at 24-01-2018

## **2.3. CAUSES OF DISCLOSURE**

### **2.3.1 INTERNAL CAUSES OF DISCLOSURE**

Related to the paragraph above, there are several internal/external drivers that cause the disclosure of more detailed information. The internal drivers are referring to reasons from within the firm to decide about whether to disclose certain information and the extent in which they will disclose their information. The information that firms might disclose are mostly about their background information, their strategy or their financial situation. The disclosure is related to the amount of information the firm discloses, in a way that the voluntary disclosure is an addition to the “general” disclosure, for example including graphs, future statements, growth percentages complementary to the amount of sales. Many different studies address the concept disclosure quality or voluntary disclosure and the reasons why firms might choose for disclosing information.

Firstly, a cause for firms to decide to disclose information to their investors is if the return on investment compensation is equity-based or not. When managers receive equity-based compensation, they want to increase the amount of equity and are interested in keeping their equity holders satisfied. Sengupta & Zhang (2015) investigate whether equity-based compensation increases the information disclosure and state that equity-based compensation aligns the interests of agents and principals. If an agent is paid according to the amount of equity, they are willing to increase this amount of equity to gain more out of the firm. The disclosure increased due to the alignment between principals and agents, since the agents do not focus on their private beneficial incentives anymore. They now focus more on monitoring the firm more carefully at a corporate level, including informing the important share and stakeholders. This study shows how important it is to align the interests of principals and agents, management and institutional investors, in order to decrease agency problems. The alignment of those interests is achieved partly because of the disclosure which indicates that the ownership structure of a firm certainly has an influence on the amount of information disclosure and also the disclosure quality.

Another cause for the increase of firm disclosure, already assessed in the benefit section above, is if the firm needs more or new equity. Studies by Lardon & Deloof (2014), Botosan (1997), Boone & White (2015) and Bushee & Noe (2000) point out that firms easier disclose information if they want to attract new equity. So, the second internal initiative causing an increase in a firm’s disclosure is the need to attract more equity from foreign investors. A drawback, however from those studies is that they only assess the equity capital and not debt capital. Debt capital can also have benefits for a firm instead of equity capital, since debtholders do not have voting rights and interest is tax deductible (Hillier et al. 2011). So, if firms are having a hard time in attracting new capital from foreign investors, they choose to publicly disclose more information. Such a decision might be caused by the fact that firms need more capital in order to innovate, expand their business etc.

### 2.3.2 EXTERNAL CAUSES OF DISCLOSURE

There are also external causes that influence the choice of a firm whether to disclose information and thereby increasing the disclosure of the firm. External means drivers from outside the firm that can influence the voluntary disclosure. It is hard to account for every external driver influencing disclosure, since it can be many for all kinds of different situations. Based on an extensive literature study, the external drivers described below are important to mention.

First of all, as mentioned in the introduction, the disclosure of a firm can be mandatory or voluntary. Mandatory disclosure means that firms are obligated by the law or regulations in a certain country or market, to disclose a certain degree of information publicly. As mentioned before in the study of Lardon & Deloof (2014) there are requirements for firms to disclose an amount of information when firms reach a certain size. Imaginable is that if firms are required to disclose information, their disclosure is higher than firms who are not required and do not choose voluntarily to disclose information. In different countries there are legislation principles about a firm's required disclosure. An example of such a law is the "Sarbanes-Oxley Act of 2002" implemented in the US in the year 2002. Because of many accounting scandals in the US, like the America Online accounting scandal (English, 2002) or the accounting scandal of Qwest who fraudulently accounted over 3.8 billion revenue (Fons & Brady, 2004), the regulations of the Sarbanes-Oxley Act are sharpened. The sections of the bill cover a broad range of regulations, for example: criminal penalties for misconduct, require the Securities and Exchange Commission to create regulations for public corporations etc. The main aim of the bill is to protect investors by making it impossible for corporations to perform fraudulent accounting activities.<sup>8</sup> Also the accounting standards of the FASB (Financial Accounting Standards Board) is an example from such a required standard for listed firms in the US<sup>9</sup>. The FASB sets certain disclosure requirements listed firms should met by legislation. There are independent boards or auditors appointed to make sure firms do not falsify or withhold important information (Miller & Pashkoff, 2002). If firms meet the requirements of the standards, investors are guaranteed that they will receive truthful and complete information about their invested money. Another example of such a law for mandatory disclosure, comparable with the one of the FASB is the one of the IFRS (International Financial Reporting Standard). Also in Europe there is an accounting standard that is applicable to listed entities all over Europe since 2005. This accounting standard is called the International Financial Reporting Standard (IFRS) issued by the International Accounting Standards (IAS). The IFRS contains many accounting standards that listed firms are required by law to disclose publicly and this law came into effect in 2005.<sup>10</sup> Especially in the Netherlands there is given much attention to setting such accounting standards and there are many guidelines and handbooks written to help firms to disclose the right amount of information. Also these guidelines are helping firms to achieve a better disclosure quality<sup>11</sup>.

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<sup>8</sup> Investopedia (2017). Sarbanes-Oxley Act Of 2002 – SOX  
<http://www.investopedia.com/terms/s/sarbanesoxleyact.asp> retrieved at 21-06-2017

<sup>9</sup> Retrieved from <http://fasb.org/jsp/FASB/Page/LandingPage&cid=1175805317350> at 20-01-2018

<sup>10</sup> Retrieved from <http://www.ifrs.org/about-us/> at 15-11-2017

<sup>11</sup> Deloitte (2017). Handboek Externe Verslaggeving 2017.

Retrieved from <https://www2.deloitte.com/nl/nl/pages/audit/articles/handboek-externe-verslaggeving.html> at 24-01-2018

So in this case, legislation also might influence the disclosure of firms since some firms are obligated to disclose certain information. Such kinds of legislation are actually beneficial for institutional investors, since they are ensured of truthful and complete information about the firm they invested their money in. Firms who meet laws or acts like the Sarbanes-Oxley act, might be in favour by different investors because of the certainty the investors get on their investment return.

Another study relevant for the legislation and policy matters influencing disclosure is the one from Ben-Nasr & Cosset (2014). They investigate a sample of multinational companies owned by states and it appeared that those state-owned companies are less transparent in terms of sharing financial or stock-price information. State-owned companies are associated with lower information disclosure and this discourages investors from trading based on private information. Mostly in countries with lower political rights or a high government influence, the state-owning leads to less information transparency. The results of this study indicate that the government can also be an influential factor in transparency of information and is able to influence the disclosure which can differ per country or per industry. Therefore it is important in this study to control for industry in this research.

## **2.4 EFFECTS OF DISCLOSURE**

As mentioned in the previous chapter, there are different causes that motivates the firm to disclose certain information. In this section the consequences or effects of the disclosure practices of a firm will be assessed. The consequences of a higher disclosure are: reducing the cost of capital and thereby increasing firm value, reducing the agency problems and increasing the degree of institutional ownership.

### **2.4.1 COST OF CAPITAL AND FIRM VALUE**

First, a commonly studied effect of disclosure is the decrease in the cost of capital. Different studies examined the effect of disclosure on the cost of equity or the cost of debt a firm must pay. Ashbaugh et al (2004), Hail (2002), Botosan (1997) and Armitage & Marston (2008) are examples of studies investigating the effect on the cost of equity. Both studies from Hail (2002) and Botosan (1997) are based on the voluntary disclosure of annual reports of a sample of approximately 100 firms. However, a drawback of the study of Hail (2002) is its focus on Swiss firms, so it is possibly biased due to country-specific factors regarding the cost of capital. However, more trustworthy due to controlling for sensitivity and robustness, Botosan (1997) finds evidence that a higher disclosure quality will lead to lower equity capital costs. The reason for this lower cost is because with a higher amount of disclosure, the firm is more transparent which causes less risk than a firm which does not disclose many information. Due to transparency, it is easier to forecast whether firms are able to pay rents and loans and whether they are profitable enough to invest in. Chen et al. (2014) and Francis et al. (2008) also support that the cost of capital of a firm might reduce as the information asymmetry becomes less. This means that all information that is available for the firm, management and boards, is also available for investors and debtors that are investing in or lending to those firms. Therefore the cost of capital is less for firms with reduced information asymmetry by being more publicly transparent. Ashbaugh et al. (2004) also find evidence for the decrease of the cost of equity by firms disclosing more information, namely due to the

reduction of agency problems and lower the information asymmetry between manager and shareholder, the cost of equity will also reduce.

Related to the disclosure effect on the cost of capital is firm value. Chen et al. (2014) investigate whether there is a positive relation between financial disclosure and firm value with a sample of Chinese firms. Many Chinese firms disclose their information in order to be able to reduce financial costs, like the cost of debt or equity. The results indicate that there is a significant positive relation between disclosure and firm value. This relationship is caused by the decrease in the cost of capital, as this is a measure for firm value. The lower the cost of capital, the higher the firm value as firm value is calculated dividing the firm value by the cost of capital. As firms are more transparent due to a higher disclosure, it is attractive for investors as it might increase the certainty of their investments when there is less unknown information and so the cost of capital will be lower for those firms (Ashbaugh et al. 2004; Hail, 2002; Botosan, 1997; and Armitage & Marston, 2008, Francis et al. 2008).

Firm value is also based on forecasts made about the firm, which is often displayed in the projected statements. Determining forecasts is easier when firms disclose more information about their projected statements and so are more transparent. It also helps to see whether the firm is able to pay back the cost of equity and see a positive return on the investments (Botosan, 1997; Armitage & Marston, 2008). As forecasts are a factor for indication of the firm value and the cost of capital, i.e. firm value is also based on the market valuation of shares which are based on the prediction of what a firm is worth now and in the future, more accurate forecasts can increase the firm value. This means that disclosure of information can have an effect on firm value, as firms that disclose more information and so have more accurate forecasts, are higher valued based on those accurate forecasts. As stated by Foerster et al. (2014) "More frequent, precise and accurate earnings forecasts further enhance value premiums". They also find that the future cash flows of firms might improve, as firms make better decisions for allocating their capital when disclosing more accurate information. Which also means an increase in the firm value. The relationship between disclosure and firm value is also supported by Orens et al. (2009).

#### **2.4.2 AGENCY PROBLEMS**

Agency problems are a second effect of disclosure, as reducing the information asymmetry in a firm and making all information more transparent for shareholders, the agency problems will also reduce. Also information asymmetry might reduce the risks for the investors, as highlighted above. Information asymmetry means that the information known by the managers is not equal to the information available for the shareholders/investors of that firm and this will cause agency problems<sup>12</sup>. Although the study of Ashbaugh et al. (2004) shed a light on an important internal effect of disclosure, it is a working paper and so this effect cannot be based on this one source solely. Addressing information asymmetry and agency problems is applicable for this research, because institutional investors, which are outside investors, are mostly not part of the management team of the firm and so the ownership and the control

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<sup>12</sup> Investopedia (2017). Asymmetric Information. Retrieved from <http://www.investopedia.com/terms/a/asymmetricinformation.asp> at 30-08-2017

of the firm are separated and possibly agency problems might arise. The agency problem is a commonly studied concept in the finance literature and there are many different definitions referring to this concept. Examining different studies<sup>13</sup> (Tricker, 2015; Bebchuk et al. 2002), the following definition is the most all-encompassing and understandable: the agent's (part of the management team) interests are not aligned with those of the principal (the investor who lends his/her money to the agent), those interests mostly differ because managers might use the money to maximize their own utility instead of shareholder value. This agency problem is only present in so-called "agency-relationships" which exist when there is a contract between the principal and the agent in which the agent has to perform services and make decisions for the principals (Jensen & Meckling, 1976).

Hope & Thomas (2008) investigate disclosure and non-disclosure firms and the acts of the management teams. They conclude that firms with non-disclosure experience have more agency problems than firms with disclosure practices. In non-disclosure firms owners cannot easily monitor management and the incentives of owners of management are not aligned, which causes that non-disclosure firms are not that profitable as disclosure firms. This is mainly because firm with disclosure practices have more alignment between the management and owners, since they share the same information and make decisions based on this information. Also if firms do not disclose information, it is harder for shareholders to monitor the management and managers utilize this to act upon their own incentives. Also Gisbert & Navallas (2012) study the same relationship between institutional owners and disclosure by severe agency conflicts. They find that since institutional owners are outside directors, it is important to reduce the agency conflicts and align the interest of minor and major shareholders with those of the management through more transparency in a firm.

Agency problems as described above, can have also severe consequences for a firm resulting in a decrease of the firm value. This is because managers are not per se aimed at maximizing the firm value for the shareholders and therefore the firm value might decrease as a result of managers not being controlled by owners due to non-disclosure of information (Jensen, 1986).

### **2.4.3 INSTITUTIONAL OWNERSHIP**

Another effect related to the disclosure practice of a firm is the degree of institutional ownership. Voluntary disclosure can have an influence on the ownership structure of a firm. Institutional owners are concerned about the disclosure of a firm, although they are short-sighted investors mostly focussing on profitable investments, as the information that is disclosed might be the basis for their investment choices. This means that institutional investors use corporate information of firms they want to invest in. This information is offered through several channels, one of them being annual reports which institutional investors use to inform themselves before investing.<sup>14</sup> Institutional investors use annual reports to evaluate the financial performance of multiple years and get an insight into the future prospects of the

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<sup>13</sup> Encyclopedia of Finance (2006). Agency Theory. Springer US, DOI: 10.1007/0-387-26336-5\_63 pp.12

<sup>14</sup> Reportwatch (2018) Retrieved from <https://www.reportwatch.net/report-essentials/how-important-is-the-annual-report-today/67/> at 20-02-2018

firm, as annual reports also include projected statements for the future. Also Hutchins (1994) states that annual reports are fulfilling the information needs of institutional investors. As annual reports include most complete and correct information covering all different information segments and not only financial information, this is most accurate for institutional investors to base their investment upon.

Disclosure of information and thereby increasing the disclosure quality, might attract institutional investors to invest in the firm as studied by Bushee & Noe (2000). They study a sample of 4000 firms based on a firm's disclosure practices via the AIMR: Association for Investment and Management Research and investigated whether a firm's disclosure has an influence on the institutional investor ownership and its stock return volatility. The findings of this study indicate that improved disclosure attracts institutional investors, mostly short-sighted institutional investors looking for an investment to quickly earn high profits and increase their portfolio turnover and diversification. The study also investigates a downside of disclosure quality attracting more institutional investors, namely if it attracts short-sighted institutional investors this could result in exacerbating stock return volatility.

A study by Aggarwal et al. (2005) examines the investment portfolio choices of US institutional investors. They analysed country and firm-level disclosure and institutional policies, like shareholders protection rights, as an influence on the investment choices of the mutual funds. The regression analysis in the study resulted in a positively and significant effect of accounting quality on foreign investment, after controlling for other country-level attributes. Accounting quality is more important in countries where the shareholder protection rules are weak, since shareholders cannot be protected from "untruthful" information and therefore desire a higher accounting quality, so that they still can be ensured of the right and trustworthy information. So country-level policies such as better accounting disclosures, and stronger shareholders rights are positively related to the degree of institutional owners. But also firm-level policies related to greater transparency and accounting disclosure are positively related to institutional ownership. The study finds that accounting standards and shareholder rights are very important determinants of US mutual fund investors influencing their investment decision. An example of this is: firms like to invest more in firms who issue ADRs, American Depositary Receipts, which is a policy that require firms to be more transparent and have a higher disclosure quality. So mutual fund owners like to invest more in firms that are more transparent and have a higher disclosure quality. This means that firms with more transparent accounting disclosures and better accounting standards are more attractive for US mutual funds to invest their money instead of investing in firms with lower disclosure. This result indicates that institutional owners ask for more transparency referring to the disclosure of firm information, and thereby have an influence on firm disclosure as they will invest more likely in firms with more disclosure.

## **2.5 EFFECTS ON DISCLOSURE**

Institutional ownership and firm size can have an effect on the voluntary disclosure of a firm. Which means that they are positively related to each-other, as firm with a higher percentage of institutional owners or larger firms disclose more voluntary information. This chapter includes different studies relevant for examining those effects on disclosure.

### **2.5.1 INSTITUTIONAL OWNERSHIP**

As mentioned before, institutional ownership is related to disclosure. The effect can also be the other way around, as disclosure can also have an effect on institutional ownership as mentioned in chapter 2.4. However, the main aim is to investigate the effect of institutional ownership on voluntary disclosure based upon several relevant studies.

Boone & White (2015) investigate the effect of institutional ownership on the transparency of a firm in terms of information disclosure and the trading environment. They find that a higher percentage of institutional ownership was related to more transparency of firm information, mostly management disclosure to decrease the information asymmetry between managers and shareholders. Institutional owners mostly ask for more transparency in firms to reduce their investment risk. In this study the transparency is divided in different types of information; managerial information, analyst forecasts and trading forecasts. It is noted by the authors that the results from the study do not preclude that the information environment could also influence the institutional investors' portfolio, so the relation between institutional investors and information disclosure could also appear the other way around what is suggested in the study. Which means that the results could be influenced by reversed causality and should be taken with caution. In this way the firm might attract more and more institutional owners and the degree of institutional owners might increase due to the disclosure of this information and the lower information asymmetry. Also important to consider is whether improved disclosure is profitable for the institutional owners or not. When it is profitable for them, a better disclosure quality is more likely to increase the degree of institutional ownership in a company. A strong point of this study is that it considers different kind of institutional investors, since not all investors have the same characteristics in terms of for example the amount of money they want to invest or their involvement in firm's operating decisions etc.

The former is supported by Lardon & Deloof (2014) who also study the effect of institutional ownership on the disclosure of firms. They investigate the determinants of financial disclosure using a sample of 307 SME's with very low disclosure requirements, meaning that the information they share is on a voluntary basis. The authors use different measures of financial disclosure, like periodic information, price sensitive information and investor relations information. They investigate the relation between those disclosure measures and different determinants of disclosure. Those determinants are drivers that influence the decision of firms to disclose the information mentioned above. Examples of such drivers are: issuing new equity, number of outside owners, accounting performance and dividend payment. The most important determinant for SME's to disclose information is the benefit they gain from it. Issuing new equity and the amount of outside owners are significantly positively related to the

disclosure of information. Which means that if a firm has more outside owners or wants to issue new equity, it will disclose more information, since it can benefit from disclosing. Outside ownership can be in terms of institutional ownership, which means that there is a higher degree of disclosure when a firm is owned by institutional owners. So more outside institutional owners will lead to a higher amount of disclosure which is also supported by Tinaikar, S. (2014). Bushee & Noe (2000) strengthen this argument by stating that institutional owners are mostly short-sighted investors and therefore want to improve their return on investment without being involved in too many management processes. Therefore, they demand much information, also about future prospects, to make sure their return on investment is maximized.

Gillan & Starks (2003) point out that since institutional investors possess a lot of shares, they are willing to extensively monitor the management of the firm. Therefore, it is necessary that the agents do not only care for their private beneficial incentives, but also the institutional owners can give their opinion by for example attend shareholder meetings with their voting rights. However, since the institutional investors are not part of the day-to-day business practices, it is important for them to receive as much information possible from the agents about certain business practices, in order to be able to attend such meetings and use their voting rights. Only if they receive all the updated and necessary information from the management, they are able to effectively monitor the management and influence certain decisions. So in this case, the separation of ownership and control requires management to disclose important information to their institutional shareholders in order for them to be able to monitor the management. The results of the study also show that institutional ownership might increase the price informativeness of the markets in which they invest and this in turn also leads to “better monitoring of corporations and better corporate governance structures” (Gillam & Starks, 2003). Which means that institutional ownership leading to more disclosure could be beneficial for the market in general. Disclosing price informativeness might be good for the market as it can increase the competition. Competitors might use this information from other firms and try to equal their prices with this information. When competitors are able to look at price information or sale strategies from each-other, they might use this information to increase the competition in their own benefit. In this way the public disclosure of information can have consequences for the competition in the general industry. If firms with for example the same level of quality both disclose their quality information, this can toughen the competition (Board, 2009).

So, institutional owners require more transparency from firms to make sure their investment is used properly and their risk is reduced as there is less information asymmetry. Also, unforeseen (financial) events are minimized as investors might have insight in projected statements when a firm voluntarily discloses more information.

### 2.5.2 FIRM SIZE

A firm characteristic that can influence the disclosure of a firm is firm size. Firm size is strongly related to firm value, as larger firms might have by definition a higher value since it is easier for larger firms to attract external equity as they provide more certainty for investments (Wald, 1999; Chittenden et al. 1996; Jöeveer, 2013). As firm value is mostly indirectly measured in most studies by for example cost of capital (Botosan, 1997; Hail, 2002), firm size is a more frequently studied characteristic in combination with voluntary disclosure, focussing on the book value of a firm and the market value of a firm (Gisbert & Navallas, 2013; Cheng & Courtenay, 2006; Eng & Mak, 2003; Botosan, 1997). Firstly, Singvhi & Desai (1971) pointed out that smaller firms inadequately disclose information in their annual reports, which means that the disclosure for smaller firms is lower, which is mostly because the cost to disclose is lower for larger firms as they outsourced the disclosure practices to professionals. This is also supported by Hermalin & Weisbach (2012), who state that another reason for the larger firms disclosing, related to this former study, is that larger firms might adopt more stringent disclosure practices than smaller firms. This means that larger firms adopt more stringent disclosure regimes and the stringer the disclosure regime, the more information they have to disclose. Those stringent disclosure practices are set by the large firms themselves, since they want to fulfil certain information needs for their investors or debtors etc. Also, this might be because their investors and debtors are asking a lot of information from the firm.

Secondly, larger firms are overall more well-known and so are also expected to disclose more information than unknown firms, to make sure that they are staying well-known among investors (Dahlquist & Robertsson, 2001; Wald, 1999). As those firms are more well-known, they are also asked for more information as people and investors are more interested in those firms. The former is also consistent with Modugu & Eboigbe (2017) who also investigate the relation between firm size and disclosure and state that larger firms are more frequently investigated and of interest by the public than smaller firms. Therefore larger firms disclose more information to their public, as this is expected from them.

Ahmed & Courtis (1999) and Arcay & Vasquez (2005) also support that firm size is positively related to disclosure for several reasons. Firstly they support that this is because larger firms have higher informational expectations by their various investors or owners as they are more well-known and have more investors and owners. Furthermore, they support that for larger firms the costs and benefits of disclosure are more manageable than for smaller firms.

As discussed before, institutional owners can increase the disclosure of a firm. Institutional owners tend to invest more in larger firms as those are more well-known and are mostly higher valued (Bushee, 2001; Cornett et al. 2007). This is supported by Dahlquist & Robertsson (2001) who investigate the relation between foreign ownership and firm size and define several reasons: the firm's presence in international markets and the widespread ownership in larger firms. So when institutional owners invest more in larger firms, this also has an effect on disclosure as institutional owners have an effect on disclosure, addressed in chapter 2.5.1.

## 2.6 HYPOTHESES

The literature review above indicates that there is a relation between voluntary disclosure and institutional ownership, which can be in both directions. Voluntary disclosure can have an effect on the capital share of institutional owners in a firm, as it is more attractive for institutional owners to invest in firms which disclose more information. Especially attractive for institutional owners is the detailed information covering all kinds of business activities and areas. In this way, when information is mostly disclosed, institutional owners are completely aware of the firm performance and there is no information asymmetry between the management and the owners. As addressed in the literature study, more transparency can reduce the risk for investors as there might be detailed information available for multiple possible business areas and even future prospects. This means that institutional ownership can also have an effect on the voluntary disclosure of a firm, which is the main aim of this study. Especially when the degree of institutional ownership is high, the disclosure of that firm will also be high. As institutional owners are not involved in daily business activities or decisions, most of the information provided to them is the information that the firm shares publicly with its shareholders. Therefore institutional owners demand more public information from their firms to make sure there is more transparency into its activities, decision-making etc. This will reduce the information asymmetry in a firm as managers and shareholders share the same information to make the firm more transparent. (Boone & White, 2015; Lardon & Deloof, 2014; Gillan & Starks, 2003). As institutional investors are often short-sighted and looking for an investment to quickly earn high profits without too much risk, they are demanding their firms to be more transparent in order to reduce their investment risk (Bushee & Noe, 2000). This explains the positive effect of institutional ownership on voluntary disclosure, as the degree in which a firm discloses its information publicly will increase as institutional owners will demand the firm to make more information publicly available. Thus, institutional ownership can have an effect on the voluntary disclosure of a firm, resulting in the following hypothesis:

**H1:** *There is a positive effect of institutional owners on voluntary disclosure*

Firm size is also related to voluntary disclosure according to numerous studies. As larger firms adapt to more stringent disclosure practices, demanding them to disclose more information due to their size, the disclosure in those firms will also be higher (Hermalin & Weisbach, 2012). Larger firms are overall more well-known by the public or investors which results in more expectations among the information disclosure. When more publicly known, the firms need to share more information to keep the public up-to-date (Dahlquist & Robertsson, 2001; Wald, 1999). Also the fact that institutional owners are most interested in larger firms, influences this relationship between firm size and voluntary disclosure. Institutional owners mostly prefer larger firms as they are more well-known and more secure to invest in (Bushee, 2001; Cornett et al. 2007). As institutional owners ask for more transparency in firms, the voluntary disclosure of such large firms will be higher as they fulfil the wishes of those institutional owners.

**H2:** *There is a positive effect of firm size on voluntary disclosure*

### 3. SAMPLE SELECTION AND DATA COLLECTION

#### 3.1 SAMPLE AND DATA

The sample originates from the Orbis database, which provides a comprehensive overview of a large number of firms all over the world. The sample consists of Dutch listed firms. For this research it is interesting to analyse Dutch firms, as most likewise studies that are reviewed in chapter two are focussing on US, Asian or now and then other European firms. As Dutch is the native language for most firms in the Netherlands, it might be easier to obtain and understand information when public information is only available in Dutch. Also the familiarity with Dutch firms might be helpful when trying to understand the detailed information in the annual reports to check for the voluntary disclosure practices. As in Europe the IFRS accounting standards are binding for all listed Dutch firms, most mandatory disclosure items according to the IFRS are included in the annual reports anyway<sup>15</sup>. So the disclosure index is focused on the voluntary disclosure of all listed Dutch firms.

The Orbis database possesses the possibility to set a wide range of search criteria in order to create a suitable dataset. Firstly, only firms that are owned by either “pension funds”, “hedge funds” or “insurance companies” are selected, to ensure the institutional ownership. To ensure homogeneity in the sample, only industrial firms are selected. Those firms belong to the industry segments: “food and beverages”, “textiles, wearing apparel and leather”, “wood, cork, paper”, “publishing, printing”, chemicals etc., “metals & metal products”, “machinery etc.”, “gas, water, electricity”, “construction”, “wholesale & retail trade”, “hotels & restaurants”, “transport”, “post & telecommunications”<sup>16</sup>. In order for a firm to be included in the sample, they should have annual reports publicly available from the year 2016, as this is the most recent data available in terms of annual reports. Following Chau & Gray (2002) and Gisbert & Navallas (2012), only a one-year sample will be analysed, as the disclosure practices of firms mostly do not change much over time (Botosan, 1997).

The data for institutional ownership is collected in two ways and then combined with each-other. Firstly, it is obtained from the Orbis database which provides information on the name, type of owners and the percentage of capital they own and only “insurance companies”, “hedge funds” and “mutual funds/pension funds/trustees” were selected. Secondly, the AFM register (Algemene Financiële Markt) was used which registers the buy/sell transfer of shares from all listed Dutch firms. When ownership information was still missing, the annual reports were consulted in order to ensure the correct percentage of capital shares. The ownership data was collected for the year 2016. Both disclosure data and institutional data are obtained from 2016, as the degree of institutional ownership in that year has an influence on the disclosure in the annual reports at the end of that same year. Institutional owners that owned share capital in 2016 asked for more transparency of the firms in that same year and so the annual report over 2016 should be more transparent and have a higher disclosure quality. The data for 2016 about the book value (total assets/sales) and market value of total equity (market capitalisation) are also obtained from the Orbis database, such as the data for the control variables.

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<sup>15</sup> Deloitte (2017). Handboek Externe Verslaggeving 2017. Retrieved from: <https://www2.deloitte.com/nl/nl/pages/audit/articles/handboek-externe-verslaggeving.html>, at 24-01-2018

<sup>16</sup> Bloomberg (2017). Industrials sector. Retrieved from: <https://www.bloomberg.com/research/sectorandindustry/sectors/sectordetail.asp?code=20>, at 04-12-2017

The checklist as a basis for the disclosure index is obtained from the study of Gisbert & Navallas (2013) and based on the checklist from Botosan (1997) and the FASB (Financial Accounting Standards Board) guidelines. The checklist consists of 61 information items consisting of different information areas: historical information (5 items), corporate social responsibility information (3 items), intangibles/intellectual capital (14 items), projected information (10 items), background information (17 items), non-financial information (7 items), management analysis information (5 items). The data for the disclosure index of the sample firms is obtained out of hand-collected annual reports from 2016 originating from the firm's corporate website. Every annual report is checked for presence of keywords in order to cover all the information items. An extensive search for all 61 disclosure items, on average 8-14 keywords per item was used to search for in annual reports. Moreover, to ensure that no item is neglected, every annual report will also be read/scanned completely. The measurement of the disclosure index will be discussed in chapter 4.

Table 1, panel A displays the sample selection process with the detailed number of firms included or withdrawn from the sample and panel B displays the distribution from the firms in the different industries. The former restrictions of the database results in a sample of 66 Dutch firms in total, which is comparable with the sample from Gisbert & Navallas (2013) who studied 62 Spanish listed firms.

**Table 1**

Summary of sample selection, industry distribution and list of firms

| Panel A: Sample selection procedure                     | No.       | Less         |
|---------------------------------------------------------|-----------|--------------|
| Publicly listed industrial companies in the Netherlands | <b>94</b> |              |
| With latest year of accounts: 2016                      | 89        | -5           |
| Owned by institutional shareholders                     | 81        | -8           |
| No available annual reports for 2016                    | 78        | -3           |
| No available data on ownership                          | 73        | -5           |
| No available data on one/more of the control variables  | 66        | -7           |
| <b>Final Sample</b>                                     | <b>66</b> |              |
| Panel B: Distribution by industry                       | No.       |              |
| Machinery, equipment, furniture, recycling              | 21        | 31,8 %       |
| Wholesale & retail trade                                | 9         | 13,6 %       |
| Chemicals, rubber, plastics, non-metallic products      | 13        | 19,8 %       |
| Food, beverages, tobacco                                | 9         | 13,6 %       |
| Construction                                            | 4         | 6,1 %        |
| Metals & metal products                                 | 1         | 1,5 %        |
| Publishing, printing                                    | 5         | 7,6 %        |
| Primary sector                                          | 3         | 4,5 %        |
| Transport                                               | 1         | 1,5%         |
| <b>Total</b>                                            | <b>66</b> | <b>100 %</b> |

## **4. METHODOLOGY**

### **4.1 RESEARCH METHOD**

The aim of this research is to investigate the effect of institutional ownership on voluntary disclosure. The hypotheses are that institutional ownership and firm size have an effect on voluntary disclosure and this will be tested performing a regression analysis as this is the mostly used research method in similar studies (Gisbert & Navallas, 2013; Hail, 2002; Cahan et al. 2016; Botosan, 1997; Cheng & Courtenay, 2006). However, there are different types of regression analyses, depending on different types of variables and assumptions which will be examined below.

#### **4.1.1 REGRESSION ANALYSIS**

As mentioned by Hair et al. (1995), there are multiple research methods which can be performed in order to do a regression analysis. Regression analysis is appropriate for this study as it analyses the effect of the independent variable on the dependent variable and is used to investigate the relation between dependent and independent variables.

Firstly, logistic regression is mostly used when the dependent variable is a non-metric (categorical) variable as the variable. According to Dayton (1992), it is a regression model with less assumptions than other regression models. Logistic regression is mostly used to assess the probability of a situation, by relating dichotomous variables to one or more variables. The independent variables are influencing the probability of the dependent variable in a non-linear way. (Hair et al. 1995). In this research, a logistic regression is not suitable as the research does not focus on the probability of institutional ownership but its effect on voluntary disclosure.

Secondly, linear regression is mostly used when the dependent variable is a metric variable. In this regression type, the relation between the independent variable(s) and dependent variable is expected to be linear. Similar studies (Gisbert & Navallas, 2013; Cheng & Courtenay, 2006; Botosan, 1997; Hail, 2002; Cahan et al. 2016) investigating voluntary disclosure, mostly use linear regression analysis, specifically the ordinary least squares method (OLS).

OLS minimizes the sum of squares of the deviations from each observed value compared to the predicted value of the dependent variable (Hair et al. 1995). The regression coefficients are interpreted as the change in the expected value of the dependent variable related with a one-unit increase in the independent variable (Pohlmann & Leitner, 2003). As similar studies mostly use the OLS regression when investigating voluntary disclosure (Botosan, 1997; Hail, 2002; Cheng & Courtenay, 2006; Gul & Leung, 2004), this research will also use OLS regression. Also OLS is easy to analyse, interpret the results and check the model assumptions by using graphical methods, as it is a simple linear regression model (Moutinho & Hutcheson, 2011; Hair et al. 2010). However, a drawback of OLS is that it is sensitive to outliers, not normally distributed data etc. So the dataset must meet more assumptions than for example when performing a logistic regression.

Gisbert & Navallas (2013) use the two-stage least squares (2SLS) method to analyse the relation between board characteristics and voluntary disclosure. This method is used to analyse the

correlation between the dependent variable's error term and the independent variables.<sup>17</sup> (Hair et al. 2010) As it is not assumed that the errors in voluntary disclosure are correlated with the independent variable(s), the 2SLS is not appropriate.

#### 4.1.1.1 APPLIED METHOD

The method applied in this research is the OLS, as this is the most appropriate method and similar studies also used this method, mentioned before in 4.1.1. In order to perform a correct OLS regression, the data will be checked according to different assumptions<sup>18</sup> based on similar studies (Gisbert & Navallas, 2013; Cheng & Courtenay, 2006; Botosan, 1997). First, the normal distribution and the spread of the sample will be shown by descriptive statistics. Second, influential outliers will be recognized and transformed by winsorizing variables if possible. Third, multicollinearity will be tested by a parametric and non-parametric test. Parametric to test the linear correlation between the variables, as the relation is expected to be linear. Non-parametric to test the monotonic relationship when there is no linear relation present, but there is an association between the variables. Last, homoscedasticity will be examined by a scatterplot (Appendix III).

#### 4.1.2 REGRESSION MODEL

Gisbert & Navallas (2013), Cheng & Courtenay (2006), Chau & Gray (2002) and Gul & Leung (2004) performed similar regression analyses to investigate voluntary disclosure. Those studies are more focussing on either board characteristics or ownership structure in general. The model is based upon the ones in those studies, as the aim is comparable to this one. Also the several control variables are based upon those same studies to control for firm specific attributes; "leverage", "price-to-book ratio" and "profitability". The regression model is formulated to investigate the effect of institutional ownership, firm size and the control variables on voluntary disclosure.

The hypotheses stated in chapter 2.6 will be tested by performing an ordinary least squares regression based on the following model:

$$(1) \text{ DISC\_index} = \beta_0 + \beta_1 \text{ INST.OWN} + \beta_2 \text{ SIZE} + \beta_3 \text{ LEV} + \beta_4 \text{ P/B} + \beta_5 \text{ PROF} + \epsilon_i$$

Where DISC\_index is the voluntary disclosure score derived from the index (Appendix II), which will be elaborated upon in chapter 4.2. INST.OWN is the capital share of institutional owners and measured by the percentage of capital share owned by institutional investors/total ownership (Gisbert & Navallas, 2013; Boone & White, 2015). Following Chau & Gray (2002), Courtenay & Cheng (2006) and Gisbert & Navallas (2013) SIZE is the firm size and is measured by the market value of equity. Following likewise studies (Gul & Leung, 2004; Gisbert & Navallas, 2013; Cheng & Courtenay, 2006), LEV, P/B and PROF are the control variables; LEV is the leverage and measured by the debt-to-equity ratio of a firm, P/B is the price-to-book ratio and is measured by market value (share price) to

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<sup>17</sup> IBM (2017) *Two stage least squares*. Retrieved from: [https://www.ibm.com/support/knowledgecenter/en/SSLVMB\\_22.0.0/com.ibm.spss.statistics.help/spss/regression/idh\\_tsls.htm](https://www.ibm.com/support/knowledgecenter/en/SSLVMB_22.0.0/com.ibm.spss.statistics.help/spss/regression/idh_tsls.htm), at 29-04-2018

<sup>18</sup> Statistics Solutions. *Assumptions of Linear Regression*. Retrieved from: <https://www.statisticssolutions.com/assumptions-of-linear-regression/>, at 01-03-2018

its book value, PROF is the profitability and is measured by the return on assets.  $\epsilon_i$  represents the normal regression error term, which is the difference between the observed data and the actual population data. (Chau & Gray, 2002; Cheng & Courtenay, 2006; Gisbert & Navallas, 2013; Gul & Leung, 2004). The hypotheses will be tested at significant levels of either 1%, 5% or 10%.

## 4.2 VARIABLES

The variables included to test the hypotheses are either: dependent, explanatory or control variables. Table 2 includes the variable definitions of all included variables.

### 4.2.1 DEPENDENT VARIABLE

The disclosure index (DISC\_index) that will serve as the measure for voluntary disclosure is based on the amount of detailed information that is disclosed. As in many studies, the voluntary disclosure is proxied by the amount of disclosure on specified topics and is measured by the absence or presence of an item in the annual report of the firm (Beattie et al. 2004, Cheng & Courtenay, 2006, Chau & Gray, 2002, Gisbert & Navallas, 2013). The disclosure index is based on a checklist from Gisbert & Navallas (2013), who in turn based their checklist on the one from Botosan (1997), Cheng & Courtenay (2006) and the framework of the Financial Accounting Standards Board. This checklist consists of 61 information items all related to different areas of information: historical information, corporate social responsibility, intangibles and intellectual capital, projected information, background information, non-financial information, management analysis. The checklist is extensive by including many information areas and detailed as it includes very detailed disclosure items, for example: growth percentages, figures, graphs, projected statements etc. The complete checklist can be found in Appendix II.

The index is measured in a similar way as Gisbert & Navallas (2013) by using an unweighted disclosure index, which means all information items are equally weighted. On the basis of the checklist, the absence or presence of the information items will be checked. This will be done by collecting annual reports from the corporate websites of the sample firms. Following Gisbert & Navallas (2013), a dichotomous variable taking values of either 0 or 1 will be used to compute the index score per firm. For each item on the checklist, the firm's disclosure index will get a value of 1 if the firm disclose, and 0 otherwise. The DISC\_index score will be computed as the sum of all the values for a firm's disclosure index, divided by the total number of items included in the checklist (61). DISC\_index will range from 0 till 1, with 0 meaning no disclosure at all and 1 meaning maximum disclosure.

As the disclosure index has a certain degree of subjectivity in carrying out the values in the disclosure checklist, the validity will be assessed by ensuring internal consistency (Gisbert & Navallas; Botosan, 1997). Firstly, following Botosan (1997) the internal consistency is assessed by Cronbach's Alpha to see whether there is random measurement error present in the disclosure index that could reduce the power of empirical testing. Secondly, the validity will be examined by a correlation analysis of the DISC\_index and each one of the seven different disclosure index information areas. To test the internal consistency the correlation between the DISC\_index and the seven sub-categories of

disclosure will be tested with a Pearson and Spearman's Rho correlation analysis (Gisbert & Navallas, 2013; Cheng & Courtenay, 2006). It is expected that the seven different sub-categories of information areas are significantly correlated to the DISC\_index as the voluntary disclosure of a firm is expected to be similar along all areas.

## **4.2.2 EXPLANATORY VARIABLES**

### **4.2.2.1 INSTITUTIONAL OWNERSHIP**

Secondly, institutional ownership is based on the percentage of total shares institutional owners hold in a firm (Gisbert & Navallas, 2013; Boone & White, 2015). The share capital owned by institutional investors (INST.OWN) is divided by the total capital owned by shareholders and so INST.OWN is expressed in percentage of the total ownership. The ownership information is collected from the Orbis database, which provides the share capital per shareholder and shareholder type in percentages. Those percentages are compared with the Autoriteit Financiële Markten register, which register every movement in selling or buying of shares for Dutch firms. Only "hedge funds", "pension funds" or "insurance companies" are selected in Orbis, as the main institutional investors in the Netherlands are identified as pension funds, insurance companies and other joint funds/trusts <sup>19</sup> (Gebraad, 2014).

### **4.2.2.2 FIRM SIZE**

Firm size could also have an effect on the disclosure of a firm as examined in chapter 2.5, as larger firms tend to disclose more information than smaller firms and lower valued firms. Firm size is included to test the second hypothesis and is proxied by: total assets, total sales and the market capitalisation (market value of equity) of the firms. Those are reported in millions of euros and in the analyses the natural logarithm of size will be used. (Gisbert & Navallas, 2013; Chau & Gray, 2002; Cahan et al. 2016). The data is collected from the Orbis database for the fiscal year 2016.

## **4.2.3 CONTROL VARIABLES**

Control variables are included to control for certain firm characteristics that could influence the regression results. The choice to include the control variables "leverage", "price-to-book" and "profitability" are drawn from similar studies (Gisbert & Navallas, 2013; Cheng & Courtenay, 2006; Chau & Gray, 2002; Gul & Leung, 2004). The data on the control variables is also collected from the Orbis database for the fiscal year 2016.

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<sup>19</sup> Nederlandse Investeringsinstelling (2017). Institutionele beleggers: financiers van de Nederlandse economie. Retrieved from: <https://www.nlai.nl/beleggers/onderzoek-%E2%80%98beleggen-in-nederland%E2%80%99> at 28-04-2018

| Control variable<br>(measure)                              | Exp.<br>Sign | Explanation                                                                                                                                                                                                                                                                                                                                    | Source                                                                              |
|------------------------------------------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| • Leverage (non-current debt + loans / shareholder equity) | +            | Higher levered firms have higher monitoring costs and cost of capital as they are riskier for the providers of the capital. They try to reduce costs by increase the information disclosure and give more transparency to capital providers to reduce the risk for them. Firms relying more on debt try to satisfy the need of their creditors | Jensen & Meckling (1976); Hail (2002); Botosan (1997); Armitage & Marston (2008);   |
| • Price/Book (share price/book value of shares)            | +            | Signals the firm's future growth opportunities and increases the disclosure, as a high market-to-book indicates that the firm needs external capital to grow and so they will disclose more information to be more transparent towards potential investors. Also high growth firms more likely tend to reduce the information asymmetry.       | Gisbert & Navallas (2013); Hyytinen & Pajarinen (2005); Gul & Leung (2004)          |
| • Profitability (return on assets)                         | +            | More profitable firms disclose more information as they want to signal investors and competitors to attract even more equity, increase the management compensation and expand their business                                                                                                                                                   | Hope & Thomas (2008); Jensen (1986); Wallace & Naser (1995); Ahmed & Courtis (1999) |

**Table 2**

| Variable    | Definition                                                                                                                          |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------|
| DISC_index  | Disclosure index based on the disclosure checklist. Disclosure score of a firm / total disclosure score possible.                   |
| ADISC_index | Disclosure index scored by either 0,1 or 2 indicating "low", "moderate" and "high" disclosure.                                      |
| INST. OWN   | Capital share of institutional owners / total capital share in %                                                                    |
| SALES       | Natural logarithm of firm size: total sales in €                                                                                    |
| TOTAST      | Natural logarithm of firm size: total assets in €                                                                                   |
| MVAL        | Natural logarithm of firm size: market value of total equity or market capitalization, i.e. total outstanding value of shares in €. |
| LEV         | Leverage: gearing %: non-current liabilities + loans / shareholder funds                                                            |
| PRICE/BOOK  | Price to book value ratio: share price/book value of shares                                                                         |
| PROF        | Profitability of the firm: return on assets ratio, i.e. operating P/L before tax in €/total assets                                  |

### 4.3 DESCRIPTIVES

**Table 3**  
Descriptive statistics for all variables

| Variables <sup>a</sup> | N  | Mean     | SD        | Min   | Max        | 25%    | 50%      | 75%      |
|------------------------|----|----------|-----------|-------|------------|--------|----------|----------|
| DISC_INDEX             | 66 | .230     | .087      | .082  | .393       | .163   | .213     | .310     |
| INST. OWN              | 66 | 31.49    | 21.43     | .00   | 80.21      | 15.98  | 25.94    | 43.81    |
| MVAL                   | 66 | 7,637.35 | 13,621.85 | 6.76  | 67,071.58  | 218.77 | 1,797.78 | 8,723.01 |
| TOTAST                 | 66 | 9,846.76 | 20,861.81 | 16.00 | 111,113.00 | 319.25 | 1,364.60 | 7,742.25 |
| SALES                  | 66 | 7,190.66 | 17,377.84 | 15.87 | 111,018.00 | 323.16 | 1,183.48 | 4,869.65 |
| LEV                    | 66 | 1.259    | 1.537     | .007  | 7.410      | .426   | .706     | 1.586    |
| PRICE/BOOK             | 66 | 3.253    | 4.799     | .175  | 31.243     | 1.392  | 2.085    | 3.057    |
| PROF                   | 66 | .050     | .087      | -.229 | .247       | .016   | .059     | .088     |

<sup>a</sup>DISC\_index = the firm disclosure index based on the checklist of Gisbert & Navallas (2013) and calculated via: firm score on the checklist / total score possible; INST.OWN = the percentage of capital share owned by "hedge funds", "pension funds" and "insurance companies". The three proxies for firm size are: MVAL = the total market value of equity in millions €; TOTAST is total assets in million € and SALES is total sales in million €. LEV = the debt to equity ratio; PRICE/BOOK = the price-to-book or market-to-book value and PROF = the return on assets ratio and a proxy for the profitability

Table 3 presents the descriptive statistics for the disclosure, institutional ownership and firm characteristics of the sample firms. The average disclosure index is .230, which implies that firms disclose on average 23% of the 61 disclosure items from the checklist. The min and max values implies that firms disclose at least 8% of the 61 disclosure items and at the most 39%. The standard deviation of .087 is not that high, indicating that the dispersion of the DISC\_index is limited. The descriptive statistics for DISC\_index are mostly similar to the values by Gisbert & Navallas (2013). The average and median disclosure found by them are a little higher, as they report a mean of .250 and a median of .253 for Spanish firms. The average disclosure reported in Cheng & Courtenay (2006) is also a little higher for Singapore firms with a mean of .29 but has a likewise standard deviation of .08.

Institutional ownership ranges from a minimum of 0%, to a maximum of 80.21 %, with an average of 31.49% of the total capital share being owned by institutional investors. There are three firms with a percentage of institutional ownership close to zero. Those are rather small firms with total assets below 63 million, which is even much lower than the average TOTAST in the 25% quartile. The average percentage of INST.OWN is a little lower than the average percentage by Boone & White (2015) for their smallest sample size. However, their study investigates the Russell 1000/2000 index, which might include higher valued and larger firms internationally.

The statistics reveal that the sample consists of a wide variation of firm size, measured by MVAL, TOTAST and SALES. The largest firm has MVAL, TOTAST and SALES values of 67.071 million, 111.113 million and 111.018 million, respectively. Whereas the smallest firm has MVAL, TOTAST and SALES values of 6.76 million, 16.00 million and 15.87 million, respectively. As the standard deviations for all three SIZE measures are very high, the different firm sizes in the sample are very dispersed. Also firm size is skewed to the right when comparing the mean with the median and percentiles of MVAL, TOTAST and SALES. The dispersion and right skewness in firm size was also the case in similar studies (Gisbert & Navallas, 2013; Chau & Gray, 2002; Botosan, 1997).

The values for the leverage ratio are winsorized, following Hail (2002). There are two values at the upper bound that are more than three standard deviations away from the mean and so those two values are winsorized. They are equalized with the largest value within the range. The statistics reveal an actual mean, SD and max of 1.512, 2.723 and 16.326 for leverage respectively. The maximum leverage ratio of 16.326 is identified as an outlier in the dataset and is transformed in a maximum value of 7.410.

The results show that the total liabilities or debt of Dutch firms are on average 1.259 times the total shareholder equity. The standard deviation is higher than the mean, indicating dispersion in the sample, but the SD is mostly similar to Gisbert & Navallas (2013) and Hail (2002). Also the mean and max values are comparable with Spanish firms studied by Gisbert & Navallas (2013). However, the mean leverage for Dutch firms is still considered high when compared to Cheng & Courtenay (2006) and Chau & Gray (2002).

The price-to-book (PRICE/BOOK) statistics reveal that on average the share price is 3.253 times higher than the book value of shares for Dutch firms. Shares for Dutch firms are on average over-valued. This is comparable to the average price-to-book ratio of Spanish firms with a mean of 3.340 (Gisbert & Navallas, 2013).

Profitability is proxied by the return on assets (ROA), by dividing the operating profit/loss before taxes by the total assets. On average, the profit for Dutch firms is 5% of the total assets of that firm, mostly similar to Cahan et al. (2016) and Gisbert & Navallas (2013). The minimum value of -.229, also corresponds with Cheng & Courtenay (2006) and Gisbert & Navallas (2013).

**Table 4**

Descriptive statistics for the disclosure index sub-categories<sup>a</sup>

| Information areas | N  | Mean | Median | SD   | Min  | Max  |
|-------------------|----|------|--------|------|------|------|
| DISC_index        | 66 | .230 | .213   | .087 | .082 | .393 |
| D_HIS             | 66 | .276 | .200   | .178 | .000 | .800 |
| D_CSR             | 66 | .237 | .333   | .273 | .000 | 1.00 |
| D_INT             | 66 | .276 | .250   | .155 | .000 | .643 |
| D_PROJ            | 66 | .102 | .100   | .103 | .000 | .300 |
| D_BACK            | 66 | .254 | .235   | .134 | .000 | .588 |
| D_NONF            | 66 | .320 | .286   | .161 | .000 | .714 |
| D_MAN             | 66 | .064 | .000   | .132 | .000 | .600 |

<sup>a</sup>DISC\_index is the voluntary disclosure index based on the checklist from Gisbert & Navallas (2013) with each score ranging from 0-1. D\_HIS = disclosure of historical data, D\_CSR = disclosure of corporate social responsibility data, D\_INT = the disclosure of intangibles and intellectual property, D\_PROJ = the disclosure of projected information, D\_BACK = the disclosure of background information, D\_NONF = the disclosure of non-financial data, D\_MAN = the disclosure of management analysis

Table 4 shows the descriptive statistics for the seven disclosure information areas, included in the overall DISC\_index. The division of the disclosure information areas is based on the division made in the checklist from Gisbert & Navallas (2013). The results show that firms on average disclose mostly non-financial information (D\_NONF) with a mean of .320. It implies that firms on average disclose 32% of all the 7 non-financial information items. Also historical information (D\_HIS) and information on intangibles and intellectual capital (D\_INTANG) are on average. This means that firms on average disclose 27,6% of the five historical information items, 27,6% of the 14 intangibles and intellectual capital items.

Only for corporate social responsibility the value reveals full disclosure with a maximum score of 1.00. This maximum score was achieved by only two firms, which are both large firms with over 40.000 million total assets with one operating in the automotive industry and one operating in the food sector. So this indicates the possibility that it might be very important in those sectors to disclose information on corporate social responsibility. However, as D\_CSR only contains three information items and the standard deviation is relatively high it does not indicate much. The average values in table 4 correspond with the average information area values found by Gisbert & Navallas (2013). They used an almost similar checklist, division of the information areas and measurement of the disclosure index. Only their average values for the projected information and corporate social responsibility differ from those in table 4. Gisbert & Navallas (2013) reported a higher average for corporate social responsibility disclosure and a lower average for the projected information disclosure. Such differences can be related to the country differences between Dutch firms and Spanish firms.

**Table 5**

T-test of differences in means on high and low disclosure sample firms <sup>a</sup>

|                    | <u>High disc. (N = 27)</u> |       | <u>Low disc. (N = 39)</u> |       | <u>Test of differences</u> |
|--------------------|----------------------------|-------|---------------------------|-------|----------------------------|
|                    | Mean                       | SD    | Mean                      | SD    | T-Stat <sup>b</sup>        |
| DISC_INDEX         | .313                       | .056  | .173                      | .051  | 20.96***                   |
| INST. OWN (in %)   | 29.99                      | 17.79 | 28.61                     | 20.04 | 0.57                       |
| MVAL               | 8.57                       | 1.68  | 6.10                      | 2.31  | 9.51***                    |
| TOTAST             | 8.68                       | 1.89  | 6.30                      | 1.95  | 9.89***                    |
| SALES              | 8.52                       | 1.64  | 5.93                      | 1.85  | 11.69***                   |
| LEV (ratio)        | 1.74                       | 2.91  | 1.35                      | 2.61  | 1.14                       |
| PRICE/BOOK (ratio) | 3.79                       | 4.82  | 2.88                      | 4.81  | 1.50                       |
| PROF (ratio)       | .07                        | .06   | .04                       | .10   | 2.93*                      |

a. DISC\_INDEX is the disclosure index score, INST.OWN is the institutional ownership in percentages, Firm size is proxied by: MVAL which logarithm of total market value, TOTAST which is the logarithm of total assets and SALES which is the logarithm of total sales. LEV is debt/equity ratio, PRICE/BOOK is price to book ratio, PROF is the return on assets ratio as a proxy for profitability

b. One-tailed t-test: \*\*\* = 1 % significance, \*\* = 5% significance, \* = 10% significance

Table 5 reports the statistics for testing the differences in average for firms with either a high or low disclosure index (Gisbert & Navallas, 2013 and Cahan et al. 2016). The disclosure index is categorized as “high disclosure” when the score of the disclosure index is above the mean (above .230) and categorized as “low-disclosure” when the score is below the mean (Gisbert & Navallas, 2013). The division results in a sample of 27 firms that is labelled as having a “high disclosure” and a sample of 39 firms that have a “low disclosure”.

The results show that firms with “high disclosure” on average disclose 31.3% of the 61 disclosure checklist items. Whereas, the firms with “low disclosure” on average disclose 17.3% of those information items. This difference in means is statistically significant at a level of 1%, which indicates that the average disclosure score does statistically differ for firms with high and firms with low DISC\_index. The difference in average disclosure for the high and low disclosure samples differ a little from the ones found by Cahan et al. (2016), but this can result from the fact that this study uses below and above the median as a cut-off point.

The results also show that firms in the “high disclosure” sample are on average larger in size, considering all three proxies for size (MVAL is 8.57, TOTAST is 8.68 and SALES is 8.52) compared to firms in the “low disclosure” sample (MVAL is 6.10, TOTAST is 6.30 and SALES is 5.93) at a significant level of 1%. This result is consistent with the expectation that firm size is an important effect related to disclosure, as firms that disclose more information are on average larger firms. The significant differences in means for firm size are consistent with the results from Cahan et al. (2016) and Gisbert & Navallas, (2013),

Notably, firms with a “high disclosure” do not statistically differ in average percentage of institutional ownership compared to firms with a “low disclosure”. This result is not consistent with the expectation that firms with a higher degree of institutional ownership also have a higher voluntary disclosure index.

The average profitability for firms in the “high disclosure” sample (ROA is .07) is statistically different at a level of 10%, compared to the average profitability for firms in the “low disclosure” sample (ROA is .04). So, firms with a higher disclosure are on average more profitable firms, supported by Hope & Thomas (2008) and Ahmed & Courtis (1999). However, the other control variables do not show significant results. Both leverage and price/book ratio are not statistically different on average for firms with either high or low disclosure.

## 5. ANALYSIS AND DISCUSSION OF RESULTS

As mentioned before, the winsorized values of leverage are used in the analyses. Following Cheng & Courtenay (2006), Gisbert & Navallas (2013), Hail (2002) and Chau & Gray (2002), the values for total assets, total sales and market value of equity are transformed in logarithms and those variables are measured using the natural logarithms of the values, to increase the normality of the total distribution of the sample.

### 5.1 CORRELATION ANALYSIS

**Table 6**  
Correlation analysis of all variables

| Variables <sup>ab</sup> | DISC_index | INST.OWN | MVAL    | TOTAST  | SALES   | LEV     | PRICE/<br>BOOK | PROF   |
|-------------------------|------------|----------|---------|---------|---------|---------|----------------|--------|
| DISC_index              | 1          | .157     | .560*** | .584*** | .592*** | .182*   | .134           | .082   |
|                         |            | .105     | .000    | .000    | .000    | .072    | .141           | .255   |
| INST.OWN                | .205**     | 1        | .268**  | .140    | .205**  | -.169*  | .150           | .275** |
|                         | .049       |          | .015    | .133    | .050    | .088    | .115           | .013   |
| MVAL                    | .570***    | .221**   | 1       | .932*** | .868*** | .057    | .329***        | .171*  |
|                         | .000       | .038     |         | .000    | .000    | .327    | .004           | .087   |
| TOTAST                  | .585***    | .155     | .937*** | 1       | .937*** | .186*   | .123           | -.023  |
|                         | .000       | .108     | .000    |         | .000    | .069    | .164           | .429   |
| SALES                   | .600***    | .219**   | .873*** | .941*** | 1       | .163*   | .122           | .096   |
|                         | .000       | .049     | .000    | .000    |         | .097    | .166           | .222   |
| LEV                     | .173*      | -.055    | .244**  | .367*** | .358*** | 1       | .409***        | -.265* |
|                         | .082       | .332     | .025    | .001    | .002    |         | .000           | .016   |
| PRICE/BOOK              | .122       | .200*    | .324*** | .082    | .079    | .147    | 1              | .271** |
|                         | .165       | .054     | .004    | .257    | .290    | .120    |                | .014   |
| PROF                    | .023       | .323***  | .061    | -.142   | -.050   | -.277** | .356***        | 1      |
|                         | .426       | .004     | .315    | .130    | .347    | .012    | .002           |        |

Note: Pearson correlation coefficients are displayed on the right above the diagonal and the Spearman's Rho correlation coefficients are displayed on the left below the diagonal.

- DISC\_INDEX is the disclosure index score, INST.OWN is the institutional ownership in percentages. Firm size is proxied by: MVAL which is the logarithm of total market value of equity, TOTAST which is the logarithm of total assets and SALES which is the logarithm of total sales. LEV is debt/equity ratio, PRICE/BOOK is price to book ratio, PROF (profitability) is the return on assets ratio
- One-tailed t-test: \*\*\* = 1 % significance, \*\* = 5% significance, \* = 10% significance

Table 6 presents the Pearson (parametric) and Spearman's rho (non-parametric) coefficient values. The results for the institutional ownership (INST.OWN) are not consistent, as the non-parametric test shows a positive correlation to disclosure at a significance of 5% and the parametric test shows a positive correlation that is not significant. The positive correlation might indicate that institutional owners mostly invest in firms that have a higher disclosure index (Lardon & Deloof, 2014; Boone & White, 2015; Bushee & Noe, 2000). However, as the tests are not consistent it is impossible to conclude something based on this correlation.

Market value (MVAL), total assets (TOTAST) and total sales (SALES) that all three proxy firm size, are positively correlated to disclosure index (DISC\_index) at a significant level of 1%. This implies that larger firms tend to have a higher disclosure index and so voluntarily disclose more information. This correlation is supported by similar studies (Gisbert & Navallas, 2013; Cheng & Courtenay, 2006, Tinaikar, 2014) and in line with Hermlin & Weisbach (2012) stating that larger firms disclose more information due to the fact that larger firms disclose more information as they have more stringent disclosure regimes than smaller firms. Also larger firms are more well-known and investors demand more transparency (Dahlquist & Robertsson, 2001).

The coefficient for leverage is positive, as LEV is correlated to the disclosure index ( $p\text{-value} \leq 0.10$ ). The result indicates that firms with a higher leverage, also tend to have a higher disclosure index score and so voluntarily disclose more information. Higher levered firms try to reduce their monitoring costs and cost of capital by disclosing more information (Jensen & Meckling, 1976; Hail, 2002). The other two control variables (PRICE/BOOK and PROF) are also positively correlated, however none of those values are significant and so the positive correlation is not confirmed.

Another result from table 6 shows that there is a high correlation between some independent variables in the regression model. As could be expected, the proxies for size are all three highly correlated with each-other: MVAL, SALES and TOTAST are highly positively correlated in both tests at a level of 1%, as the coefficients are close to 1. This means there is a chance for multicollinearity between those independent variables when including them in the same regression model. This high correlation might be explained by the fact that larger firms, in terms of book value, might have per definition also a higher market value as it is easier for them to attract new equity and pay less transaction costs and larger firms have less financial difficulties and are higher valued than smaller firms (Wald, 1999; Chittenden, et al., 1996; Jöeveer, 2013). The logarithm of market capitalisation is mostly used in likewise studies and so will also be used in this regression analysis (Cheng & Courtenay, 2006; Hail, 2002; Boone & White, 2015). In Appendix V, the regression model shows that there are very high VIF values when including TOTAST and MVAL as both proxies for size, as the VIF values for MVAL and TOTAST 50.883 and 34.593 respectively. Those high VIF values support the fact that there is multicollinearity, as VIF values higher than 10 indicate that multicollinearity is of concern when wanting to test the regression model (Hair et al. 2010). As including one proxy for firm size is enough to include in the regression model, only market capitalisation will be included in order to test H2 (Hair et al. 2010).

Also there are significant correlations between the control variables and explanatory variables. Leverage (LEV) is positively correlated to the proxies for size, indicating that larger firms are highly levered. Also leverage is positively correlated to price/book ratio, indicating that firms that have a higher leverage, also have a higher price/book ratio. Moreover, the price to book ratio (PRICE/BOOK) is also positively correlated to the market capitalisation (MVAL) of a firm. Which indicates that larger firms, in terms of their market value of equity, have a higher price/book ratio. Lastly, profitability (PROF) is negatively correlated to both leverage and price/book ratio, indicating that more profitable firms have a lower leverage and price/book ratio. However, those correlations might not bias the regression results as the VIF values are not that high, as showed in Appendix V.

## 5.2 REGRESSION RESULTS

The ordinary least squares regression is performed with DISC\_index as the dependent variable. Table 7 summarizes the OLS regression results, with six different regression models based on the following equation:

$$(1) \text{ DISC\_index} = \beta_0 + \beta_1 \text{ INST.OWN} + \beta_2 \text{ SIZE} + \beta_3 \text{ LEV} + \beta_4 \text{ P/B} + \beta_5 \text{ PROF} + \varepsilon_i$$

An outlier influencing the regression results was removed, since this outlier was influencing the significance of the different regression models. The outlier has a very low disclosure index score (.08) and a very high institutional ownership percentage (74.55), which can be seen in Appendix IV. When including this outlier, there are almost no significant results for the six regression models. However, when excluding this outlier, table 7 does show significant results. This outlier is removed from the analyses as this value is an extreme observation (Botosan, 1997) and this one extreme observation should not influence the regression analyses, which results in a sample size of 65 firms.

**Table 7**

OLS regression results with dependent variable DISC\_index

| <b>DISC_index = <math>\beta_0 + \beta_1 \text{ INST.OWN} + \beta_2 \text{ SIZE} + \beta_3 \text{ LEV} + \beta_4 \text{ P/B} + \beta_5 \text{ PROF} + \varepsilon_i</math></b> |              |                   |                   |                   |                   |                   |                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Dependent variable = DISC_index                                                                                                                                               |              |                   |                   |                   |                   |                   |                   |
| Variables <sup>a,b</sup>                                                                                                                                                      | Exp.<br>Sign | (1)               | (2)               | (3)               | (4)               | (5)               | (6)               |
| <i>Constant</i>                                                                                                                                                               |              | .201***<br>(.000) | .176***<br>(.000) | .070**<br>(.011)  | .067**<br>(.015)  | .059**<br>(.028)  | .058**<br>(.048)  |
| <i>Test variables:</i>                                                                                                                                                        |              |                   |                   |                   |                   |                   |                   |
| INST. OWN                                                                                                                                                                     | +            | .001*<br>(.057)   | .001**<br>(.023)  |                   | .001*<br>(.099)   | .001*<br>(.072)   | .001*<br>(.093)   |
| MVAL                                                                                                                                                                          | +            |                   |                   | .021***<br>(.000) | .019***<br>(.000) | .020***<br>(.000) | .020***<br>(.000) |
| <i>Control variables:</i>                                                                                                                                                     |              |                   |                   |                   |                   |                   |                   |
| LEV                                                                                                                                                                           | +            |                   | .018**<br>(.019)  | .014**<br>(.024)  | .009*<br>(.062)   | .014**<br>(.018)  | .015**<br>(.016)  |
| PRICE/BOOK                                                                                                                                                                    | +            |                   | -.002<br>(.173)   | -.004*<br>(.054)  |                   | -.003**<br>(.048) | -.004**<br>(.039) |
| PROF                                                                                                                                                                          | +            |                   | .147<br>(.149)    | .104<br>(.192)    |                   |                   | .142<br>(.267)    |
| Adj. R <sup>2</sup>                                                                                                                                                           |              | 4.1%              | 6.5%              | 31.9%             | 31.5%             | 33.5%             | 32.8%             |

<sup>a</sup> DISC\_index = voluntary disclosure index. INST.OWN is the percentage of capital shares owned by institutional investors. Firm size is proxied by: MVAL = logarithm of total market value of a firm, LEV is the winsorized leverage, PRICE/BOOK is the share price/book value of shares and PROF is the return on assets.

<sup>b</sup> The p-values are reported as one-tailed p-values for the variables with predicted directions

\* = 10% significance; \*\* = 5% significance; \*\*\* = 1% significance

Table 7 reports the regression results for equation (1), where disclosure is regressed on the institutional ownership, firm characteristics and control variables. Six separate cross-sectional regression models were used to test the hypotheses, which are based on the models from Cahan et al. (2016), Cheng & Courtenay (2006) and Hail (2002). Firstly, the explanatory variables representing H1 and H2 are tested separately and hereafter the complete model is tested.

Model 1 examines the effect of institutional ownership (INST.OWN) on the DISC\_index and model 2 adds the control variables (LEV, PRICE/BOOK and PROF), both representing H1. Model 3 examines the effect of firm size (MVAL), in terms of market value on the DISC\_index. This model also includes the control variables (LEV, PRICE/BOOK and PROF) and represents H2. Models 4, 5 and 6 combine the explanatory variables as the models include both INST.OWN and MVAL, representing both H1 and H2. The models also focus on either including or excluding control variables to see the influence of those variables on the regression results.

In all five models where INST.OWN is included, the regression coefficient for INST. OWN is positively statistically significant at either levels of 5% or 10%. The results suggest that firms with a higher percentage of institutional ownership also have a higher voluntary disclosure. The coefficient for the institutional ownership was in all models only .001, which means that a 1% increase in the percentage of institutional ownership causes a .001 increase in the disclosure index score. This implies that institutional ownership only has a small effect on the voluntary disclosure index. The regression results support H1, indicating that institutional ownership has an effect on the voluntary disclosure of a firm. The positive effect of institutional ownership is similar to the results found by Boone & White (2015) and Baek et al. (2009). However, the coefficients found by Boone & White (2015) are about .182, indicating a stronger effect on disclosure. They included the Russell 1000/2000 firms in their sample, resulting in a much larger sample. They find that firms owned by institutional owners do have a positive effect on information disclosure. More specifically, Khan et al. (2012) also finds an effect of institutional ownership on the disclosure in annual reports.

Models three until six show positively significant regression results for MVAL, all at a level of 1%. Those regression results suggest that larger firms, in terms of their market value of equity, have significantly higher levels of voluntary disclosure. The results indicate that a one unit increase in MVAL increases the disclosure index score with .021, .019 or .020 respectively. Which means that a one unit increase in firm size, increases the disclosure score with either .021, .019 or .020. This suggests that firms with a higher market value of equity, have significantly higher levels of voluntary disclosure. The models support H2 stating that firm size does have an effect on voluntary disclosure of firms, which is consistent with the findings of Tinaikar (2014), Lardon & Deloof (2014) and Cheng & Courtenay (2006), also suggesting that larger firms have a higher information disclosure. However, Lardon & Deloof (2014) and Cheng & Courtenay (2006) report higher coefficients, indicating a stronger effect. This might be because of the larger sample size, the country-differences or the focus of Lardon & Deloof (2014) on only SMEs.

The control variables LEV, PRICE/BOOK and PROF are included in five regression models. The results show that leverage is positively related to DISC\_index in all five models at either levels of 5% or 10%. LEV is positively significantly related to DISC\_index including either INST.OWN, MVAL or both. The results suggest that a one unit increase in the firm's leverage, increases the DISC\_index score with .015 according to the complete model. The results indicate that higher levered firms disclose more information. This result is consistent with Jensen & Meckling (1976), Botosan (1997) and Hail (2002) stating that higher levered firms try to satisfy their debtors by being more transparent. The results indicate that the leverage has a positive effect on the voluntary disclosure of firms.

PRICE/BOOK was expected to have a positive significant result, however the coefficient for PRICE/BOOK is negative in all models. The negative sign is consistent with Gisbert & Navallas (2013) and Baek et al. (2009) who also report a negative coefficient for price-to-book value, although expected a positive sign. Only in model two, the results for PRICE/BOOK are not significant. After including MVAL in the regression, PRICE/BOOK show significant results at either levels of 5% or 10%. Which makes sense as table 6 shows there is a correlation between PRICE/BOOK and MVAL, however appendix V indicates that this does not bias the results as the VIF value is low. The coefficient is negative as the price-to-book ratio represents the growth expectations and value and when the voluntary disclosure is higher, future expectations are better predictable. The results suggest that firms with more voluntary disclosure command a higher stock price (book-value) and the stocks are less over-valued, i.e. the book value is closer to the market value (Patel & Dallas, 2002). The results indicate that a lower price-to-book ratio is related to higher voluntary disclosure. However, as not all results are significant, it is hard to base a final conclusion on the relation between PRICE/BOOK and DISC\_index.

Lastly, the regression results for profitability show a positive relation for PROF, indicating that firms with a higher return on assets have a higher voluntary disclosure. However, those results are not significant, indicating that there is no effect of the return on assets (profitability) on the disclosure of a firm. The regression results are not consistent with former studies (Ahmed & Courtis, 1999), as they did find a relation between profitability and disclosure.

The coefficient of determination (adjusted-R<sup>2</sup>) ranges between 4.1% and 33.5%, indicating that the different variables and regression models explain a very diverse percentage of the variation in DISC\_index. The first two models including INST.OWN and the control variables only have an adjusted-R<sup>2</sup> of 4.1% and 6.5%, which implies that institutional ownership is not a very strong indicator to explain the variance DISC\_index. Models three until six, including firm size (MVAL), acquire an increased explanatory power with an adjusted-R<sup>2</sup> ranging from 31.9% till 33.5%. This means that firm size, in terms of the market value of equity, is a better indicator for voluntary disclosure, as those models explain much more variance in the DISC\_index.

The regression results document positive effects for institutional ownership and firm size on the disclosure index. The findings support both hypotheses stated in chapter 2.6. However, notably is the small influence of institutional ownership, as the coefficient is very low. Firm size is a better indicator with a higher coefficient when examining the effect on voluntary disclosure, as the explanatory power of the model is higher when including firm size.

**Table 8**

Regression based on low and high institutional ownership

| Variables                 | Exp. sign | Full sample                   | Low inst.own <sup>a</sup> | High inst. own.   |
|---------------------------|-----------|-------------------------------|---------------------------|-------------------|
|                           |           | (n = 65)                      | (n = 35)                  | (n = 30)          |
|                           |           | (1)                           | (2)                       | (3)               |
| Constant                  |           | .058** <sup>b</sup><br>(1.92) | .029*<br>(1.50)           | .161**<br>(1.86)  |
| <i>Test variables:</i>    |           |                               |                           |                   |
| INST.OWN                  | +         | .001*<br>(1.39)               | .002*<br>(1.44)           | .000<br>(-0.10)   |
| MVAL                      | +         | .020***<br>(4.95)             | .020***<br>(4.12)         | .010*<br>(1.67)   |
| <i>Control variables:</i> |           |                               |                           |                   |
| LEV                       | +         | .015**<br>(2.20)              | .012*<br>(1.57)           | .022*<br>(1.48)   |
| PRICE/BOOK                | +         | -.004**<br>(-1.79)            | -.003<br>(-0.53)          | -.004*<br>(-1.33) |
| PROF                      | +         | .142<br>(0.63)                | -.038<br>(-0.28)          | .217<br>(0.81)    |
| Adj. R <sup>2</sup>       |           | 32.8%                         | 50.4%                     | 14.2%             |

Note: variable definitions and measures are the same as for table 7

<sup>a</sup>The sample with low inst. own. are firms with percentages of institutional ownership below the median. The high inst. own. sample are percentages of institutional ownership above the median.<sup>b</sup>The p-values are reported as one-tailed p-values: \* = 10% significance, \*\* = 5% significance, \*\*\* = 1% significance

Table 8 displays the regression results for firms with either a “low” percentage of institutional ownership or a “high” percentage of institutional ownership. In column one, the last column of table 7 is repeated for ease of comparison. In column two and three, the full sample is divided into subsamples with “low inst. own” representing the firms with a percentage of institutional ownership below the median and “high inst. own” representing the firms with a percentage of institutional ownership above the median. The results show that the disclosure index of firms with a low percentage of institutional ownership is influenced by INST.OWN at a significant level of 10%. This indicates that the disclosure index for firms with a low percentage of institutional ownership increases with .001 if the percentage of institutional ownership increases with 1%. For the firms with a high percentage of institutional owners, the disclosure index is not influenced by INST.OWN. This result implies that the disclosure index of firms with a higher percentage of institutional owners, is not influenced by increasing this percentage of institutional ownership. Comparing the R<sup>2</sup> of the columns, it suggests that the variance in disclosure index of firms in the “High inst. own.” sample is influenced more by other variables than those included in table 8, as the Adj. R<sup>2</sup> is only 14.2%.

The results show that a one unit increase in firm size, increases the disclosure index with .020 and .010 for firms with low and high percentages of institutional ownership subsequently. Firm size is positively influencing the disclosure index of both subsamples, i.e. firms with either a high and low percentage of institutional ownership. Also leverage is positively influencing the disclosure index for both subsamples, indicating that firms that are higher levered, have a higher disclosure index. This result applies to firms with either a low or high percentage of institutional ownership.

### **5.3 SENSITIVITY ANALYSIS**

#### **5.3.1 VALIDITY OF THE DISCLOSURE INDEX**

The disclosure index captures a certain degree of subjectivity in terms of the measurement of the disclosure index. Therefore, the validity of the index will be assessed following Cheng & Courtenay (2006), Gisbert & Navallas (2013) and Botosan (1997). To ensure the internal consistency of the index, the information areas of the disclosure index are examined. As Cheng & Courtenay (2006) states: "disclosure strategies for a firm are expected to be similar along all avenues". This means that firms that choose to disclose more overall, are expected to disclose more on the specific information areas. The validity of the disclosure index is assessed by performing a Spearman and Pearson correlation analysis between all the different information areas (D\_HIS, D\_CSR, D\_INT, D\_PROJ, D\_BACK, D\_NONF, D\_MAN) and the DISC\_index. Appendix VI presents the correlation results with positive results at a significance level of either 1% or 5%. As expected, most information areas are correlated with the DISC\_index, indicating that the DISC\_index consistently obtains disclosure tendencies around all the different information areas (Cheng & Courtenay, 2006). However, only the management analysis disclosure is not significantly related with the DISC\_index. This indicates that for example firms that have a high disclosure index in general, are not per definition disclosing information on management analysis. The results are mostly similar to the ones from Gisbert & Navallas (2013) and Cheng & Courtenay (2006) and confirms the internal consistency of the disclosure index.

Another way to measure the validity of the index, following Botosan (1997), is the Cronbach's alpha. It measures the internal consistency and is used for indication of the power and random measurement error in the disclosure index. The coefficient of the alpha for the different information areas is .60 which is in line with the alpha found by Botosan (1997) of .64. Since an alpha of one indicates that there is full correlation, .60 indicates that the random measurement error that is present in the disclosure index could reduce the power of empirical testing.

### 5.3.2 ROBUSTNESS CHECKS

Following Cahan et al. (2016), the robustness of the industry sensitivity will be tested. As the sample shows (table 1), a large part of the sample firms is originating from the same two industries: 21 from “machinery, equipment, furniture, recycling” and 13 from “chemical, rubber, plastics, non-metallic products”. Together they are representing over 50% of the total sample. Therefore, it is good to consider whether the results are driven primarily by those industries, or whether the results are also driven by the other industries in the sample. It is possible that those two industries disclose more information due to for example external influences that can have an effect on the disclosure in those industries. The full sample is divided into subsamples following Cahan et al. (2016) with one sample excluding the influential two industries and one sample only including firms from those two influential industries.

Table 9 examines whether the regression results hold for both samples, indifferent of the influential industries. Model six from table 7 is repeated for the two samples. The regression results in table 9 show the same significant results for INST.OWN and MVAL in the sample with non-influential industries. Those results suggest that the regression outcomes are robust when examining the industry effect, as they also hold for the non-influential industries. Therefore, the results are not driven exclusively by firms from the two most influential industries. However, when looking at the influential industries, the results for INST.OWN are not significant anymore in table 9. This implies that the significance of the regression results for INST.OWN are not robust to both non-influential and influential industries. The results for firm size (MVAL) are robust in all industries, indicating that those results are not affected by industry-sensitivity.

**Table 9**

Regression based on influential industries with dependent variable = DISC\_index<sup>a</sup>

| Independent Variables    | Exp. sign | Non-influential industries |                  | Influential industries |         |
|--------------------------|-----------|----------------------------|------------------|------------------------|---------|
|                          |           | (n = 32)                   |                  | (n = 33)               |         |
|                          |           | Coef.                      | Sig <sup>b</sup> | Coef.                  | Sig     |
| <i>Constant</i>          |           | .071                       | .046**           | .051                   | .171    |
| <i>Test variables</i>    |           |                            |                  |                        |         |
| INST. OWN                | +         | .001                       | .062*            | .000                   | .183    |
| MVAL                     | +         | .017                       | .002***          | .021                   | .002*** |
| <i>Control variables</i> |           |                            |                  |                        |         |
| LEV                      | +         | .011                       | .174             | .009                   | .223    |
| PRICE/BOOK               | +         | -.005                      | .020**           | .001                   | .449    |
| PROF                     | +         | .126                       | .225             | -.123                  | .282    |
| Adj. R <sup>2</sup>      |           | 32.1%                      |                  | 31.6%                  |         |

Note: the variable definitions and measures are the same as for table 7

<sup>a</sup>The sample with influential industries are firms from “machinery, equipment, furniture, recycling” and “chemical, rubber, plastics, non-metallic products”. The non-influential industries is the sample including all the other industries and excluding the ones mentioned before.

<sup>b</sup> The p-values are one-tailed p-values; \* = 10% significance; \*\* = 5% significance; \*\*\* = 1% significance

To ensure the robustness of the disclosure index measurement, the DISC\_index will be regressed using an alternative measurement (Tinaikar, 2014; Gisbert & Navallas, 2013; Botosan, 1997). The disclosure index values are transformed according to different deciles, representing either “low”, “moderate” or “high” disclosure (Tinaikar, 2014; Botosan, 1997). The scores that are used are: 0,1,2 with 0 representing low disclosure below the 33<sup>rd</sup> percentile, 1 representing moderate disclosure between the 33<sup>rd</sup> and 66<sup>th</sup> percentile and 2 representing high disclosure above the 66<sup>th</sup> percentile (Tinaikar, 2012). Table 10 includes the regression for the DISC\_index (column 1), repeated from table 7 for ease of comparison and the regression for ADISC\_index (column 2) based on “low”, “moderate” and “high” disclosure. The regression results in table 10 show consistent regression results for INST.OWN and MVAL, similar to those in column one. This indicates that the measurement of the disclosure index is robust to potential measurement error.

**Table 10**

Regression based on “low”, “moderate” and “high” disclosure.

| <b>ADISC_index<sup>a</sup> = <math>\beta_0 + \beta_1 \text{INST.OWN} + \beta_2 \text{SIZE} + \beta_3 \text{LEV} + \beta_4 \text{P/B} + \beta_5 \text{PROF} + \epsilon_i</math></b> |   |                   |         |                    |         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-------------------|---------|--------------------|---------|
| Independent Variables                                                                                                                                                              |   | <b>DISC_index</b> |         | <b>ADISC_index</b> |         |
|                                                                                                                                                                                    |   | <b>(1)</b>        |         | <b>(1)</b>         |         |
|                                                                                                                                                                                    |   | Coef.             | Sig     | Coef.              | Sig     |
| <i>Constant</i>                                                                                                                                                                    |   | .058              | .060*   | -.309              | .101    |
| INST. OWN                                                                                                                                                                          | + | .001              | .093*   | .007               | .048**  |
| MVAL                                                                                                                                                                               | + | .020              | .000*** | .150               | .000*** |
| LEV                                                                                                                                                                                | + | .015              | .016**  | .138               | .018**  |
| PRICE/BOOK                                                                                                                                                                         | + | -.004             | .039**  | -.055              | .002*** |
| PROF                                                                                                                                                                               | + | .142              | .267    | .455               | .314    |
| Adj. R <sup>2</sup>                                                                                                                                                                |   | 32.8%             |         | 31.6%              |         |

Note: variable definitions are the same as for Table 7

<sup>a</sup> ADISC\_index = voluntary disclosure index: 0 = low disclosure (below 33<sup>rd</sup> percentile), 1 = moderate disclosure (33<sup>rd</sup> – 66<sup>th</sup> percentile), 2 = high disclosure (above 66<sup>th</sup> percentile).

<sup>b</sup> The p-values are reported as one-tailed p-values for the variables with predicted directions \* = 10% significance; \*\* = 5% significance; \*\*\* = 1% significance

## **6. CONCLUSION AND LIMITATIONS**

### **6.1 CONCLUSION**

This study examines the effects of institutional ownership and firm size on the degree of voluntary disclosure. The voluntary information is referred to as complementary information to the “mandatory” information by the presence of for example growth percentages, graphs, projected information etc. Former literature confirms that foreign investors, specifically institutional investors, demand more transparency from firms as they are not part of the daily business. Also they want to base their investment choices on detailed firm information. Moreover, frequently stated is the fact that larger firms tend to disclose more information than smaller firms. Larger firms tend to follow more stringent disclosure practices as the expectations of their investors are higher and larger firms are also more well-known.

Firstly, the results show that institutional ownership has a positive effect on the voluntary disclosure of a firm. The regression results confirm a positive effect on voluntary disclosure and thereby support the hypothesis, however with a coefficient of only .001 the results indicate that the effect is very small. The results suggest that firms with a higher percentage of institutional owners also disclose more information voluntarily. Secondly, firm size also has a positive effect on voluntary disclosure, as the regression results show a significant positive result for firm size. This result confirms the hypothesis, which supports that larger firms disclose more voluntary information. Notably, the effect of firm size on voluntary disclosure is more powerful than the effect of institutional ownership, as firm size has more explanatory power for the voluntary disclosure index. Concerning the sensitivity of the regression, the results are mostly robust to industry sensitivity and measurement error of the voluntary disclosure index. So institutional ownership and firm size have a positive effect on voluntary disclosure of Dutch listed firms.

This study contributes to the existing literature on the relation between ownership structure and voluntary disclosure in two ways. Firstly, researchers mostly do not focus on European and especially not on Dutch listed firms. So this study is unique investigating a sample of Dutch listed firms. Secondly, the focus on institutional ownership specifically, which results in a positive effect on an extensively researched voluntary disclosure index, is also an addition to existing literature.

### **6.2 LIMITATIONS**

There are certain limitations to this study. Firstly, as discussed in the sensitivity analysis, a problem with the disclosure index is that the measurement is very subjective, as the points are administered by one person. Secondly, the disclosure index is only based on information in annual reports, however, firm information is also available via other channels like corporate websites. Thirdly, the data is collected for one year, so firms that are formerly publicly listed and could be representative for the study, are not included in the sample. Lastly, as addressed before, the relation between institutional ownership and voluntary disclosure can be interpreted in both directions. Which means that voluntary disclosure can also have an effect on institutional ownership and might cause for endogeneity in the results.

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## 8. APPENDIX

### I. LIST OF FIRMS

| Panel C: list of firms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FIAT CHRYSLER AUTOMOBILES N.V.<br>AIRBUS SE<br>KONINKLIJKE AHOLD DELHAIZE N.V.<br>LYONDELLBASELL INDUSTRIES N.V.<br>KONINKLIJKE PHILIPS N.V.<br>CNH INDUSTRIAL N.V.<br>HEINEKEN HOLDING NV<br>HEINEKEN NV<br>X5 RETAIL GROUP N.V.<br>AKZO NOBEL NV<br>NXP SEMICONDUCTORS N.V.<br>KONINKLIJKE DSM N.V.<br>PHILIPS LIGHTING N.V.<br>KONINKLIJKE BAM GROEP NV<br>ASML HOLDING N.V.<br>STMICROELECTRONICS N.V.<br>WOLTERS KLUWER NV<br>GRANDVISION N.V.<br>UNILEVER NV<br>FERRARI N.V.<br>SENSATA TECHNOLOGIES HOLDING N.V.<br>SLIGRO FOOD GROUP N.V. | KONINKLIJKE BOSKALIS WESTMINSTER NV<br>AALBERTS INDUSTRIES NV<br>SBM OFFSHORE N.V.<br>FORFARMERS N.V.<br>REFRESCO GROUP N.V.<br>OCI N.V.<br>HEIJMANS NV<br>IMCD N.V.<br>KONINKLIJKE VOPAK N.V.<br>TKH GROUP N.V.<br>QIAGEN NV<br>STERN GROEP NV<br>ACCELL GROUP NV<br>TOMTOM NV<br>ADVANCED METALLURGICAL GROUP N.V.<br>CORBION N.V.<br>AMSTERDAM COMMODITIES N.V.<br>WRIGHT MEDICAL GROUP N.V.<br>ASM INTERNATIONAL NV<br>WESSANEN N.V.<br>CORE LABORATORIES N.V.<br>FRANK'S INTERNATIONAL N.V. | KENDRION N.V.<br>TELEGRAAF MEDIA GROEP N.V.<br>ASTARTA HOLDING N.V.<br>BETER BED HOLDING NV<br>SIF HOLDING N.V.<br>BE SEMICONDUCTOR INDUSTRIES NV<br>'NEDAP' N.V.<br>VALUE8 NV<br>HYDRATEC INDUSTRIES N.V.<br>MILKILAND N.V.<br>ICT GROUP N.V.<br>LUCAS BOLS N.V.<br>HOLLAND COLOURS NV<br>OVOSTAR UNION N.V.<br>COSMO PHARMACEUTICALS N.V.<br>ENVIPCO HOLDING N.V.<br>KONINKLIJKE BRILL NV<br>SNOWWORLD N.V.<br>ESPERITE N.V.<br>N.V. KONINKLIJKE PORCELEYNE FLES<br>TIE KINETIX N.V.<br>PHARMING GROUP NV |

### II. DISCLOSURE INDEX INFORMATION ITEMS

Gisbert & Navallas (2013)

#### A. Information categories

| <i>Category</i>                      | <i>N items</i> |
|--------------------------------------|----------------|
| Historical information               | 5              |
| Corporate social responsibility      | 3              |
| Intangibles and intellectual capital | 14             |
| Projected information                | 10             |
| Background information               | 17             |
| Non-financial information            | 7              |
| Management analysis                  | 5              |
| Total                                | 61             |

## **B. Information item per area**

### Historical information

- ROE — figure or growth percentage (YES/NO)
- ROA — figure or growth percentage (YES/NO)
- EPS — figure or growth percentage (YES/NO)
- Sales — figure or growth percentage (YES/NO)
- Price per share (PPS) — figure or growth percentage (YES/NO)

### Corporate social responsibility

- GRI indicators (YES/NO)
- Description of social programs and strategy (YES/NO)
- Quantitative information on social investment (YES/NO)

### Intangibles/intellectual capital

- Intellectual capital report (YES/NO)
- Human capital: training programs (YES/NO)
- Human capital: training programs (total investment)
- Human capital: training programs (number of programs)
- Human capital: training programs (number or percentage of employees attending the training programs)
- Human capital: employee turnover (YES/NO)
- Relational capital: customer loyalty index (YES/NO)
- Relational capital: customer satisfaction index (YES/NO)
- Structural capital: quality certifications (YES/NO)
- Structural capital: quality certifications (number)
- Structural capital: investment on research (YES/NO)
- Structural capital: investment on research (figure)
- Structural capital: investment on development (YES/NO)
- Structural capital: investment on development (figure)

### Projected information

- Descriptive information on projected sales (YES/NO)
- Quantitative information on projected sales (YES/NO)
- Descriptive information on projected earnings (YES/NO)
- Quantitative information on projected earnings (YES/NO)
- Descriptive information on projected R&D expenditures (YES/NO)
- Quantitative information on projected R&D expenditures (YES/NO)
- Descriptive information on projected market share (YES/NO)
- Quantitative information on projected market share (YES/NO)
- Descriptive information on projected cash flows (YES/NO)
- Quantitative information on projected cash flows (YES/NO)

### Background information

- Objectives — descriptive information (YES/NO)
- Objectives — quantitative information (YES/NO)
- Macroeconomic environment — descriptive information (YES/NO)
- Macroeconomic environment — quantitative information (YES/NO)
- Legal and political environment — descriptive information (YES/NO)
- Legal and political environment — quantitative information (YES/NO)
- Competitive environment — descriptive information (YES/NO)
- Competitive environment — quantitative information (YES/NO)
- Financial markets — descriptive information on the capital markets' general trend (YES/NO)
- Financial markets — quantitative information on the capital markets' general trend (YES/NO)
- Descriptive information on the company stock evolution on financial markets (YES/NO)
- Quantitative information on the company stock evolution on financial markets (YES/NO)
- Detailed information on ownership structure (YES/NO)
- Information about the management stock ownership (YES/NO)
- Detailed information on management remuneration (YES/NO)
- Information on good corporate governance practices (YES/NO)
- Information about meetings with financial analysts (YES/NO)

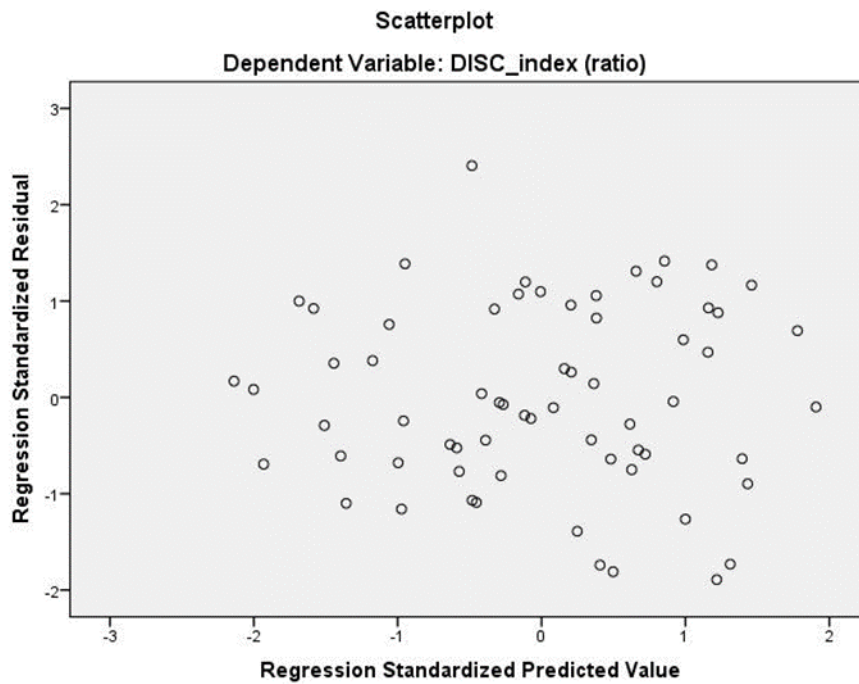
### Non-financial information

- Number of employees (YES/NO)
- Information on the company contracting policy (YES/NO)
- Information on the distribution of employees by gender (YES/NO)
- Information on the distribution of employees by age (YES/NO)
- Information on average compensation per employee (YES/NO)
- Information on number of units sold (figure or growth percentage) (YES/NO)
- Information on market share (YES/NO)

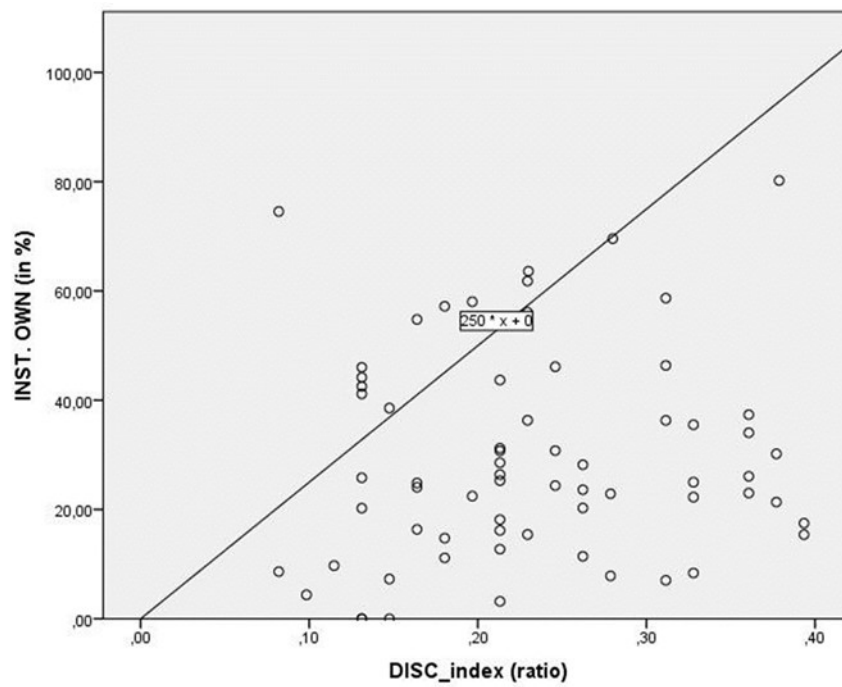
### Management analysis

- Management analysis of changes in net sales (YES/NO)
- Management analysis of changes in the level of expenditures (YES/NO)
- Management analysis of changes in earnings (YES/NO)
- Management analysis of changes in market share (YES/NO)
- Management analysis of changes in R&D expenses (YES/NO)

### III. SCATTERPLOT HETEROSCEDASTICITY



### IV. OUTLIER IDENTIFICATION INST.OWN AND DISC\_INDEX



## V. MULTICOLLINEARITY

VIF statistics for all six regression models based on Table VII.

| DISC_index = $\beta_0 + \beta_1 \text{INST.OWN} + \beta_2 \text{SIZE} + \beta_3 \text{LEV} + \beta_4 \text{P/B} + \beta_5 \text{PROF} + \varepsilon_i$ |            |            |            |            |            |            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|
| Dependent variable = DISC_index                                                                                                                        |            |            |            |            |            |            |
| Independent Variables <sup>a</sup>                                                                                                                     | (1)<br>VIF | (2)<br>VIF | (3)<br>VIF | (4)<br>VIF | (5)<br>VIF | (6)<br>VIF |
| INST. OWN                                                                                                                                              | 1.153      |            | 1.112      | 1.156      | 1.195      | 1.289      |
| MVAL                                                                                                                                                   |            | 1.099      | 1.087      | 1.129      | 1.146      | 34.593     |
| TOTAST                                                                                                                                                 |            |            |            |            |            | 50.883     |
| LEV                                                                                                                                                    | 1.509      | 1.494      | 1.037      | 1.256      | 1.524      | 2.995      |
| PRICE/BOOK                                                                                                                                             | 1.516      | 1.454      |            | 1.307      | 1.475      | 4.074      |
| PROF                                                                                                                                                   | 1.366      | 1.373      |            |            | 1.419      | 1.716      |

<sup>a</sup> DISC\_index = voluntary disclosure index. INST.OWN is the percentage of capital shares owned by institutional investors. VALUE is the logarithm of total market value of a firm, TOTAST is the logarithm of total assets, LEV is the non-current debt + loans/shareholders equity, PRICE/BOOK is the share price/book value of shares and PROF is the return on assets.

<sup>b</sup> The p-values are reported as one-tailed p-values for the variables with predicted directions

\* = 10% significance; \*\* = 5% significance; \*\*\* = 1% significance

## VI. VALIDITY OF DISCLOSURE INDEX

Correlation coefficients for DISC\_index and the different information areas

|            | DISC_index | D_HIS   | D_CSR   | D_INT   | D_PROJ  | D_BACK  | D_NONF  | D_MAN  |
|------------|------------|---------|---------|---------|---------|---------|---------|--------|
| DISC_index | 1          | ,459*** | ,618*** | ,642*** | ,329*** | ,820*** | ,482*** | ,135   |
|            |            | ,000    | ,000    | ,000    | ,003    | ,000    | ,000    | ,137   |
| D_HIS      | 0,414***   | 1       | ,378**  | ,060    | ,048    | ,270**  | ,292*** | ,081   |
|            | ,000       |         | ,001    | ,313    | ,350    | ,013    | ,008    | ,256   |
| D_CSR      | 0,660***   | ,336    | 1       | ,241**  | ,106    | ,447*** | ,467*** | ,065   |
|            | ,000       | ,003    |         | ,024    | ,196    | ,000    | ,000    | ,299   |
| D_INT      | ,650***    | ,081    | ,296*** | 1       | -,006   | ,388*** | ,116    | ,163*  |
|            | ,000       | ,255    | ,007    |         | ,481    | ,001    | ,173    | ,093   |
| D_PROJ     | ,362***    | ,010    | ,201**  | ,014    | 1       | ,296*** | -,013   | -,028  |
|            | ,001       | ,466    | ,050    | ,454    |         | ,007    | ,459    | ,410   |
| D_BACK     | ,807***    | ,216**  | ,411*** | ,362*** | ,293*** | 1       | ,222**  | ,023   |
|            | ,000       | ,038    | ,000    | ,001    | ,008    |         | ,034    | ,425   |
| D_NONF     | ,469***    | ,238**  | ,446*** | ,114    | -,015   | ,168*   | 1       | ,205** |
|            | ,000       | ,025    | ,000    | ,178    | ,452    | ,085    |         | ,047   |
| D_MAN      | ,188*      | ,041    | ,014    | -,116   | -,007   | ,163*   | ,139    | 1      |
|            | ,063       | ,371    | ,456    | ,174    | ,478    | ,092    | ,129    |        |