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Transparency Through Recognition of Intangible Assets in Business Combinations Revisited

Empirical Evidence From the Stockholm Stock Exchange During the Years 2005 to 2012
Concerning Accounting Transparency and the Cost of Equity, Arising From Capital Market
Information Asymmetry

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ABSTRACT

In today's economic environment, intangible assets are seen as one of the key drivers of enterprise performance, however, how they should be accounted for is a rather controversial issue. The standard IFRS 3-Business combinations, released by the International Accounting Standard Board and adopted in the EU the year 2005, states that listed companies are obligated to recognize acquired intangible assets instead of reporting them as goodwill in completed business combinations. This is in order to increase the disclosure level and the transparency, thus the usefulness of the financial statements. Within economic theory, it is suggested that such an increase may contribute to a reduction of the cost of equity, arising due to asymmetric information in the capital market. Thus, the following research aims to firstly empirically examine whether there are any differences in the recognition of intangible assets between companies that can be explained from an information asymmetry framework, and secondly to empirically examine whether there is a correlation between this recognition and the cost of equity, arising from asymmetric information. This study provides empirical evidence from the listed companies on the Nasdaq OMX Stockholm Stock Exchange's, Small, Mid, and Large Cap lists during the years 2005 to 2012. The study was made possible by several statistical tests, both non-parametric and parametric. The non-parametrical tests, that were mainly used to examine the differences in the recognition, exhibit that the proportion of intangible assets recognized in business combinations not only differs between the examined years but also between, different sized companies and acquisitions, industries, and companies with various financing needs. In the study three different proxies for the cost of equity were used and tested in separate parametric statistical models. A significant negative correlation between the recognition of intangibles, in accordance with IFRS 3, and the cost of equity is exhibited in one of these models, when it is controlled for various firm characteristics and incentives for disclosure. This finding demonstrates that companies, which recognize a larger share of intangible assets, in business combinations, generally experience a lower cost of equity. Further on, this finding serves as evidence for that it is not only the total level of disclosure that matters, but also the level of compliance with the specific standard, IFRS 3.

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"Do not go where the path may lead, go instead where there is no path and leave a trail"

- Ralph Waldo Emerson

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1. INTRODUCTION

This opening chapter provides a background, which leads to an explanation of the research issue of the chosen topic and the aim of the research. The research issue and purpose of the study is followed by the study's research question, limitations, and contributions. The chapter is concluded with the further disposition of the thesis.

1.1 Background

Accounting information is primarily designed to provide useful information to investors[1], secure the function of the capital market, and thus create an efficient allocation of capital (Healy & Palepu, 2001; Young & Guenther, 2002; Alexander et al., 2011). This will in turn contribute to increased economic growth and higher world wealth (Healy & Palepu, 2001). Since capital is scarce it is crucial, for economic growth, that its use is optimised i.e. that it is provided to the firms and sectors that gives the highest possible return on the invested capital and are removed from underperforming ones (Wurgler, 2000; Bushman & Smith, 2001; Palepu et al., 2010). Accounting thus serves as one of the most important bases for informed investment decisions (Francis et al., 2004; Köningsgruber, 2012)[2].

The globalization has led to a greater integration of capital markets, which means that there is now a great need for more uniform reporting standards (Nobes & Parker, 2000; Schipper, 2005; IASB, 2002; Finansinspektionen, 2006). Due to this the European parliament and the council of the European Union decided that all publicly listed companies within the union, and the European economic area, shall apply the International Financial Reporting Standards (IFRS) in its consolidated financial statements from January 1:st 2005 (Europaparlamentets och rådets förordning nr 1606/2002, 2002). IFRS is issued by the independent body of experts, the International Accounting Standards Board (IASB), which aims to harmonize and enhance the quality, hence the usefulness of the financial statements (Marton et al., 2010 p.2). Leuz and Verrecchia (2000) state that the implementation of international standards contributes to a greater level of disclosure and comparability, between companies. A higher level of disclosure in the accounting increases the ability for investors to make more qualified judgments about a company's future value creation (Lang & Lundholm, 1996; Kothari, 2001; Adhikaric et al., 2008). This can be seen in the IASB conceptual framework since it states that financial statements should help investors in assessing the amount, timing, and uncertainty of future cash flows (IASB, 2011). The availability of information can also increase the precision and the correlation between investors' analysis, which means that an asset traded on a regulated market may be more accurately priced (Diamond & Verrecchia, 1991). This reduction in information asymmetry thus contributes to increase the liquidity of the asset, allowing an increased turnover of the companies' shares (Brennan & Tamarowski, 2000). Since the rate of return of a share is partially based on the share's liquidity firms can reduce their cost of equity by providing the market with the information it requires (Brennan & Tamarowski, 2000, p.37). This is confirmed by Diamond and Verrechia (1991) as they state that investors' willingness to invest increases when more information is available.

The relationship between financial accounting and the cost of equity, arising from capital market information asymmetry is a central issue in both accounting and finance (Kothari, 2001; Leuz & Schrand, 2009). The relationship is well studied, but the results have been rather ambiguous (Botosan, 1997; Leuz & Verrecchia, 2000; Healy & Palepu, 2001; Botosan & Plumlee, 2002; Leuz & Schrand, 2009).

1.2 Research issue and purpose of the study

The advent of new information technologies, knowledge based economy and intensified business competition have contributed to the highlighting of the importance of intangible assets as a key driver of enterprise performance and thus ultimately the aggregated productivity (Lev, 2001; Neely et al., 2003; Harris & Moffat, 2013; Olsen & Halliwell, 2007 s. 66). Further intangibles are seen as one of the most important factors for economic growth and social wealth (Blair & Wallman, 2001). To maintain a competitive position and succeed in the marketplace it has become crucial for firms to invest in long term costumer bases, development, brands, human resources, information technology, marketing and intellectual property (Wyatt & Abernethy, 2008). This development has contributed to an increase in corporate acquisition activities (Gauffin & Nilsson, 2011.b). As stated by Goldfinger (1997) "*The source of*

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[1] Here investors are referred to investment funds and private investors but may also include information intermediaries such as analysts and credit rating agencies.

[2] An accounting philosophy focused on investors, together with a strong legal enforcement and relatively stable external surroundings are no guarantee for a sound investment, but are often cited as attractive features of an appealing investment environment (La Porta et al, 2002; Holthausen, 2009).

economic value and wealth is no longer the production of material goods but the creation and manipulation of dematerialized content".

As a result of this, the intangible assets now correspond to a larger share of companies' investment activities (Nakamura, 2003; Gauffin et al., 2007). However, the identification and valuation of these assets have proven to be complicated both from an empirical and theoretical standpoint (Skinner, 2008; Stark, 2008; Harris & Moffat, 2013). Ittner (2008) states that the complexity of businesses' operation cycles entails measurement and valuation problems of intangibles. The recognition, measurement, and reporting of intangibles have attracted great interest from accounting researches, prompted by the increasing gap between market- and book value of companies (Bond & Cummins, 2000; Lev & Daum, 2004; Beattie, 2005; Pennman, 2009). Concerns have been raised since many intangibles are not recognized as assets, due in part to the recognition criteria's conservative nature but also because of concerns regarding the reliability of present accounting standards (Rehnberg, 2012). A consequence of this might be that entities investing in intangibles are enclosed in a high level of uncertainty and experience difficulties in communicating relevant external financial information (Amir & Lev, 1996). To return to the discussion mentioned above under the topic "Background" this lack of information issuance has serious implications since it causes volatility of stock prices, which will in turn result in undeserved losses to investors and the misallocation of capital (Lev, 2001; Hand & Lev, 2003). The ongoing discussion includes questions regarding how to recognize internally generated intangibles as well as the treatment of acquired ones and how and where in the financial statements the information should be presented (Cañibano et al., 2000; Bloom 2009; Walker 2009).

The IASB issued standard IFRS 3 regulates which items that should be included in the financial statements in business acquisitions and mergers (IFRS 3). The standard not only provides a new approach to intangibles, but since it is a principle-based standard, transfers a large part of the judgments to the individual company (Wines et al., 2007; Marton & Rehnberg, 2009). The standard aims to improve the qualitative characteristics, with a focus on relevance and faithful representation, of the financial reporting hence to improve the usefulness of the information for the recipients (Lagerström & Nicander, 2006). This is partially achieved through an increased recognition of intangible assets at fair value separated from goodwill in business combinations (IFRS 3, p.1). It is also a requirement that companies provide more detailed disclosures on the acquisitions (IFRS 3, p 66). The excess value of a transaction was previously only accounted for as goodwill, which was then depreciated annually over the expected useful life (Lönnqvist, 2008; RR: 1).

The fact that companies identify more intangibles is likely to increase the usefulness of the financial statements for investors sine they get more detailed information and then have a greater opportunity to asses the added value resulting from an acquisition (Cearns, 2005; Smith, 2006 p. 19; Skinner, 2008; IFRS 3, p. 66). Research conducted by Forbes (2007, As cited by Rehnberg, 2012) proves that the identification of intangible assets provides value to the investors and that there is unquestionably a meaning to identify and account for the acquired intangibles. It is therefore worthwhile to name these assets as patents and costumer lists and so forth instead of gathering them in a black box and name them goodwill (Rehnberg, 2012). However, studies have shown that companies provide inadequate information in the annual reports on the completed business combinations (Gauffin & Nilsson, 2006-2009, 2011-2012; PwC, 2009). Malmqvist (2011) mentions that for a financial analyst it is of utmost importance to be able to analyse if the management of a firm is skilled in carrying out business acquisitions. Therefore, he believes that also auditors play a role and that they need to adopt a view of interpretation of the IFRS 3 that contributes to a clarification of the on-going accounting for acquisitions.

To the aforementioned problems when accounting for intangibles, it should be added that the faithful representation is problematic to comply because of the properties, the inherent uncertainty, of these assets (Barth et al., 2001). They lack a predetermined value and their future economic cash flows are difficult to estimate (Marton et al., 2008 s. 305). Further complications exist since traditional accounting information is acquisition- and transaction based and intangibles are in many cases associated with consumption i.e. for the current and future use of the business (Lev & Zambon, 2003). The process to identify, evaluate and report these assets individually in a business acquisition has been proven to be costly (Intangible Business, s. 7). There is also an ongoing debate about the assessment and judgment that management must make when allocating the purchase price of the acquisition. Penman (2009, s. 358) believes that the valuation of intangible assets is highly uncertain and is on the borders of speculation. There are also those who believe that companies, management, act opportunistically and use subjective assumptions in order to avoid impairment of goodwill (Zhang & Zhang, 2007; Carlin & Finch, 2009). While others dispute these theories and argue that management are able to make accurate assessments since they know their business and its preconditions the best (Gallery 2009, ss. 337-339).

Hamberg et al. (2011) state that there has been an increase of reported goodwill in the financial statements in 2005-2007 related to business combinations since the introduction of IFRS 3. This is related to the increased portion of unidentified intangible assets since management now can affect the recognition to a greater extent than before, so it is consistent with their incentives to disclose. Malmqvist (2007)

confirms this and describes that IFRS 3 allows for large differences in the accounting for acquisitions even though the underlying economic transaction is the same. Ong and Hussey (2004) also point out that the difference in the proportion of recognized intangibles, in total in companies balance sheets, can be related to companies' industry affiliation. This is evidenced in part by Marton and Rehnberg (2009), in the specific case of acquisitions, who also point out that companies that heavily rely on creditors for financing are more unwilling to identify a greater proportion of intangible assets. Gauffin and Nilsson (2012) point out that one reason for the difference in recognition might also be due to the purchase price of the acquisition. Rehnberg (2012) say that recognition can be dependent on the size of the requiring firm, larger firms having a higher incentive for disclosure. Marton and Rehnberg (2009) also say that IFRS 3 is the standard that companies has stated that they believe to be the most difficult to apply in practice.

Rehnberg (2012) examined in her study how companies listed on the Stockholm Stock Exchange, have reported their intangible assets in business combinations, between the years 2005-2007. Via statistical models Rehnberg examined the relevance of this accounting. That is, if the accounting for intangible assets separated from goodwill is relevant information for the stakeholders. In the study, the author considers that this type of reporting is relevant, since the intangible asset possess some kind of signal value to the recipients. With this study in mind and the theory about asymmetric information in the stock market, it would be interesting not only to expand the study in terms of number of years, now when it is possible, but also take it one step further. An interesting step would be, now when it can be consider, that these intangibles add relevant information to the financial statements, examine if this type of reporting can help companies in lowering their cost of equity. Or in other words, if companies that have a high level of compliance with IFRS 3 generally have a lower cost of equity.

Moreover, a higher compliance with the standard IFRS 3, namely, a commitment by a firm to identify and report an increased level of specific intangible assets separated from goodwill, can be assumed to increase the disclosure level hence the transparency in the financial statements. By such an increase one could argue that this will reduce the cost of equity arising from asymmetric information, since it dilutes this market imperfection. As low asymmetric information is the base for high liquidity and low risk it is a representative for the cost of equity. Consequently, the following research aims firstly to investigate and describe how this reporting has been carried out by the firms listed on the Nasdaq OMX Stock Exchange during the years 2005-2012[3] and examine if there exists any differences in the recognition due to characteristics of the acquiring firms, and the size of the acquisitions as to further describe the sample from an information asymmetry framework, and secondly with this identification as a proxy for transparency empirically test whether this correlate with the cost of equity, arising from capital market information asymmetry.

1.3 Research questions

Based on the background and problem discussion this study aims to investigate the following questions:

- *Are there any differences in the recognition of specific intangible assets in business combinations, in accordance with IFRS 3, between the examined years, and due to the characteristics of the acquiring firms, and the size of the acquisitions?*

- *Is there a relationship between the accounting of specific intangible assets from goodwill in business combinations, in accordance with IFRS 3, and the cost of equity arising from capital market information asymmetry?*

1.4 Limitations

Closing points of reference for the study are IFRS 3 - Business Combinations and IAS 38 - Intangible Assets. Only companies listed on Nasdaq OMX Stockholm Exchange lists Small, Mid, and Large Cap will be examined as well as the annual reports from 2005 to 2012. To clarify, the part of the essay that is designed to answer the first research question -*Are there any differences in the recognition of specific intangible assets in business combinations, in accordance with IFRS 3, between the examined years, and due to the characteristics of the acquiring firms, and the size of the acquisitions?* will only focus on performing tests which may further explain the sample from an information asymmetry framework, and not to investigate other underlying incentives for disclosure, that cannot analytically be inferred from the data set.

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[3] The years 2005 to 2007 examined by Rehnberg thus serves as a base for the study and have also been previously used in another study conducted by the authors of this thesis (Ahlmark & Karlsson, 2012).

1.5 Contribution

This study contributes knowledge to the existing literature concerning accounting disclosure and transparency and the cost of equity. Firstly, the study contributes to describe how the recognition of intangible assets separately from goodwill, in accordance with IFRS 3, has been carried out during the years 2008-2012. Then from the aggregated perspective, of the years 2005-2012, how the compliance has differed among the examined companies, information of which is of use for investors, who need to comprehend where inconsistent compliance could be anticipated. Furthermore, the study can provide relevant information to both standard setters and preparers of the financial statements regarding the intangible assets, in business combinations, and its relationship to the capital market. Since it provides a different and a further developed perspective, than that of most value relevance research regarding intangible assets, not only showing that these assets are relevant and have a signal value to investors but that the accounting of them actually can play a role in the financing of the firm.

1.6 Outline

Chapter 1 provides a background description and a discussion regarding the research issue of the chosen subject. Furthermore, the first chapter describes the intention of the research conducted in this study and presents the questions that the outlined research intends to answer. Finally, the chapter is concluded with the study's closing points of reference and the outline of the study.

Chapter 2 provides an overview regarding the standard IFRS 3 and previous research in which its compliance has been examined, previous research regarding the accounting of intangible assets in general, the information environment, and capital market consequences of disclosure and previous conducted research within that field. Finally Chapter 2 is concluded with the developed hypotheses, which are based on the frame of reference, the research issue, and the purpose of the study, and serve as assistance in order two answer the study's research questions.

Chapter 3 presents the methodology adopted for the collection and processing of the needed information. Further explained are the study's variables and its application in the study, based on previous literature, finally the chapter is concluded with the presentation of the statistical models chosen to be able to answer the research questions in the study.

In Chapter 4 the empirical results, both from the gathered information regarding the accounting and compliance with IFRS 3 and the statistical tests conducted in the study, are presented. Chapter 5 provides an analysis of the empirical findings, presented in Chapter 4, based on the frame of reference and on the statistical models used to examine the study's research questions.

Chapter 6 provides the concluding remarks of the study, as well as additional comments from the authors regarding the research. The thesis is finally concluded with the authors' suggestions to take the matter forward, and to further refine and develop interesting research regarding the compliance of IFRS 3 in the future.

2. FRAME OF REFERENCE

This chapter initially explains the purchase price allocation process that shall be adopted by practitioners in business combinations according to IFRS 3. This is followed by an explanation of studies that show how these rules are complied in practice and other ones concerning the problems of accounting intangibles. Furthermore, follows an explanation of the asymmetric information and how accounting transparency and disclosure can affect the capital market. Finally, this chapter presents the results from a number of previously conducted studies within the empirical research of accounting, so as to create a picture of the approaches and perspectives that often are adopted in this area of research.

2.1 IFRS 3 Business combinations

IFRS 3 – Business Combination is the accounting standard that shall be applied of the acquiring company when a new business acquisition or merger is carried out under the regulation of IFRS/IAS[4] (Marton et al., 2010). The standard states that the acquisition method shall apply to all public companies in such a transaction. Therefore, a acquirer must be identified, an acquisition date must be determined, the identifiable assets required and the assumed liabilities must be recognized and measured and the same goes for the goodwill or the gain thriving from a bargain purchase (IFRS 3, p. 4-5). The purpose of the standard is to enhance the relevance, comparability, and reliability of the information that is reported in a business combination (IFRS 3, p.1). The acquiring company, in the presence of the transaction, shall construct a purchase price allocation (PPA) in which all assets and liabilities are measured at fair value[5] all in accordance with the acquisition method (IFRS 3, p.18). The intent of the PPA is thus to allocate the purchase price to the acquired assets and liabilities (IFRS 3, p.37). The PPA hence corresponds to a complete balance sheet constructed at fair value at the day of the acquisition.

This expanded concept of the balance sheet allows the sheet not only to include the firms non-material resources but also risks and commitments that lie beyond standard accounting (Johansson, 2003). This sort of "analytical" balance sheet will include in addition to the financial resources as products, also for example customer lists and relationship, trademarks, information systems, and human relations. The latter is known for its particular importance since it is seen as a foundation for a company's growth, cash flow, and profitability (Anthony & Govindarajan, 2007). The importance of this analysing, evaluation and visualization of these kinds of assets is that they serve as a necessary basis for estimates of the future earnings and cash flows when a company's value is calculated (Marton et al., 2010).

In accounting for business combinations the business valuation and the balance sheet become interlinked with the exact amount. But the former is aggregated and the latter is disaggregated. It is thus the task of the preparer to translate this aggregated image of the complete firm in to a divided balance sheet. In valuation theory the balance sheet normally has a low rank. The company's value for the owners is the discounted future cash flows that the owners can assimilate themselves. Thus, it is primarily calculations and analyses that serve as a basis for the valuation and seldom the accounting. The balance sheet only serves as a complementary source of information for this type of valuation (Johansson, 2003). This valuation is often cumbersome and is therefore not seldom conducted by hired external consultants[6]. It is unusual for companies to acquire businesses on a frequent basis and it is for many firms a one-time transaction. Therefore firms may lack "best practice" processes, each acquisition transaction is unique and therefore also the process of preparing the financial statements related to it (Rehnberg, 2012). The process as a whole may not only include the board, management, owners, and accounting personnel in the firm but may also include other personnel whitin the firm with demanded specific knowledge (Marton & Rehnberg, 2009).

Goodwill[7] generated by the business transaction is an unidentifiable intangible asset arising on acquisitions where the purchase price exceeds the acquired company's fair value of assets and liabilities. Only in connection with a business combination can goodwill be capitalized in the statement of the financial position and are therefore regulated in IFRS 3 (Marton et al., 2008).

The existence and accounting of goodwill has been debated for many years (Seetharaman, 2004; Bloom, 2009). The Financial Accounting Standards Board (FASB) first saw it appropriate to amortize it

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[4] Both IFRS and IAS are standards included in the regulatory accounting framework of IFRS- reporting. The difference between IFRS and IAS is that the former is issued by the International Accounting Standards Board from 2001 to present day, and the latter was issued by the International Accounting Standards Committee (IASC), during the years 1973-2001.

[5] The fair value is an approximation of the expected economic benefits assets will provide the company in the future (Marton et al., 2010 p. 373).

[6] Often referred to as Mergers and Acquisitions experts (Cearns, 2005).

[7] Goodwill can be seen as synergies and future economic benefits arising from the acquisition, intangible assets that do not meet the individually identifiable criteria, or other factors (IFRS 3).

systematically over the maximum of 20 years (which converged with the rules of RR: 1[8] and IAS 27[9]), but then later made an abrupt turn and recommended that goodwill should not be amortized systematically but instead be impaired if required according to certain impairment tests. This type of methodology was then later accepted by IASB and with the introduction of IFRS in the EU and also states that other intangible surplus values should be identified and evaluated in business combinations. The purpose of this detailed allocation of the purchase price, according to the IASB, is to permit for a more accurate accounting of the transaction.

The other intangible assets are handled in the standard IAS 38 – Intangible assets, the purpose of which is to regulate how these assets should be identified, measured, and reported in the financial statements. The definition of an intangible asset is an "identifiable non-monetary asset without physical substance" that are held for distribution or production of goods or services, for rental to others or for administrative purposes (IAS 38). The company needs to be in control of the asset as a result of past events and it should be expected to generate future economic benefits (IASB Conceptual Framework). An entity should only recognize an intangible asset if it is probable that the future economic benefits for the company will occur and that the cost of the assets can be reliably measured (IAS 38). The assets must also be separable from the organisation or based on legal rights, such as a contract. If the asset does not meet both the definition of an asset and the criteria's in IAS 38 it should be accounted for as goodwill. The criterion of identification (IAS 38, p. 11-12, 18) is particularly important since the standard IFRS 3 requires that these assets shall be distinguished from goodwill (IFRS 3, p. 31,45-46). Hence, intangible assets shall be identified as far as possible, and as mentioned earlier measured at fair value on the date of the acquisition, all in accordance with the acquisition method (IFRS 3, p.4).

The valuation of intangible assets is in many cases difficult and is based on the preparers' assessments. Such an asset can for example have a very large value at one time and a low at another. They may increase gradually when used while others will decrease. A patent may last for a certain period, after which it is worthless. The preparer must assess the cash flows that the asset will generate during the current period. Thus, it is a large number of factors that must be taken into account in the valuation (Rehnberg, 2012).

After the completion of the PPA the standard states that the company must provide additional disclosures in the notes of the annual report. So that stakeholders can asses the nature and effects of the transaction. For example, the purchase price for the acquisition and any costs directly related to the transaction need to be explained. It is also stated in the standard (IFRS 3, p. B 65) that if, during the reporting period, one immaterial acquisition or several which together are immaterial there is no need for a PPA. It shall also be said that if the PPA contains goodwill there is a need for the firms to leave thoroughly notes about the qualitative factors that together add up to the goodwill (IFRS 3, p. B 64 e). Furthermore, any intangible asset that cannot be measured at fair value and therefore cannot be separated from goodwill should be described (IFRS 3).

Rehnberg (2012) says that future income statements of acquiring firms could be affected materially depending on the classification of these assets since there is a difference between assets with finite- and indefinite useful life. The company's results and financial position will over time not be affected by an incorrect classification of assets with finite useful life since it only comes down to an accrual of the profit. But there can be affects on the profit and financial position if intangible assets with infinite useful life are wrongly classified. This stresses the fact that it is of utmost importance that the intangible assets are identified and measured in a reliable way (Rehnberg, 2012).

2.1.1 Previous research and present debate regarding the compliance of IFRS 3.

To investigate how the IASB issued standards is complied in practice, the Nasdaq OMX Stockholm Stock Exchange conducts a yearly survey and releases a report that aims to facilitate the companies to improve and develop their public external information (see for example; OMX Nasdaq, 2008-2012). Nasdaq OMX has examined the annual reports between the years 2008-2012 and found that there were in many cases inadequate information. Particularly prominent is the criticism regarding the reporting of intangible assets separately from goodwill in business combinations. Other irregularities related to the IFRS 3 standard are also mentioned. Mainly how the fair value of the acquired shares are calculated upon payment of the purchase price. It was also noted that items related to IAS 38 lacked information in the annual reports, that of useful life and the total amount of expenses. These shortcomings have also been noted in several studies conducted by Gauffin and Nilsson (2006-2009, 2011-2012). They have studied how companies listed on the OMX Nordic Stockholm Exchange have carried out the

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[8] Accounting for business combinations in public Swedish groups has previously been applied in accordance with the Swedish Accounting Standards Board's, RR: 1, Consolidated accounts (RR: 1).

[9] IAS 27 describes how the financial statements of a group shall be established; moreover how the accounting for participations in subsidiaries, associates, and joint ventures, should be conducted (IAS 27).

accounting for intangible assets in business combinations since the introduction of IFRS in 2005. The studies show that firms' leave incomplete information related to their acquisitions and that they report a low level of intangibles in relation to both the purchase price and goodwill. They further describe that a large number of companies have not identified any intangibles at all in their business combinations and that the purpose of IFRS 3 has not yet reached its target. The authors state that a reason for this might be that management teams makes limited efforts in trying to recognize intangibles in small acquisitions.

Rehnberg (2012) examines the accounting of intangible assets in business combinations in accordance with IFRS 3 in her doctoral dissertation. The study includes data from all listed companies on the OMX Nordic Stockholm Exchange during the years 2005 to 2007. The author claims that the recognition has been increasing over the years, but her test for this was not significant. Rehnberg (2012) also tested if the recognition differed between industries and high- and low-tech firms, but found no significant evidence for these hypotheses. In the study Rehnberg however finds that large and highly leveraged firms are those that identified a higher share of intangible assets in relation to goodwill. It appears to her that some kind of external pressure is needed for the firms to take on the task of identifying and account for intangible assets separately from goodwill seriously. Since her research is limited to only three years she cannot exhibit a significant trend in the implementation of the standard IFRS 3. As can bee expected, she says that an implementation process takes time and is far more wide spread and that new studies are needed in the future for further investigation.

A survey conducted by the auditing firm PwC in Norway (2011) describes that the Norwegian firms listed on the Oslo exchange and Oslo Axess exhibit similar problems when accounting for business combinations in accordance with IFRS 3 as the Swedish ones. The survey, which is conducted for the fourth consecutive year and is based on the companies' annual reports, also explains that the Norwegian firms allocate a larger share of the purchase price to intangible assets than the Swedish firms. An explanation for this is believed to be the differences in industry composition between the acquiring companies in the two countries (PwC, 2011). The German Financial Reporting Enforcement panel's report (2011) also shows that there are problems with the application of IFRS 3 on the German capital market, especially when it comes to the purchase price allocation.

A survey that describes that Swiss companies within certain industries adopt the IFRS 3 standard in a uniform way and that there therefore exist large differences in average in the adoption between industries is the one from Schilling, Altmann and Fiedler (2011). For example the industry retail and consumer goods allocates on average 50,3% of the purchase price to intangible assets, while the industry technology, telecommunications and media simply allocates 28,7%.

In Lai and Stacchenzzinis (2009) study companies whit in the insurance sector are examined both in Italy and in the UK. Their research shows that the reporting of intangibles in business combinations is flawed. It also shows that there are significant differences between the investigated companies and the identification of these assets, even though they account under the same regulatory IFRS 3. The authors then conclude that this can actually lead to that the information, that was intended to make companies in different countries comparable, becomes inferior since the reporting of similar underlying economic transactions are so different.

Hamberg et al., (2009) explain that the room available for the company's own judgements under IFRS 3 are exploited and therefore the surplus value of the transaction are seen as goodwill and there are limited efforts in trying to reclassify this into specific intangibles. They also mention that the introduction of the standard has meant that companies in total now report a larger share of goodwill than before due to the impairments that are now to be made, are not as large as the previously conducted depreciations.

The Chairman of IASB Hans Hoogervort (2012) mentions that the accounting for goodwill and intangible assets carries large risks. He expresses his concern about goodwill due to consolidated formations and that the way of accounting for goodwill in the present is sensitive to manipulation in both the income statement and balance sheet.

2.2 Previous research concerning the relevance of reporting intangible assets

To the above-presented studies regarding the compliance of IFRS 3 it is of importance to mention that there are a lot of studies that have examined if this type of reporting, or more specifically that of the intangible assets really is relevant (both concerning business combinations and internally generated intangibles). Hence, does this type of accounting provide relevant information to the stakeholders' of the firm? Just because IASB has issued a standard that is based on this theory does not mean that all researchers whit in this area share this opinion. This question and have thus encouraged a number of studies whose purpose was to examine if the accounting of intangible assets provide relevant information to the recipients of the financial information. The research within this area is often referred to as "value relevance" studies, i.e. the financial statements ability to explain the share price of a company and the changes therein (Barth et al., 2001; Beaver, 2002). A significant portion of this type of research is often motivated from the view of the setting of accounting standards (Holthausen & Watts, 2001; Francis et al.

2004). It can be done either by examining the relation between the returns[10] of a company and its earnings[11] (Easton & Harris, 1991) or by examining the information in the balance sheet (Ohlson, 1995). This is because capitalized earnings and equity serve as a foundation for valuation and the expected future return of the company.

By analysing firms' tendency to capitalize Research and Development (R&D) as a intangible assets in the balance sheet Oswald & Zarowin (2007) are able to show that the firms who do this capitalization provide a higher level of information to investors than the firms who only expense the R&D in the income statement. The information thus provides signals to the investors that the company has projects that might be profitable in the future.

An important part in improving the financial statements is to increase the reporting of intangible assets according to Lev and Zarowin (1999). Evidence of decreased value relevance when intangible assets are not recognized are found and presented by Amir and Levin (2006). It shall also be mentioned that Ritter and Wells (2006) state that this recognition gives a higher precision in the forecasts of future returns.

Rehnberg (2012) has in her research measured the relevance of identifying specific intangible assets from goodwill via statistical methods. By first dividing the firms in the study into groups based on how they have recognized intangible assets from goodwill she uses a return model based on the one developed by Easton and Harris (1991). She uses the return per share of the firms in a given period divided by the price of the shares at the beginning of the period as a dependent variable. Then it is controlled for (as independent variables) the corporate earnings, changes therein, depreciation, and its changes and the market value of the company. Secondly, a price model is used as an alternative to the return model. This model is based on the reengineered formula from Collins et al. (1997) and Francis and Schipper (1999) in which the user is able to break out balance sheet items whose relevance she intends to examine. Here Rehnberg uses the market value of the firms as a dependent variable in the regression and controls for book value, the recognition of intangible assets from goodwill, corporate earnings and depreciations. From these two models and other information presented in the research she presents that the relevance of the information provided by the separate reporting of intangible assets in business combinations is very low. This could be a result, she says, because this information is only a small part of the companies' total annual reports, which means that there is no effect on the relevance of the accounting as a whole. But she adds that companies that overall have reported a high proportion of intangible assets in the financial statements have a more relevant annual report. Therefore, she believes that the accounting of intangible assets has a signal value to the users of the financial information. She also presents evidence for this theory from previous research.

Boulerne and Sahut (2010) state that accounting in accordance with IAS/ IFRS concerning the total intangible assets that includes goodwill provides some information of importance to investors. The authors mean that investors continually try to interpret the goodwill value but says that the specific intangible assets do not provide the market any extra information. But they also mention that a high book entry of intangible assets in the balance sheet is interpreted by the market as an indicator of positive future growth for the firm.

One of those who is critical of the reporting of intangible assets is Skinner (2008), who argues that investors and the financial market will function regardless of how the accounting for intangibles are developed. His belief is that this type of accounting may even impair the analysis and comparability of principles for valuation, identification and other disclosures concerning this matter. He states that the differences in recognition of intangibles between industries can disrupt the financial reporting. This view is shared by Barron et al. (2002) and Demers (2002).

2.3 The information environment

In an efficient market the price of a share is a direct reflection of all publicly available information. According to this hypothesis, changes in the value of a stock, which is not of stochastic nature, only occurs when new information is announced on the market (Fama, 1970, 1991; Haugen, 1997). In a perfect capital market investors can buy securities at fully competitive prices. For this to be possible, no actor can possess better information than others regarding the risk of the future returns of the asset and thus be able to make a better valuation (Haugen, 1997). The above-described market setting is rare (Haugen, 1997). According to the Grossman-Stiglitz paradox there is no possibility for a market to be informationally efficient. Since no single actor in that scenario would have any motive to obtain information about what the prices are assumed to reflect (Grossman and Stiglitz, 1980). Thus the problem of asymmetric information exists in today's capital markets (Frank, 2008). Healy and Palepu (2001) state that it is of utmost importance for companies to disclose information to secure the function of an efficient capital market (the authors use the

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[10] The yield, shareowners receive during a given period by price changes in the stock and dividends.
[11] The yearly profit presented in the financial statements'.

term disclosure in a wide sense to include all information presented in the financial reports). This is supported by Fields et al. (2001) and Frankel and Li (2004). The information asymmetry in the capital market between sellers and buyers may cause the market to break down since it interferes with the actors' ability to distinguish between good and bad investments and the correct price setting of the aforementioned. The parties would both benefit from the transaction, but no such transaction will take place. Hence it exists an adverse selection problem in the capital market. Akerlof (1970) refers to this phenomenon as the "lemons" problem. This insufficiency in information forces the firms to offer their shares at a discount, i.e. the cost of capital, a necessary sacrifice in order to raise capital, increases (Trueman, 1986).

The good disclosures do not only help with the "lemons" problem it also mitigates additional agency problems faced after the transaction has been carried out, such as the principal-agency problem (Jensen & Meckling, 1976). Where a conflict of interest exists between the management (agents) and the owner/ investor (principal) of the firm. This will lead to actions being taken by the management in their self-interest in disadvantage to the investor since they hold an information advantage. The management can also have incentives to issue insufficient or downright inaccurate information to the shareholders (Anthony & Govindarajan, 2007). Healy and Palepu (2001) offer a number of ways to fight off the information asymmetry problem; regulation, board of directors (as monitors), optimal contracts to align the principal and agent problem and provide incentives for full disclosure and lastly information intermediaries such as rating institutes and analysts acting as undercover agents.

2.3.1 Disclosure quality metrics in previous research

How does one measure and evaluate the disclosure level let alone the quality of the disclosure[12]? When it comes down to quality researches often settle for quantity measures i.e. more information is better then less. Healy and Palepu (2001) have reviewed and presented the results of a broad survey of the empirical research on disclosure. By not specifying a separate economic theory of disclosure themselves or analysing every empirical research findings in detail, their study provides a framework and a greater overview of the literature. Kristandl and Bontis (2007) explain that the way to address and measure disclosure varies widely among researchers. A wide range of proxies for disclosure is used, both quantity and quality, when researches try to examine the effects on the market of information disclosure. Perhaps the most "inventive" and dispersed solutions are found in the voluntary disclosure literature since this type of disclosure varies more between companies than mandatory ones (Healy and Palepu, 2001).

Some researches use disclosure score models based on the ratings from analysts (Lang & Lundholm, 1993; Lundholm and Myers, 2002). Even annual reports "beauty contests" are sometimes used as a measure of disclosure (Daske & Gebhart, 2006). Event though these metrics might work as a proxy for overall transparency they often only measure disclosure indirectly and are highly subjective even though the researches claim the somewhat opposite.

Botosan (1997) presents an alternative methodology by creating an item-index that is based on the information provided by the companies. In the study these items are seen as highly important for the firms' investors and analysts. Hence if the items are included in the information provided the firm receives a score. This might seem straightforward but note that the researcher often chooses which items to include, which again raises the question of objectivity. Examples of disclosure items in this type of research methodology are marketing and strategy information (goals, objectives, products, competition and strategy), financial information, forecasts, and management decisions.

2.4 Capital market implications of disclosure and previous research

2.4.1 Capital market effects: Analyst following, Liquidity, and The Cost of Capital

Focus within empirical research in accounting has been on increased analyst following, improved liquidity and lower cost of capital (Healy & Palepu, 2001). Analyst can together with Rating institutes and Auditors be seen as intermediaries of the financial information to investors (Jo & Kim, 2004). The interest

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[12] The IASB do not specify the term accounting quality. They instead classify properties of the financial information in terms of faithful representation, comparability, relevance, verifiability, timeliness, and completeness in their conceptual framework. The framework contains concepts and basic principles for the presentation of financial statements. The aim is to guide the IASB itself in the development of new standards, revise IAS, and harmonize standards by certain principles, national standard setters in the development of new rules and preparers in their interpretation of the financial statements. By following these qualitative features in the preparation of the accounting the IASB consider that the just mentioned will be of high quality (IASB, 2011).

here is to investigate how effective financial analysts are to convey the information that companies disclose, how the disclosures effect the analysts following of the companies and how well auditors are able to enhance the credibility of the financial statements.

With an increased level of disclosure the acquisition of information will become less costly. Thus, companies that release a greater amount of information are likely to attract a lager number of analysts (Brennan & Subrahmanyam, 1995). Since analysts are seen as intermediaries, more information from firms also implies a greater demand for analysts (Lang & Lundholm, 1996). Lang and Lundholm (1996) also show that the accuracy, timing and reduced dispersion of analyst forecasts and volatility are improved by more firm disclosure (All evidence of reduced asymmetric information). For example, Piotroski and Roulstone (2004) describe that analysts' forecast accuracy differs between industries and that these can be improved with good firm disclosures. Diamond and Verrecchia (1991) support this and say that this precision and correlation between the analysts' forecasts contribute to a better pricing of an asset that is traded on a regulated market. But noteworthy to this theory about analysts in general is that if analysts are seen as information emitters their information would be in competition with the firm disclosures, resulting in a negative relation between analyst following and the information disclosed by firms. More analysts could also mean a higher pressure for firms to disclose. However tests conducted by Land and Lundholm (1996) is evidence on that disclosures affect analyst and not vice versa. In the case of Auditors, Healy and Palepu (2001) present evidence, how effectively they are at brining credibility to the financial statements and believe that auditors only confirm already known facts. They also imply that the auditors importance for the capital market can today be questioned because of the risk of lacking independence and also that they are more of a legal requirement than something that adds credibility. This could be put in contrast to the words of Malmqvist (2011) in the specific case of IFRS 3 where he stipulates that auditors can play a role in the practical use of the standard.

Improved liquidity is in favour to the capital markets, since it facilitates trade. If investor can easily sell their investments whenever wanted they are more likely to invest (Brennan & Tamarowski, 2000). According to Demsetz (1968) increased liquidity costs arise when demand and supply are not represented by contemporary market orders. The basis for why disclosure may lead to an escalation of liquidity in the financial markets is that all investors, even those that are under-informed since they often in a heard-like motion tend to follow the informed ones[13], are more probable to participate in the market when the information asymmetry decreases. If there is high information asymmetry, both sellers and buyers in the transaction will hesitate to trade since they do not know for sure if the transaction is carried through at a correct price, all in line with the "lemons problem" discussed earlier (Daimond & Verrecchia, 1991; Kim & Verrecchia, 1994; Brennan & Tamarowski, 2000).

Since the rate of return of an investment is in part founded on the liquidity of the shares, companies reduce their cost of capital by providing the information that the market demands (Brennan & Tamarowski, 2000). The cost of capital or morover as the cost of equity is the required return of the investors and it consists of two components; the risk free rate of return and the risk premium. Where the risk premium in turn consists of firm specific operating- and information risk. Botosan (1997) proves that the information risk of the cost of equity decreases with good firm disclosures. This theory might sound pretty straightforward. But it shall be noted that in financial theory investors simply consider the systematic risk i.e. non-diversifiable risk (Fischer et. al, 1972). Since, diversifiable risk can simply be diversified away with an optimal portfolio according to portfolio theory (Markowitz, 1959, 1991). It is far from certain that information risk is non-diversifiable. By an analytical method Easley and O'Hara (2005) are able to show that information risk is non-diversifiable but they have no empirical support for this. Despite this somewhat ambiguous territory and the issue of disclosure quality metrics mentioned above under the topic "Disclosure quality metrics in previous research", there is an abundance of empirical research that embraces this theoretical approach to the relation between corporate disclosures, information asymmetry and the cost of capital (Kothari et. al, 2009; Leuz & Schrand, 2009). However, it shall also be mentioned that there are several studies where this supposed connection are not found (Leuz & Verrecchia, 2000). But the underlying assumption is still the above mentioned, namely that cost of capital is a compensation for risk. This entails that observed higher cost of equity due to the asymmetric information in the financial markets serves as evidence for the existence of systematic information risk.

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[13] This is referred to as the cognitive bias called the "Bandwagon effect" in trading i.e. the tendency to believe and follow other traders (Faith, 2007).

2.4.2 Previous empirical research within accounting regarding disclosure

By an examination of German companies Leuz and Verrecchia (2000) were able to show that an increased level of disclosure has economic consequences. In their event study[14] they used the transition from national General Accepted Accounting Principles (GAAP) to the US GAAP. The German companies demanded international rules since they considered the reporting in accordance with German GAAP to be deficient. The companies sought to reduce their cost of capital by making this transition. This was then proven to have worked since Leuz and Verrecchia (2000) empirically confirmed that the transition had reduced the information asymmetry in the capital market and thus the cost of equity.

Since previous research has shown that companies seldom change their disclosure policies Botosan have chosen only one year as a basis for her study conducted in 1997 (Botosan, 1997). By looking at the transparency in the annual reports (a self constructed index as mentioned above), company size and market beta the author conducted a study in which the U.S Manufacturing sector were divided in two groups. The criteria for the group classification was low and high analyst following. The cost of capital was estimated using the valuation formula previously used by Feltham and Ohlson (1995) and Ohlson (1995) which seeks to measure earnings quality in terms of investor responsiveness to earnings. The results of the study showed that for those companies that were observed by a small number of analysts, there is a negative correlation between transparency and the cost of equity. One point increase in the index reduces the cost of equity capital by 0.28 percentage points. However, a significant correlation for the firms followed by a large share of analyst could not be shown. Botosan (1997) explains this result in that for the companies covered by more analysts, there are other channels of information than just the financial statements.

In a subsequent expanded study conducted by Botosan and Plumlee (2002), with the purpose to further find and explain the link between disclosure and the cost of equity several industry sectors were examined during a ten-year period. The authors did not only look to the financial statements, but also included other information sources as a proxy for disclosure. The information was divided into smaller current (sometimes annual), more current (e.g. quarterly) and other. A negative correlation between the release of information and the cost of equity was found in the category of "less current". The study also showed an unexpected outcome, namely the positive correlation between the "more current" and "other" groups and the cost of equity. Botosan and Plumlee (2002) discuss that the reason for this higher cost of equity for these channels may be that, the volatility of the company's shares increases in periods of intensive reporting. Thus the type of disclosure matters.

Kristandl and Bontis (2007) differentiate forward-oriented- and historical information when they examine transparency. The outcome of the study indicates that historical information is positively correlated with the cost of equity. The explanations for this is believed to be that the market demands a higher return for the added risk that exists when it appears that historical information acknowledges flaws in past forward-oriented forecasts. The authors find support for their analysis in the research carried out by Kim and Verrecchia (1994), which says, that investors have different skills and expectations of the firm and that they therefore interpret information in different ways. This does not contribute to a decrease but rather to an increase in information asymmetry and the cost of equity.

Francis et al. (2008) have also documented a negative association between disclosure (voluntary) and the cost of equity. In contrast to the other studies presented above they use a slightly different approach to the explanation of the relationship between these variables. They introduce earnings quality as a third variable since they believe that there exists a complementary relationship between the quality of disclosure and earnings. Their study is evidence for a positive correlation between their self-constructed disclosure index and earnings quality. It shall be noted that the earnings quality in this study have little impact on a the firms' cost of capital.

The above-mentioned research has focused on good firm disclosures but is shall also be added that even information that may be seen as negative for a company can help to reduce the information asymmetries in the capital market. The firms are simply better-of, disclosing non-material bad news since the cost of disclosing this is smaller than the benefit associated with the reduction of the market uncertainty. One such study is presented by Kim and Park (2009) where the researchers found that it was more profitable for firms to correct and report internal control deficiencies under SOX[15] than not, because it in general reduced the investor uncertainty and in this way the firms even managed to reduce their discount rate and thus produced a less negative market reaction to the disclosure.

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[14] An event study is used as a statistical method for estimating the value of an occurrence, such as CEO resignations, Earnings announcements and Profit warnings and its impact on the trading volume or security prices over a relatively short observation window (McKinlay, 1997).

[15] The Sarbanes.Oxley Act (SOX) of 2002 is an act passed by the U.S Congress, which aims to protect investors from accounting fraud activities conducted by companies. It was enacted in response to the accounting scandals such as Enron and Worldcom in the early 2000s (Hall, 2003).

To further look in to the level of disclosure and its capital market implication of the specific case of IFRS Daske et al. (2008) show in their study that companies that voluntary made the transition to IFRS show an increase in market liquidity and an reduction in the cost of capital. The authors also show that the same applies to firms that have been forced to adopt the standards. However, the firms that exhibited this result operate in a strict legal enforcement environment, which suggests that a part of this result is played by incentives.

Hodgdon et al. (2008) examine mandatory disclosures and present that this appliance of IFRS has a negatively correlation with forecast errors from analysts. To avoid the econometric effect of consensus forecasts when analysts operate in different national settings the authors measure the forecast error at an individual level. Thus, this is evidence that appliance with IFRS reduces the information asymmetry in the capital market. Hodgdon et al. (2008) also stress the fact that when studying the effects of IFRS one need to consider the compliance level. Just because firms claim that they are in full compliance does not mean that they are in full compliance (Glaum and Street, 2003). In other words, it's how well firms follow the standards that matters and not the standards themselves when trying to evaluate the quality of accounting in accordance with IFRS.

Just such an approach is adopted by Runesson and Marton (2013) in their study regarding the compliance of the standard IAS 1:s ("Presentation of Financial Statements") requirements in terms of the disclosures of assumptions, judgements and estimates. The authors say that the expected quality improvement of the accounting due to the adoption of IFRS is not yet achieved. In evidence for this they present that mandatory disclosures are run by the same factors as voluntary ones (i.e. managements-incentives and abilities and the legal environment). Those preparing the accounting are therefore left with the option to use the room of judgement in the standards, which contributes to an inconsistent application.

A similar view is presented by Daske and Gebbhart (2006) where they mention that looking to mandatory adopters is a more convincing evidence of the benefits of IFRS since one can not separate the ambition to disclose when firms have the option to choose between regulations.

Where many studies focus on the reduction of cost of equity due to high quality disclosures Sengupta (1998) shows that firms can also reduce the cost of debt with such disclosures. Thus, companies can reduce the cost of capital by disclosing regardless of how it is acquired. Companies that do not disclose will be charged with a higher cost of debt since the risk premium will be raised when fear of default risk (not be able to amortize) is present.

2.5 Hypotheses

Based on the frame of reference, the research issue, and the purpose of the study, the following hypotheses were set to answer the study's research questions.

2.5.1 Hypotheses regarding research question number one

$H_{1.1}$: There is a difference in the recognition of intangible assets between the years.

$H_{1.2}$: There is a difference in the recognition of intangible assets between the size of the firms.

$H_{1.3}$: There is a difference in the recognition of intangible assets between industries.

$H_{1.4}$: There is a difference in the recognition of intangible assets between high- and low-tech firms.

$H_{1.5}$: There is a difference in the recognition of intangible assets due to the purchase price.

$H_{1.6}$: There is a difference in the recognition of intangible assets between firms with high and low debt to equity ratio.

2.5.2 Hypotheses regarding research question number two

$H_{2.1}$: There is a difference in the cost of equity, arising from capital market information asymmetry, between the companies that have recognized different proportions of intangible assets in business combinations.

$H_{2.2}$: There is a correlation between recognized intangible assets in business combinations and the cost of equity, arising from capital market information asymmetry.

3. METHODOLOGY

This chapter presents the approach adopted for this study. Initially described is the method used in the study's implementation, furthermore the chapter provides a description of how the collection and processing of material and data has been carried out. Then the selected variables, based on previous literature, in the research are featured and finally a description of the implementation of the survey's statistical tests is presented.

3.1 Research method

When researching accounting transparency itself and when trying to examine its relationships to the cost of equity arising from asymmetric information in the stock market researches often adopt a quantitative methodology with statistical tests (see for example; Leuz & Verrecchia, 2000; Healy & Palepu 2001). Thus, the authors of this paper considered it appropriate to apply a quantitative method to answer the study's research questions. Such a method is aimed to quantify collected information and then measure, discover and define connections or correlations through statistical calculations (Christensen et al. 2001). In order to answer the research questions it is required that the information in the financial statements reported by the companies, included in the sample, and relevant capital market information are obtained. By systematically collecting quantifiable data and summarize these in statistical form and then process and analyse the results based on testable hypotheses, it is possible to generalize the empirical results (Bryman & Bell, 2010). This is in line with the authors' intention of this research and is not made possible in the same way in a qualitative study. Since such an approach provides more sensible exemplifications and answer questions like "why" and "how"? (Svennings, 2003).

3.2 Selection process

The first selection in this study was made in year 2008[16] and the second, the years 2012/2013, starting on November 1st 2012. At the time, Sweden had a regulated stock market called Nasdaq OMX Stockholm where larger companies were, and still are, listed. OMX has three main lists named Small, Mid and Large Cap. On the OMX there is also an alternative list called First North. The list is an alternative market for smaller growth companies. Furthermore, there was also a market or an MTF (Multi Trading facility) named Nordic Growth Market NGM (Nordic MTF) where listing and share trading is offered on the lists NGM Equity and derivatives trading on the list Nordic Derivatives Exchange. The NGM market offers listing for the Nordic growth companies. There also existed two other MTF:s named Aktietorget and Burgundy. The former is addressed to growing entrepreneurial companies and the latter offers trading of shares, according to themselves, in a more cost-effective way than other markets (Aktietorget, 2012; Burgundy, 2012). The companies that have authorization to operate one or more regulated markets according to the Swedish Financial Supervisory Agency is Nasdaq OMX Stockholm AB, Nordic Growth Market NGM AB and Burgundy AB. In a regulated market there are higher requirements than for MTF:s for example accounting in accordance with IFRS, disclosure rules about price sensitive and regular financial information, disclosure about major ownership changes and the notification of insider trading (Finansinspektionen, 2012).

This study is based on the firms listed on the Nasdaq OMX Stockholm Exchange's main lists Small, Mid and Large Cap. These companies are generally characterized by a long history and have been listed in an active market for a long time. These companies are also the most frequently traded and are most known to the public (Rehnberg, 2012). The first selection is based on the companies that were listed on these lists as of November 1st, 2007 for the period of investigation 2005 to 2007 and the second selection on November 1st, 2012 for the years 2008 to 2012. Since the period for this research in total reaches over 8 years it would have been possible to base the sample on listed companies on a specific date for every year. But the authors of this paper have made the assessment that this would not have had any significant effects on the study.

Implication of this sampling is that it is only companies that report in accordance with IFRS/ IAS and then have carried out acquisitions during the years 2005 to 2012 have been included in the study. What is defined as a business and what is classified, as a business combination thus must be fulfilled in accordance with IFRS 3. Furthermore, only those companies that reported sufficient information in the financial statements about the acquisitions were included since the calculations that this study is based upon requires that certain information is presented in the companies' annual reports. For example, it is required that the acquisitions contained either intangible asset or goodwill or both. Identification of

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[16] This selection was conducted by Ph.D, University lecturer at School of Business, Economics and Law at the University of Gothenburg and Partner at Deliotte Sweden Pernilla Rehnberg and included a manual reading of approximately 800 annual reports.

companies that have conducted acquisitions during the years 2008-2012 was made possible through a manual reading of all companies' annual reports, in total 1´265 annual reports. After this reading was completed, the authors of this paper made sample testing on each others collected data to ensure that the manual reading and the gathering of the data had been correctly conducted. Below is a table showing the total number of companies that have carried out acquisitions in the past eight years and the number of acquisitions, or purchase price allocations, that have been reported in the companies' annual reports.

Table 3.1: Identified Purchase Price Allocations for the Listed Companies on the OMX Stockholm Exchange Small, Mid and Large Cap lists

Year	2005	2006	2007	2008	2009	2010	2011	2012
Total number of companies in the sample	277	277	277	253	253	253	253	253
Number of companies that have carried out acquisitions with information corresponding to the definition of the variable intangible assets	64	78	89	94	66	76	80	60
Number of acquisitions, which are recognized in the purchase price allocations corresponding to the definition of the variable intangible assets	79	91	155	169	106	137	158	100

From these PPA:s there have then been various large losses depending on which statistical test that was later performed in this study due to that some variables for some firms could not be obtained and compiled since the information in Thomson Reuters DataStream was inadequate. The number of losses in each test, from the total observations of 995, is further presented in Chapter 4 – Empirical Results.

3.3 Gathering of material

The gathering of material for this research was made to enhance and further develop the already existing frame of references that was used in a previous study conducted by the authors of this paper. To find updated information regarding the present debate about identification, valuation and accounting of intangible assets in business combinations, searches were conducted in various periodicals in the databases of the Gothenburg University. Where relevant articles were primarily published in the *Journal of Accounting Research, Journal of Accounting and Economics, Journal of Accountancy* and the Swedish counterpart *Balans*. These articles were then studied to get a further apprehension about the problems of intangible assets and business combinations.

The information collected for the essay's introductory- and frame of reference chapter was collected from the aforementioned databases, mainly Business Source Premier. Searches were also carried out on external search engines such as Google and Google Scholar. The search engines were used to search for information on previous research within the subject of this thesis in scientific articles. Where the most frequent search terms were "Acquisitions", "Bid-Ask spread", "Business combinations", "Cost of Capital", "Cost of Equity", "Disclosure", "Earnings quality", "Financial microstructure", "Goodwill", "IFRS 3", "Information asymmetry", "Intangible assets", "Investor relations", "Transparency" and "Volatility". The newly obtained information combined with the already existing frame of reference was used to further develop the comprehension about the previous research within accounting transparency, disclosure and its relation and impact on the capital market's information asymmetry and the cost of capital. The most relevant articles were later on selected to serve as a frame of reference and scientific support for this study.

The scientific articles that are used as a basis for the frame of reference has been complemented with relevant textbooks on the subject in order to clarify the fundamental theories that the study is based upon. These books have been found through searches in the Economic library catalogue at the University of Gothenburg. Other text books concerning statistics have also been obtained in the same way in order to get support in the statistical methods used in this study both in terms of methodology and analysis.

Finally, the accounting standards within the essay's frames, which are IFRS 3 – Business Combinations and IAS 38 – Intangible assets, were obtained through the database FAR komplett accessible through the Gothenburg University homepage.

3.4 Gathering of data

The collected data in this study consisted only of secondary data. To answer the study's research question, there has been no need for primary data when the necessary information has been available via external secondary data. The listed companies' annual reports that are used in the study were downloaded in PDF-formatting from the companies' respective websites under those sections that are often referred to as "Investor Relations" or from the webpage: bolagsfakta.se. The financial information database Orbis was also used as a complement to this research, since some firms had not yet released their annual reports for the year 2012 (this concerned five companies) during the compilation of this study. Orbis made it possible through its section called "Mergers and Acquisitions deals" for each company to see if these firms have been active in this field during the year of 2012. To some extent the companies' quarterly reports, which were obtained from their respective websites, were used for the same purpose.

The capital market information needed in this study has been collected from Thomson Reuters DataStream. During the collection of this data both authors were present to mutually verify and ensure that the downloaded information was correctly obtained.

3.5 Processing of the information from DataStream

After the completion of the selection process and the gathering of accounting information, the collecting of data from DataStream began. A list of securities of "Stockholm Exchange" was retrieved from the database, which contained 1´337 securities in total. These securities were matched manually to the participating companies in this study with the right security in the computer program Microsoft Excel. This work enabled the further gathering of stock market information from the database. This market information was retrieved and then calculations were conducted (see formulas for variables below) in Excel to compile the variables included in the study.

3.6 Statistical models

The research question in this study seeks to examine a relationship between different variables. This can be done by using a regression analysis and also by making comparisons between different groups in a Kruskal-Wallis test. In the implementation of the statistical tests the computer software IBM SPSS Statistics version 21 was used. The data collected were initially structured in Microsoft Excel and then imported to SPSS for processing.

3.6.1 Kruskal-Wallis test

Kruskal-Wallis test is a non-parametric test where the observations are ranked and the variance of a certain factor analysed. The test makes no assumptions about the distribution of the population, ie, no assumptions of normal distribution, however, the test requires that more than two variables are tested against each other. The null hypothesis in the test implies that the different populations are identical (Newbold et al., 2010).

Before this statistical test is performed the observations are ranked from the lowest to the largest value. If more observations have the same value they will be assigned the average of the ranks they would have received if they had different values. For example, if the two observations in place 7 and 8 have the same value they will be assigned the rank of 8.5 and the next observation is assigned rank 9 (Newbold et al., 2010).

In order to exhibit a statistically ensured result of the Kruskal-Wallis test one needs to set the significance level. The level of significance is the risk that a true null hypothesis is rejected. There are two types of errors that can occur regarding the level of significance, type 1 and type 2 errors. Type 1 error is that a true null hypothesis is rejected while type 2 errors is a acceptance of a false null hypothesis (Newbold et al., 2010). Common significance levels for statistical tests is 10%, 5% and 1% (Körner & Wahlgren, 2002). This means that if the results show a significance level of less than 5%, the result can with a probability of 95% explain the tested variables. This means that less than 5% of the result depends on statistical randomness (Newbold et al., 2010).

3.6.2 Multiple linear regression

A linear regression analysis refers to the testing of the existence of a relationship between a dependent variable and one or more independent variables in the case where the variables are quantifiable (Newbold et al., 2010).

Multiple linear regression is an extension of the simple regression analysis and contains several independent variables. The circumstances are often such that they cannot be explained or understood in terms of one independent variable. Therefore, the multiple linear regression serves as a better model for analysing the relationships between several variables. All independent variables thus have an opportunity to explain the dependent variable. Further, it shall be noted that the R square value of the regression explains the models explanatory power i.e. to what level the independent variables are able to explain the dependent variable (Newbold et al., 2010).

3.7 Variable: Share of Intangible Assets

Table 3.2: Example of a purchase price allocation

	MSEK
Purchase price, including acquisition costs	2´000
Acquired equity, excluding goodwill	-400
Identified surplus value in intangible assets (The value is net of tax)	-400
Identified surplus/ under value in the assets and liabilities that are not classified as intangibles (The value is net of tax)	-200
Goodwill	-1000

Formula: Share of intangible assets

$$Share\ of\ intangible\ assets = \frac{Identified\ surplus\ value\ in\ Intangible\ Assets}{Identified\ in\ Intangible\ Assets + Goodwill}$$

The research intends initially to examine how the companies, included in the study, have identified and accounted for their intangible assets in relation to goodwill in business combinations. Hence, measuring the compliance of the standard by the examined firms, as discussed by Glaum and Street (2003) and Runesson and Marton (2013). Therefore the identified intangibles in relation to goodwill are defined as a variable to serve as a proxy for transparency in the accounting. A higher share of intangible assets from goodwill are thus better than lower, this is a quantitative measure for disclosure and transparency as presented in the paper by Healy and Palepu (2001). An exemplification of the definition is presented in the table and the formula above. If the business combination described in Table 3.2 is inserted in the formula for calculating the share of the intangibles, the variable becomes 29% (400/(1 000 +400)). Which means that the total surplus value of the acquisition relates to 29% identifiable intangible assets and 71% have been accounted for as goodwill.

3.8 Non-parametrical testing of the difference in recognition of intangible assets

Rehnberg (2012) has in her thesis examined if there existed any differences between the recognition of intangibles over the examined years. Since this study contains data from five additional years the authors of this thesis considered it appropriate to conduct a similar examination. Thus, the data of recognized intangible assets separated from goodwill was categorized in years from 2005 to 2012, and then tested in a Kruskal-Wallis test in order to analyse if there exist any differences in the recognition between the years. The share intangible asset in every acquisition was sorted from the highest to the lowest value for each year and was than given a rank value in order to perform the test.

Several studies have shown that there are indications that company size has an affect on the accounting for intangible assets. This is because it is believed that larger firms have a larger incentive to disclose information to the market. This is examined in reports from Landry & Callimaci (2003) and

Rhenberg (2012). Consequently, the acquisitions were categorized by the OMX Stockholm Stock Exchange cap listing in three groups, namely, Small, Mid, and Large Cap. The share of intangible assets in every acquisition was sorted from the highest to the lowest value in these three groups and was then given a rank value before conducting a Kruskal-Wallis test.

Rehnberg (2012) cites Godfrey & Jones (1999) who argue that it can be relevant to categorize companies according to their industry affiliation and see if the recognition differs between industries i.e. how it differs depending on the type of company. Piotroski and Roulstone (2004) support this and mention that this difference may exist. The reason for this is that companies between certain industries have different characteristics for example different financial structures and different frequencies in acquisition activities leaving them with various degrees of reason to combat the information asymmetry with disclosures. In this manner the authors of this thesis have chosen to allocate the companies in the same industry categorization as Nasdaq OMX Stockholm Stock Exchange. The classification is divided in ten different industries namely; Basic materials, Consumer Goods, Consumer Services, Financial, Healthcare, Industrials, Other, Technology, Telecommunication, and Utilities. The recognition of intangible assets in every acquisition was thus categorized by industry and sorted from the highest to the lowest value and was then than given a rank value before tested in a Kruskal-Wallis test in order to be able discern if there are any differences on this level.

Further on, in accordance to Collins (1997), Rehnberg (2012) sorts the industries in two categories, high- and low-tech companies. The reason for this is simply that high-tech firms can be considered to recognize a higher share of intangible assets from goodwill than low-tech firms. Simply because these firms are heavily dependent on these type of assets and therefore feel the need to reveal these intangible assets obtained through a new subsidiary acquisitions. This type categorization was also made in this research. High-tech industries were considered to be Telecommunication, Healthcare and Technology, and Low-tech industries were considered to be Basic Materials, Consumer Goods, Consumer Services, Financial, Industrials, and Utilities. The industry named Others presented above was not included in this test since it was hard to categorize in either high or low tech. This classification was made possible through adopting a similar classification used by Rehnberg (2012). The share of intangible asset in every acquisition was sorted by the firms categorized in high and low-tech industries, and than the share of intangibles were categorized from the highest to the lowest value, and finally given a rank. The groups were then tested in a Kruskal-Wallis test.

Gauffin and Nilsson (2012) theorize that the purchase price of an acquisition could be a determining factor when companies identify intangible assets. This is because at small acquisitions, the firms probably make limited efforts in trying to identify intangible assets because the management team may think that such assets carry no significance. The authors argue that the problem here lies within the IASB conceptual framework, its features makes it possible not to adopt a uniform accounting of purchase price allocations. Gauffin and Nilsson (2012) have made a distinction between small and large acquisitions by the amount of 5'000'000 SEK. In a similar methodology the participating companies in this study were categorized in three different groups[17], 1-99'000'000 SEK, 100'000'000-499'000'000 SEK, and 500'000'000 SEK – and above. The recognition of intangible assets was thus categorized by purchase price and sorted from highest to lowest value than given a rank before tested in a Kruskal-Wallis test[18].

Marton and Rhenberg (2009) present in their study that high debt to equity ratio of a firm is correlated with a high percentage of recognized goodwill in business combinations. This indicates that firms with high leverage are unwilling to account for specific intangible assets since they are amortized. However, the incentives due to leverage in recognition of intangible assets in business combinations are rather ambiguous. Rhenberg (2012) stipulates that firms with high external financing, reports more intangible assets than firms with low external financing. This is also supported by Landry & Callimaci (2003), who also examine how the company's debt to equity ratio plays a role in the accounting of intangible assets. Consequently, the authors have categorized the share of intangible assets from the acquisitions by firms with high and low Debt to Equity ratio. The distinction being a Debt to Equity ratio from 0 to 0,99 and 1 and above. The shares of the intangible assets were then sorted from the highest to the lowest value into two groups and finally given a rank in order to conduct a Kruskal-Wallis test. All the tests above will be conducted with a significance level of 95%.

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[17] Simply because a distinction between a purchase price of 5'000'000 SEK led to that the categorization of the two groups was too uneven
[18] This test only contained data from the years 2008-2012 since the purchase price was not part of the data given by Pernilla Rehnberg to the authors of this paper regarding the years 2005-2007.

3.9 Bid-Ask spread as a proxy for the Cost of Equity

Formula: Relative Bid-Ask spread

$$Bid-Ask\ Spread=\frac{(P_A-P_B)}{(P_A+P_B)/\ 2}$$

P_A = Ask price
P_B = Bid price

To measure the stock markets information asymmetry hence the cost of equity Leuz and Verrecchia (2000) describe that the Bid-Ask spread for a company's stock can serve as a proxy. Leuz and Verrecchia (2000) like Botosan and Plumlee (2002) used the difference between the bid- and ask price of the companies' shares to assess whether there is a relationship between the accounting transparency and the asymmetric information in the stock market hence the cost of equity for a firm. Furthermore, the authors explain that the spread is one of the widely known and accepted liquidity proxies for measuring asymmetric information in the capital markets. With its clarity and objectivity it is considered to address the problem of the market inefficiencies (adverse selection) that arise because of uninformed investors (see also; Kyle, 1985; Glosten & Harris 1988; Brennan & Subrahmanyam, 1996; Callahan, 1997). As mentioned earlier, the theory suggests that a more transparent accounting should reduce the information asymmetry between the markets participants. This will in turn lead to a smaller spread since the component of the return requirements from the investors linked to the information risk decreases (Karpof, 1986; Amihud & Mendelson, 1986; Acker et al., 2002; Leuz & Verrecchia, 2000). This is confirmed by Roll (1984), since he states that it is well known that at a smaller spread the market is less interested in additional information. Even Coller and Yohn (1997) showed in their study that increased disclosure by companies reduces the bid-ask spread thus also the cost of equity.

The spread can in more detail be explained as follows. The Bid and Ask price of a stock will not be the same simply because the market makers, also sometimes referred to as brokers, will set the spread to cover the cost of liquidity[19]. A market maker is an actor in the financial market that sets the bid and ask price for a financial asset. The market maker profits from the spread while ensuring the liquidity[20] of the asset as investors always have the opportunity to exit their positions (Fabozzi et al., 2010). Baily (2005) explains that the spread can be studied either from an inventory- or an information-based perspective. Moreover, the market maker's costs can be divided in three categories where the former two are inventory based and the latter is information based. The first two costs are direct cost or order processing cost for each transaction, the second is related to temporary imbalances between selling and buying volumes and the third is the cost related to asymmetric information, first introduced by Bagehot (1971), which have been further investigated by Copeland and Galai (1983) and Glosten and Milgrom (1985). Bagehot (1971) distinguishes between costs arising from transactions and costs arising from adverse selection. He argues that when the transaction costs are kept constant, a movement of the spread, at a time of information issuance, is represented by an equivalent movement in the adverse selection component. Baily (2005) and Fabozzi et al., (2010) share and accept this view. They present the information-based view of the spread in theory. They describe that one could take for granted that the inventory of the stocks is sufficient and that all fixed and variable costs, such as aforementioned storage and time is zero or that these can be controlled for. The power of the market makers is furthermore ignored and their profit is considered forced down to zero by competitive forces.

Both Stoll (1978) and Kyle (1985) suggest that market makers set their prices as a function of the quantity of the orders by uninformed and informed traders. Since company insiders and other informed

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[19] It should be mentioned that previous research on changes in liquidity and financial microstructure often focus on U.S. exchanges, where the spread is set by a market maker because the exchanges are quote-driven. Nasdaq OMX Stockholm Stock Exchange, which is the basis for this study is order-driven i.e. the trade is handled electronically and it is the investors' limit orders that determine the spread. However, order-driven markets often operate with market makers. These brokers are bound to quote bid- and ask prices at all times. This is to ensure trading in situations were there are no matching limit and market orders. On the Stockholm stock exchange trading is organized so that the investors limit orders are placed to exchange member firms. These firms can both place orders as brokers to the central order book for their customers and for themselves. Thus, the firms act as market makers and carry inventory but they are not obligated to quote prices (Hollifield et al., 2004). Thus, the spread is applicable to the Swedish exchange.

[20] The market maker carries an inventory of stock in both long and short positions. A long position is simply when a stock is bought on a speculation in increased price movement. A short positions refers to the opposite, namely the position is entered because the trader speculates in a price down movement. Here the trader intends to profit from the down movement since he or she has borrowed the shares (short), which directly were sold on the market and will be bought back and hopefully returned to the lender at a lower price (Berk & DeMarzo, 2009).

traders generally have more information about the value of the stock than the market maker, he or she would be expected to incur losses if entering in such a transaction. Therefore the cost of asymmetric information is represented by the expected loss to such an informed trader per trade. The market makers will probably widen the spread if they find themselves to be in such an information disadvantage to the trader on the opposite side of the transaction (Kyle, 1985). When the risk of a stock rises Kim and Verrecchia (1994) argue that the market makers will increase the spread because of two reasons, firstly they will experience a difficulty in the trading of the stock and because of this they will tackle this increased cost of inventory with an increased spread. Secondly, increased risk in the stock might give an indicator of an escalated interest by informed traders thus bringing the market makers into an informational disadvantage, which thus will cause the market maker to increase the spread and its adverse selection component. Huang and Stoll (1997) examined this theory in practice and found evidence for it and thus accepted the adverse selection component and its cost as a part of the Bid-Ask spread.

There are studies were the adverse selection component of the bid-ask spread (ASC-spread) are isolated and used together or without the bid-ask spread as a whole, as a proxy for information asymmetry (Brennan and Subrahmanyam, 1996; Armstrong et al., 2010). The ASC-spread is in practice isolated from the Bid-Ask spread by examining how unexpected order flows affect the bid and ask prices of the stock. Madhavan et al., (1997, Prior literature e.g., Greene and Smart, 1999) also use the ASC-spread as a proxy. To be able to compute the variable they use a complex algorithm, which is based upon intra-day stock data. Armstrong et al., (2010) use the methodology used by Madhavan et al., (1997) and are able to estimate the ASC-spread with day-by-day and quote data collected from the Institute for the Study of Security Markets and the Trades and Automated Quotes database provided by the New York stock exchange. With an algorithm with a five second lag they determine the direction of the trades and are later able to complete the data using another algorithm. Madhavan et al., (1997) mention that if the ASC-spread is measured accurately it will become a less noisy proxy for information asymmetry than the Bid-Ask spread itself, but it shall also be added that it is a very time consuming and complex methodology, which also requires adequate data.

With these theories and practical evidence as a foundation the Bid-Ask spread was chosen to serve as one of the proxies for information asymmetry in the capital market and the cost of equity. By examining the Bid-Ask spread and the recognized intangible assets separate from goodwill in business combinations a measurement can be made possible if there is a correlation between the two variables. The excepted outcome of such a measurement is that an increased reporting of specific intangible assets in business combinations (increased transparency) will be negatively correlated with the Bid-Ask spread (i.e. the information asymmetry and the cost of equity).

In order to compare the spreads between firms, the difference between the bid- and ask price should be measured and expressed as a percentage, i.e. a Relative Bid-Ask spread (Roll, 1984). The formula presented above was thus used to calculate the spread for every participating firm in this study. The spread was calculated from the closing bid and ask prices for every firm once a month on the 10th [21], for every year. The mean of these twelve observations were then calculated for every firm per year to serve as that firm's Bid-Ask spread for that year. The formula is previously used in a variety of studies (see for example; Mclnish & Wood, 1992; Greenstein & Sami, 1994; Chung et al., 1999).

3.9.1 Kruskal-Wallis test

The two above explained variables, share of intangible assets and the Bid-Ask spread were initially tested in a Kruskal-Wallis test. The observations were divided into seven groups with intervals for the proportion for the intangible assets. For example, in the range of 1-20% the acquisitions where it has been accounted for that much identified intangible assets separate from goodwill were categorized. The groups were thus 0%, 21-40%, 41-60%, 61-80%, 81-99%, and 100%. The reason for this classification is that the authors of this thesis wish to see the extreme values in separate groups. Through this grouping, there is an opportunity to see how the various groups differ. Hence, those acquisitions where there was no reported identified intangible assets at all in to those acquisitions where identified intangibles were recognized to a certain extent, and finally the acquisitions where the identified intangibles separate from goodwill were one hundred percent.

By this grouping it was then made possible to allocate the bid-ask spreads that belonged to the acquiring companies. The Bid-Ask spread was then sorted from the highest to the lowest value and was then given a rank value. In order to exhibit a statistically ensured result of the Kruskal-Wallis test the significance level of 5 percent was selected.

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[21] The reason why the 10th is used as the observation day is simply because that this was the winning day of the days of the month, when the days of a month were drawn by chance. In cases where the stock market was closed on the 10th the next following trading day was used.

3.9.2 Multiple linear regression

After the first Kruskal-Wallis test a Multiple linear regression was conducted. In the regression the Bid-Ask spread was used as the dependent variable and the share of intangible assets as one of the independent variables. This is simply to examine if the share of intangible assets can explain the size of the spread. Since the spread is dependent on several factors, other variables were included in the regression as well. This kind of testing is not made possible through a Kruskal-Wallis test since it cannot include several independent variables. In order to exhibit a statistically ensured result of the Multiple linear regression a significance level of 5 percent was selected.

According to Aczel and Sounderpandian (2006), the distribution of the observations being tested in the regression should be normally distributed. This is simply because the test is based on that the variables used in the model are normally distributed when trying to measure correlation (parametric test). If the variables used in the model are not normally distributed, the model loses some of its explanatory power. Thus, before the regression, the test's variables was analysed through a histogram in SPSS in order to control the variables' distribution. Some variables were clearly not normally distributed since they were positively skewed, Share of intangible assets and Bid-Ask spread being two of them. Skewed variables can according Aczel and Sounderpandian (2006) be transformed by taking out the natural logarithm of the variable. This is to present a more normally distributed population. Using SPSS, this was done and thus the previously positive skewed variables presented a more normal distribution curve. Since it is not possible to take out the natural logarithm for variables that have the value of 0 the authors solved this problem by simply adding a 1 to every observation in that variable, since every observation was assigned the same number the outcome of the regression is not effected (Aczel & Sounderpandian, 2006). The variables that were adjusted in this way are simply referred to as logged or log variables further on in the thesis.

Before the test was conducted the authors also adjusted for outliers. An outlier is an observation that differs significantly from other observations. If the results are significantly affected by a few outliers, this should be noted and addressed (Newbold et al., 2010). The adjustment was subsequently implemented in SPSS.

The possibility of an independent variable to strengthen the prediction of the dependent variable is not only related to its correlation with the dependent variable, but also the correlation of the additional independent variables in the regression equation. If the independent variables correlate perfectly the model cannot be estimated. In the presence of multicollinearity the variables can cancel each other out. But the authors have chosen not to examine if there exists multicollinearity in the regression, since the variables used in the regression are generally accepted and are used in similar studies published in well-known journals.

3.9.2.1 Additional independent variables

3.9.2.1.1 Financial microstructure: Market makers order and inventory costs and Stock price.

Formula: Stock Return

$$Stock\ Return = \left(\frac{P_t + Div_t}{P_{t-1}}\right) - 1$$

$P = Price$
$Div = Dividends$

Coller and Yohn (1997) have in their study adopted an information based view of the Bid-Ask spread and state that it is of importance to control for the market makers order and inventory costs. This is conducted by calculating the variance of the stocks return on a monthly basis to serve as an independent variable. Coller and Yohn (1997) describe that the stock return has a positive affect on liquidity i.e. the Bid-Ask spread. This opinion is shared and evidenced by Amihud and Mendelson (1986), Datar et al. (1998) and Florackis et al. (2011). Thus, in a similar manner the authors of this thesis have used the standard deviation of the stock returns to function as one of the independent variables in the regression. The price of the stock has been obtained on the 10th every month (only in December for the year 2004) for every firm for the years 2004-2012. The dividends have been obtained for every firm for the years 2005-2012. The formula above was then used to calculate the Stock Return for each month of the year that the study intended to investigate. The standard deviation was calculated for these observations in Excel with the function STDEV.s.

Further on Welker, (1995), Coller and Yohn (1997), and Chen et al., (2007) describe that the stock price is correlated with the spread. Stocks with high prices simply have a larger spread than the stocks with a lower prices, this is simply in line with the theory of liquidity since high price stocks are often seen as

stocks with low liquidity. Thus it is of importance to control for the stock price as an independent variable when the Bid-Ask spread serves as a dependent variable in a regression. However, when the spread is expressed as in this study by a relative Bid-Ask spread the stock price is neutralized. Therefore there is no need for this control since the relative spreads make it possible to compere the spreads between firms. It shall also be stated that the stock price is heavily dependent on the specific firm's politics concerning equity issuance, which hampers the comparability between firms. Simply because the number of issued shares, and the type of those shares, to some extent regulate the price[22].

Despite this, the stock price has been chosen to play a role as one of the independent variables in the regression simply because it could still have a relation with the spread, simply that of, "highly" expensive shares will have a higher spread, thus a lower liquidity.

3.9.2.1.2 Investors expectations.

Formula: Return on Assets

$$Return\ on\ Assets = \frac{Net\ income}{Total\ Assets}$$

Amihud and Mendelson (1986) found in their empirical study that there is a statistically significant relationship between expected return from investors and bid-ask spreads. As mentioned earlier, research has shown that increased transparency in the financial reporting contributes to a reduced estimate of the risks projected by investors concerning an asset's yield or dividend distribution (see, for example, Klein & Bawa 1976; Coles & Loewenstein, 1988; Coles et al., 1995; Clarkson et al., 1996). There is simply a greater uncertainty when the information available is low. At a higher level of uncertainty and when the risk is not diversifiable, investors demand compensation for this risk factor (Botosan, 1997). The average return on assets over a five year period, was used as a approximation for risk, hence the investors expectations, and corporate performance in the study conducted by Leuz and Verrecchia (2000). Here the assumption was made that all the assets of a company contribute to the company's profits. By this measure one is able to analyze how well the company transforms invested capital into earnings. That is, how well the management uses the assets they have at their disposal to generate profits (Alexander et al., 2011). In this study, the authors like Leuz & Verrechia (2000) adopted the return on assets as an independent variable in the regression. By using the formula above the variable was obtained annually at the year ending for every company included in the study.

Formula: Return on Equity

$$Return\ on\ Equity = \frac{Net\ Income}{Shareholder\ Equity}$$

For the same reasons return on assets was included in the study the authors chose to include return on equity (RoE). The ratio simply measures the ownership interest's rate of return, moreover the firms efficiency that from each unit of shareholders' equity, generate profit (Berk & DeMarzo, 2009). The RoE was collected for every firm, annually at year ending to be included in the regression as an independent variable.

3.9.2.1.3 Overall disclosure level

As the amount of total disclosed information by companies and accounting transparency is positively correlated[23], it is necessary to control for the total disclosed information when one intends to investigate the isolated effect of transparency in terms of compliance with a specific standard. Runesson (2010) presents a similar discussion when she examines the underlying assessments done by preparers in compliance with IFRS. The author uses the total number of pages in the financial statements as a proxy for the total disclosure level. In a similar manner the pages in the firms' annual reports were used as a independent variable in this study. Here, the assumption has been made that the page count correlates with the quality of the reports. In such an approach, it may be that this does not correspond to individual observations, but because this research aims to identify underlying trends and then draw generalized

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[22] Equity/Outstanding shares = Price per share.
[23] This returns to the discussion presented above under the topic *2.1.1 Disclosure quality metrics in previous research,* namely that more information (high disclosure) is better than less, and when more good quality information is presented to the investors this gives insight for the investors into the firm's financial figures and transactions (transparency).

conclusions it is assumed in this study, like Runesson (2010) and others, that there exists a correlation between quantity and quality of the financial information. This positive correlation has been demonstrated in previous empirical studies (Botosan, 1997). To otherwise evaluate the quality of the financial statements, than by a quantitative approach, says Botosan (2004), creates problems when people who are working to analyze the reports hamper the measurement with subjective assessments. Moreover, the starting point for a qualitative assessment is that all stakeholders of the financial statements possess similar preferences, which Smith (2006) explains, it is not always true. There is also research showing that investors evaluate and analyze the financial statements differently (Botosan, 1997). Simply, when only the number of pages of the financial statements is included in the study, as one of the independent variables, it is not taken into account what the pages actually inform about.

3.8.2.1.4 Firm size
Formula: Market Value

$$Market\ Value = Share\ Price \times Outstanding\ shares$$

When trying to examine accounting transparency and its alleged correlation with the stock market it is of importance to implement a control for firm size, simply because the amount of information and accounting transparency is positively correlated with the size of the companies (Lang & Lundholm, 1993; Botosan & Plumlee, 2002). One reason for this is simply something that could be seen as similar to economies of scale, if the cost for disclosing, hence the cost for preparing and releasing the information, is somewhat fixed, the larger companies will have to spend less time on disclosure activities in proportion to the information that is dispersed on the market. From a transaction cost point of view, it is also of great importance for large firms to disclose a large share of information to the market since it is unbeneficial for the firm if the investors can trade on private information. Larger firms also have greater sensitivity to political factors and costs, are herein referred to as the exposure to third parties (Godfrey & Jones, 1999). These companies often experience relatively greater demands on themselves from the public than smaller firms. Lang & Lundholm (1993) describe that one appropriate way to measure the size of the companies is to look to the market value of the equity. Or one could simply see to the natural logarithm of the same value, proposed by Leuz & Verrecchia (2000). Another way is to see to the natural logarithm of the total assets of the firm (Leuz & Schrand, 2009). Since this study involves the capital market the authors saw it appropriate to use the market value of equity and not the book value of their total assets. As described above under the topic *3.8.2 Multiple linear regression* some of the variables included in the regression turn out to be skewed, market value of equity being one of them. Therefore, the outcome is such that the natural logarithm of the market value, has been used, similar to the suggestions given by Leuz & Verrecchia (2000). The market value has been obtained for every firm once a year at year ending and later on logged in SPSS as described above.

3.8.2.1.5 Disclosure incentives; Capital market transaction theories; Financing needs, Globalization, Ownership concentration, and Market premium.

The theories presented under this section all have to do with the market imperfection, information asymmetry. Firms simply base their disclosure judgements in an attempt to combat adverse selection and agency problems. When trying to examine compliance with a specific standard, hence transparency level, and its "isolated" relationship with the information asymmetry one simply has to control for other incentives to disclose from the perspective of the firm. To simply, if the multiple linear regression was tested without these independent variables described below, and the outcome would have been a significant correlation between the study's variable intangible assets and the proxy for information asymmetry and cost of equity, it would have been hard for the authors to claim that the compliance with IFRS 3, the separation of intangible assets from goodwill, alone are correlated with the cost of equity. This is because the variable intangible asset would not only have been a variable for what it is actually testing but could also have been seen as variable for the overall disclosure. The authors simply have to control for incentives for overall disclosure that are well known both in theory and in practice.

Formula: Debt to Equity ratio

$$Debt\ to\ Equity\ ratio = \frac{Debt}{Common\ Equity}$$

If debt is chosen as the financing of a firm's operation the company will have incentives from a basic agency theoretical framework to disclose information to their creditors and in that way showing that they are creditworthy in the hope of getting a cheaper financing. Which will probably happen if the

creditor finds the risk of default low after having seen the information and believed it to be correct and trustworthy[24] (Sweeny, 1994; DeAngelo et al., 1994; Sengupta, 1998). There are several proxies for financing needs presented in the literature. One of them being the debt to equity ratio (Debt/Equity). The higher the ratio, the more dependent the company is of its creditors (Lang & Lundholm, 1993; Eng & Mak, 2003; Leuz & Schrand, 2009). The debt to equity has thus been obtained once a year for every firm included in the study to serve as an independent variable.

Home bias, is the reason for why globalization is considered to be a factor for an increased level of disclosure. It is the cognitive bias in which investors merely prefer companies that they know and exist in their close geographic proximity. For example, it has been proven that investors value domestic earnings higher than foreign ones (Webb et al., 2008). For companies this means, that in order to overcome this information barrier between them and foreign investors, companies simply will have to increase their amount of information to the market (Webb et al., 2008). One way of controlling for globalization in an empirical study is to use the foreign exchange listing as a proxy (Hope, 2003). The foreign exchange listing, in absolute terms, has thus been obtained for every firm once a year to be included as a control variable in the regression.

Leuz and Verrecchia (2000) suggest that ownership concentration indicates the presence of insiders. These sit on a higher level of information about the company than the usual market participant. Consequently, a lower ownership concentration, or higher ownership dispersion, would increase and worsen the information asymmetry in the capital market, which will result in the stimulation of an increased release of information from the firms' in order to try to counteract this phenomenon. Leuz and Verrecchia (2000) present that the percentage of widely hold shares can be used as a proxy for ownership dispersion. Rehnberg (2012) cites Landry & Callimaci (2003) who present that high ownership concentration can be measured as where an individual share holder owns more than 10% of the votes of the company. Furthermore Rehnberg (2012) presents that Banning (1999) theorizes that high concentration of ownership cannot be considered in companies where no single party owns more than 5% of the stake in the company. By looking at the five largest shareholders and relating them in size to the rest Rehnberg (2012) is able to check for ownership dispersion in her study. Since the data in Datastream was somewhat inadequate the choices, for the authors, for this variable were limited. The authors settled for a variable where the companies' largest shareholders ownership was expressed in percentage to the outstanding shares. The only demarcation conducted was the deleting of the values for the firms that had 4,99% and less, in line with the theory presented by Banning (1999). Beyond that no other classification in terms of two groups being low and high ownership concentration firms was made. The variable has been used as a regular independent variable, where for example 17% of the total shares is a lower ownership dispersion firm than a firm where the owner had only 11% of the total stock consistent with the discussion presented by Leuz & Verrecchia (2000). The data has been obtained annually for every participating company in this study.

Formula: Market to Book ratio

$$Market\ to\ Book\ ratio = \frac{Book\ Value\ of\ firm}{Market\ Value\ of\ firm}$$

Formula: Dividend Yield

$$Dividend\ Yield = \frac{Annual\ Dividends\ Per\ Share}{Price\ per\ Share}$$

Armstrong et al., (2010) have in their research paper used a business economics interpretation of the Tobin's Q[25] namely the proxy, market to book ratio. When a company has a large difference between the book value of the company and the value of the company on the market there exists a so-called market premium. Armstrong et al (2010) show that companies that have a large gap in this valuation have a higher cost of equity and thus lower growth opportunities. This is because of the information asymmetries that exist between the company and the market. These companies are further explained to undertake a lower proportion of new investments and also a lower distribution of dividend yield to its shareholders, than

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[24] It is the "same" theory for the financing from the capital market (equity/ security issuance). The foundation of this study. By disclosing information the information asymmetry decreases between the market participants, lowering the unknown for the investors and therefore lowering their risk in the transaction (buying the share) which will cause them to refine their expectations of the firm and demanding a lower return (Cost of equity for the firm) from the company for their risk taking. This will improve trade (the price equilibrium of demand and supply of securities hence liquidity) and the allocation of capital.

[25] The ratio between the market value and the replacement value of the same physical asset is referred to as the macroeconomic definition Tobin's Q. Replacement, also referred to as the reproduction cost, namely, the price for the newly produced commodities in the market (Tobin, 1969).

companies with low information asymmetry in the market. This simply complies with the capital allocation theory discussed above in this paper. This kind of market imperfection hampers economic growth. Thus it has been chosen to control for market to book value and dividend yield in the regression since they market to book value and dividend yield is expected to be positively respectively negatively correlated with the measure Bid-Ask spread. Namely that, when there is a high market premium in the market for a firm and a low dividend yield from the aforementioned bid-ask spread it should be relatively high. The market to book value has been collected the 10th every month annually for the firms in the study. Then the yearly mean value for these observations was calculated. Finally the dividend yield has been collected annually for every firm in the study.

Table 3.3: Variable summary for the first multiple linear regression

Proxy	Abbreviation	Proxy for	Type of variable in regression	Theory	Expected correlation with the Bid-Ask spread
Bid-Ask spread (Logged)		Information asymmetry hence the cost of equity.	Dependent	Economic theory	-
Share of Intangible assets (Logged)	INTA	Transparency by compliance with the IFRS 3	Independent	Transparency/ Disclosure level	Negative
Stock Return (Logged)	STRET	Market makers order and inventory costs	Independent	Financial microstructure	Negative
Stock price (Logged)	SPRI	-	Independent	Financial microstructure	Positive
Return on Assets	RoA	Investor expectations	Independent	Investment	Positive
Return on Equity	RoE	Investor expectations	Independent	Investment	Positive
Number of pages in annual report (Logged)	PAG	Overall disclosure level	Independent	-	Negative
Market value (Logged)	MV	Firm size	Independent	Incentives to Disclose	Negative
Debt to Equity ratio	DE	Financing needs	Independent	Incentives to Disclose	Positive
Share ownership concentration	SOC	Ownership concentration	Independent	Incentives to Disclose	Negative
Foreign exchange listing (Logged)	FEXL	Globalization	Independent	Incentives to Disclose	Positive
Market to Book value of the firm (Logged)	MVBV	Market premium	Independent	Incentives to Disclose	Positive
Dividend Yield (Logged)	DYIE	Investor expectations	Independent	Incentives to Disclose	Negative

Formula: Multiple linear regression with Bid-Ask Spread as dependent variable

$$ln(Bid - Ask\ spread)_i = \gamma_0 + \gamma_1 ln(INTA)_i + \gamma_2 ln(STRET)_i + \gamma_3 ln(SPRI)_i + \gamma_4 RoA_i + \gamma_5 RoE_i + \gamma_6 ln(PAG)_i + \gamma_7 ln(MV)_i + \gamma_8 DE_i + \gamma_9 SOC_i + \gamma_{10} ln(FEXL)_i + \gamma_{11} ln(MVBV)_i + \gamma_{12} ln(DYIE)_i$$

Based on the above-presented information the regression equation used, becomes as presented above.

3.10 Turnover by Share Volume as a proxy for the Cost of Equity

Turnover by share volume or also known as the trading volume plays a critical role in today's financial markets. It facilitates the price formation process, enables the sharing of risks between investors and ensures that companies are able to raise the necessary capital needed for investment (Kyle, 1985). Turnover by share volume partially measures stock liquidity, just like the Bid-Ask spread, and the investors willingness to trade (Datar et al. 1998). Because of this, it also can be used as a proxy for asymmetric

information (Leuz & Verrecchia, 2000; Brennan & Tamarowski, 2000). A low level of liquidity will make the stock harder to trade, this will put fear into investors because it can make it difficult to sell the shares and transform them into cash the moment it is desired. In times of low liquidity, the risk of carrying inventory escalates, the same applies to the risk of trading with more informed traders and the order processing cost (Brennan & Tamarowski, 2000). Even though it is considered to be a somewhat noisy proxy, it is thus considered to be able to capture adverse selection and thus imply the presence of information asymmetry.

Due to this theory, the authors have also chosen to test the regression model with the Turnover by share volume as a dependent variable. Since both the Bid-Ask spread and Turnover are measures for liquidity, the regression includes the same independent variables in the regression as before, when the Bid-Ask spread served as a dependent variable, since they even in this regression might be able to explain the dependent variable. The Turnover by share volume was obtained for every participating company the 10th every month every year (2005-2012). These twelve observations times eight were then calculated to get an average turnover per year for every firm.

3.10.1 Kruskal-Wallis test

The two variables, share of intangible assets and the Turnover by share volume were before the second conducted regression model initially tested in a Kruskal-Wallis test. The observations were divided into seven groups with intervals for the proportion for the intangible assets. For example, in the range of 1-20%, the acquisitions were it has been accounted for that much identified intangible assets separate from goodwill, were categorized. The groups were thus 0%, 21-40%, 41-60%, 61-80%, 81-99%, and 100%.

By this grouping it was then made possible to allocate the Turnover by share volyme that belonged to the acquiring companies. The turnover was then sorted from the highest to the lowest value and was then given a rank value. In order to exhibit a statistically ensured result of the Kruskal-Wallis test the significance level of 5% was selected.

3.10.2 Multiple linear regression

Formula: Multiple linear regression with Turnover by Share Volume as dependent variable

$$ln(Turnover\ by\ Share\ Volume)_i = \gamma_0 + \gamma_1 ln(INTA)_i + \gamma_2 ln(STRET)_i + \gamma_3 ln(SPRI)_i + \gamma_4 RoA_i + \gamma_5 RoE_i + \gamma_6 ln(PAG)_i + \gamma_7 ln(MV)_i + \gamma_8 DE_i + \gamma_9 SOC_i + \gamma_{10} ln(FEXL)_i + \gamma_{11} ln(MVBV)_i + \gamma_{12} ln(DYIE)_i$$

The regression formula presented above is the same as previously in the study, as to one thing, namely that the Turnover by share volume now serves as a proxy for the cost of equity (dependent variable) instead of the previously used Bid-Ask spread.

3.11 Share Price Volatility as a proxy for the Cost of Equity

A response to the incomplete information i.e. uncertainty is the stock price volatility. Volatility is thus a market imperfection and is the standard deviation of a stock's price over a certain period. Excessively large price changes in a firm's stock are unsound and totally irrational. These fluctuations simply reflect the investors' disunity, fear, and reaction to abrupt disclosed information. That is why volatility can be considered to be as measure of asymmetric information in the stock market. Lang and Lundholm (1996) show that the volatility is improved during an increased level of firm disclosure and say that this is a clear evidence of asymmetric information. Lev (2001) and Hand & Lev (2003) entitle that a lack of information causes increased stock price fluctuations i.e. volatility, which will result in a misallocation of capital in the financial market and undeserved losses for investors. High volatility in a share represents a high risk, i.e. the probability of a certain price outcome becomes hard to to determine. This means that investors will demand a much higher return (Cost of equity for the firm) from companies with high volatile stocks than from those that have low volatility (Botosan & Plumlee, 2002).

With this in mind, the authors have also chosen to test the regression model with the Share price volatility as a dependent variable. The regression will include the same independent variables as before, when the Bid-Ask spread and Turnover by share volume served as dependent variables, since they just like before might be able to explain the dependent variable. The volatility for every participating firms' shares was collected once a year at year ending to serve as dependent variable similar to the methodology presented by Leuz & Verrecchia (2000).

3.11.1 Kruskal-Wallis test

The share of intangible assets and the Share price volatility were before the third conducted regression model initially tested in a Kruskal-Wallis test. The observations were divided into seven groups with intervals for the proportion for the intangible assets. For example, in the range of 1-20%, the acquisitions were it has been accounted for that much identified intangible assets separate from goodwill, were categorized. The groups were thus 0%, 21-40%, 41-60%, 61-80%, 81-99%, and 100%.

By this grouping it was then made possible to allocate the Share price volatility that belonged to the acquiring companies. The volatility was then sorted from the highest to the lowest value and was then given a rank value. In order to exhibit a statistically ensured result of the Kruskal-Wallis test the significance level of 5% was selected.

3.11.2 Multiple linear regression

Formula: Multiple linear regression with Share Price Volatility as dependent variable

$$Share\ Price\ Volatility_i = \gamma_0 + \gamma_1 ln(INTA)_i + \gamma_2 ln(STRET)_i + \gamma_3 ln(SPRI)_i + \gamma_4 RoA_i + \gamma_5 RoE_i + \gamma_6 ln(PAG)_i + \gamma_7 ln(MV)_i + \gamma_8 DE_i + \gamma_9 SOC_i + \gamma_{10} ln(FEXL)_i + \gamma_{11} ln(MVBV)_i + \gamma_{12} ln(DYIE)_i$$

The regression formula presented above is the same as previously in the study, as to one thing, namely that the Share price volatility now serves as a proxy for the cost of equity (dependent variable) instead of the previously used Bid-Ask spread and Turnover by share volume.

Table 3.4: Variable summary for the second and third multiple linear regression

Proxy	Abbreviation	Proxy for	Type of variable in regression	Theory	Expected correlation
1. Turnover by Share Volume (Logged) 2. Share Price Volatility		Information asymmetry hence the cost of equity.	Dependent	Economic theory	-
Share of Intangible assets (Logged)	INTA	Transparency by compliance with the IFRS 3	Independent	Transparency/ Disclosure level	1.Positive/ 2.Negative
Stock Return (Logged)	STRET	Market makers order and inventory costs	Independent	Financial microstructure	Positive
Stock price (Logged)	SPRI	-	Independent	Financial microstructure	1.Negative/ 2.Positive
Return on Assets	RoA	Investor expectations	Independent	Investment	1.Negative/ 2.Positive
Return on Equity	RoE	Investor expectations	Independent	Investment	1.Negative/ 2.Positive
Number of pages in annual report (Logged)	PAG	Overall disclosure level	Independent	-	1.Positive/ 2.Negative
Market value (Logged)	MV	Firm size	Independent	Incentives to Disclose	Positive
Debt to Equity ratio	DE	Financing needs	Independent	Incentives to Disclose	1.Negative/ 2.Positive
Share ownership concentration	SOC	Ownership concentration	Independent	Incentives to Disclose	1.Positive/ 2.Negative
Foreign exchange listing (Logged)	FEXL	Globalization	Independent	Incentives to Disclose	Positive
Market to Book value of the firm (Logged)	MVBV	Market premium	Independent	Incentives to Disclose	1.Negative/ 2.Positive
Dividend Yield (Logged)	DYIE	Investor expectations	Independent	Incentives to Disclose	1.Positive/ 2.Negative

4. EMPIRICAL RESULTS

The chapter presents the results of the study. Initially, this chapter describes how the examined companies have identified and accounted for intangible assets in business combinations. Further exhibited are the non-parametric tests performed to see if well-known incentives for disclosure, within the information asymmetry framework, can explain the findings. The chapter ends with the empirical results from the statistical tests conducted involving the three proxies for the cost of equity, arising from capital market information asymmetry.

4.1 Descriptive data: Recognition of specific intangible assets in business combinations

4.1.1 The years 2005 to 2007 and 2008 to 2012
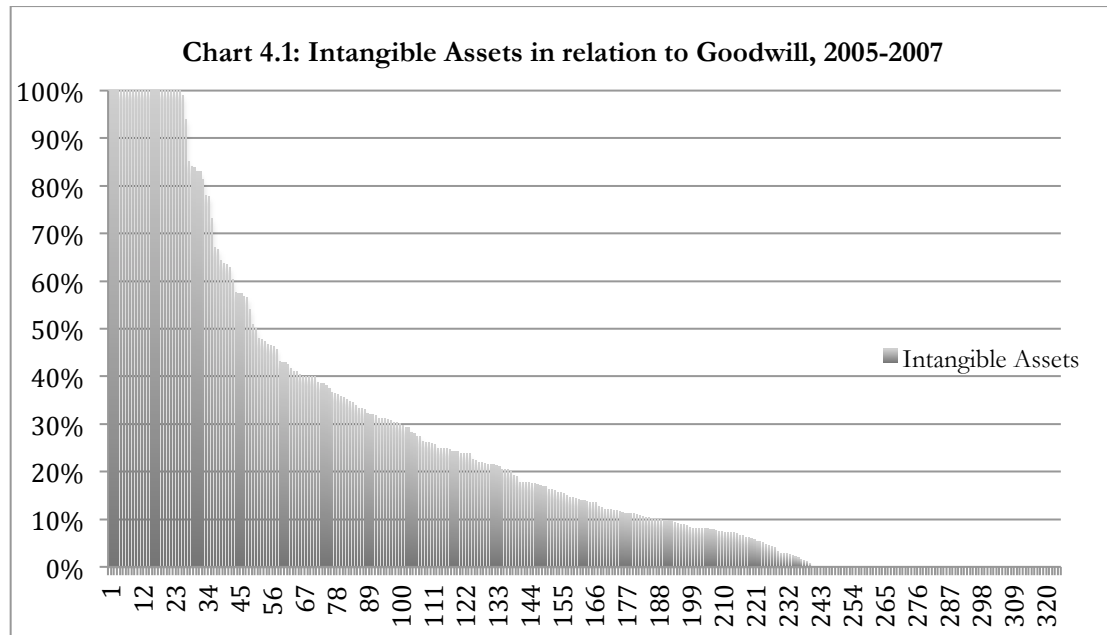
Y-axis: Share of Intangible Assets in % of total Intangible Assets and Goodwill
X-axis: Number of Acquisitions (Purchase Price Allocations)
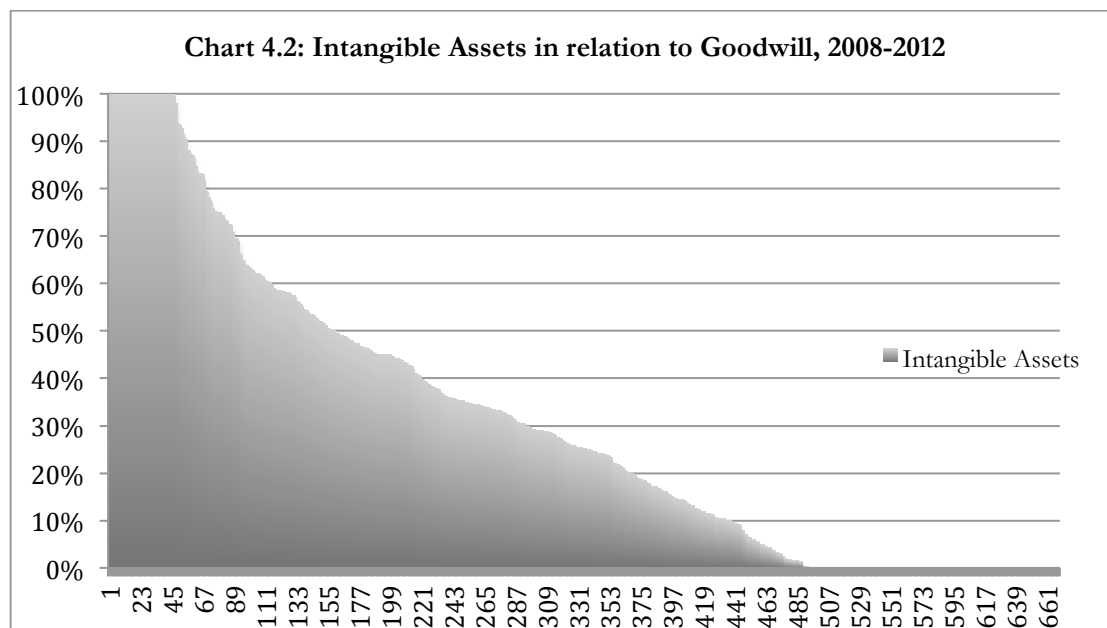
Y-axis: Share of Intangible Assets in % of total Intangible Assets and Goodwill
X-axis: Number of Acquisitions (Purchase Price Allocations)

Chart 4.1 and Chart 4.2 present how the examined companies listed on the Stockholm Stock Exchange Small, Mid and Large Cap lists, have identified acquired surplus values as either intangible assets or goodwill in their acquisitions during the years 2005-2007 and 2008-2012.

Chart 4.1 shows that only 51 PPA:s of the 325 PPA:s in total, identify 50% specific intangibles or more. In this interval 25 PPA:s are reported as 100% and the remaining are reported between 50 to 99%. There were a total of 85 PPA's where no recognition of intangible assets was conducted.

In the Chart 4.2 there are 162 PPA:s of the 670 PPA:s which are reported as 50% or more and 47 of them are reported as 100%. In 177 PPA:s there were no recognized intangible assets at all.

4.1.2 The aggregated picture during the years 2005 to 2012
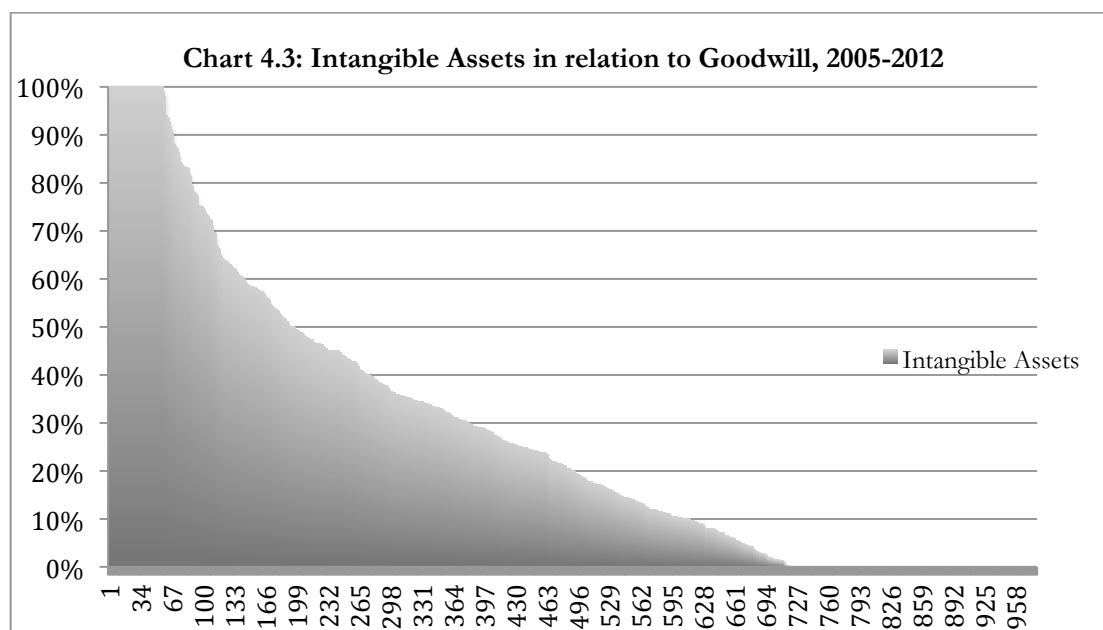
Chart 4.3: Intangible Assets in relation to Goodwill, 2005-2012

Y-axis: Share of Intangible Assets in % of total Intangible Assets and Goodwill
X-axis: Number of Acquisitions (Purchase Price Allocations)

Table 4.1: Share of Intangible Assets in relation to Goodwill divided in groups of the recognized percentage, 2005-2012

Share of Intangible Assets in relation to Goodwill in %	Number of Acquisitions
0	262
1-20	235
21-40	216
41-60	128
61-80	50
81-99	32
100	72
Total	995

Chart 4.3 and Table 4.1 present how the intangible assets have been reported for every purchase price allocation by the companies listed on the Stockholm Stock Exchange Small, Mid and Large Cap lists during the years 2005 to 2012[26]. Noteworthy is that intangible assets in 497 acquisitions are reported as 20% or less but since the dividing line for the majority is 498, the majority of the acquisitions adds up to a reporting of intangible assets separately from goodwill to 40% or less. The largest group is that one with 262 acquisitions with approximately one fourth of the total PPA:s where intangible assets are not reported at all and the surplus value is completely assigned to goodwill. It is also worth mentioning that there are 72 acquisitions where intangibles have been accounted for as 100% and only 32 acquisitions where the reporting is between 81 to 99%. Furthermore, there are 213 PPA:s where intangibles are reported as 50% or more, and 141 PPA:s of them are reported between the interval 50-99%.

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[26] Keep in mind, as a reader, that the Charts exhibit data from different amount of years.

4.2 Non-parametrical testing of the difference in recognition of intangible assets

Table 4.2: Kruskal-Wallis test based on the recognition of Intangible Assets in relation to Goodwill, for the years, 2005-2012

Year	N	Mean Rank				Rank of Intangible Assets
2005	79	460,19	Chi-Square			25,863
2006	91	461,19	df			7
2007	155	458,12	Asymp. Sig.			0,001
2008	169	446,82				
2009	106	558,52	Monte Carlo sig.			0,000
2010	137	521,89		99% Conf. interval	Lower Bound	0,000
2011	158	520,72			Upper Bound	0,001
2012	100	576,91				
Total	995					

The above-presented table 4.2 shows the Kruskal-Wallis test performed to investigate differences in the recognition of intangible assets between the years examined in this study. In the test the 995 PPA:s were examined and their rank values where between 131,5 and 959.5. The first group, the one that contained all the acquisitions in 2005 received a mean rank of 460.19 and contained 79 acquisitions. In similar manner, the groups between 2006 - 2012 received the rank averages of 461.19, 458.12, 446.82, 558.52, 521.89, 520.72, and 576.91.

     The test has a significance of 0.001, because it is below the required value of 0.05, which demonstrates that the identification and reporting of intangible assets differ between the investigated years. Thus, the hypothesis $H_{1.1}$, is accepted. Since the Monte Carlo significance of the test is close to the significance value, there is no additional requirement to consider this value. The fact that the 99% confidence interval is between 0.000-0.001 and not exceeding 0.05 indicates that in 99 cases out of 100, the significance value is less than 0.05, which ensures the result.

Table 4.3: Kruskal-Wallis test based on the recognition of Intangible Assets in relation to Goodwill by Cap listing

Cap	N	Mean Rank				Rank of Intangible Assets
Small Cap	277	392,60	Chi-Square			35,360
Mid Cap	218	425,01	df			2
Large Cap	408	506,75	Asymp. Sig.			0,000
			Monte Carlo sig.			0,000
				99% Conf. interval	Lower Bound	0,000
Total	903				Upper Bound	0,000

Table 4.3 presents the result from the Kruskal-Wallis test conducted in order to examine if there exists any differences between the recognition of intangible assets by Cap listing. In the test the 903 PPA:s were examined and their rank values where between 120.5 and 872.5. The first group, the one that contained all the acquisitions on the Small Cap list received a mean rank of 392.60 and contained 277 acquisitions. In similar manner, the two groups Mid and Large Cap received the rank averages of 425.01 and 506.75 and contained 218 and 408 acquisitions.

The test has a significance of 0.000, because it is below the required value of 0.05, which demonstrates that the identification and reporting of intangible assets differ between the Cap listings on The OMX Stockholm Stock Exchange, thus, the hypothesis $H_{1.2}$ is accepted. Since the Monte Carlo significance of the test is close to the significance value, there are no additional requirement to consider this value. The fact that the 99% confidence interval is between 0.000-0.000 and not exceeding 0.05 indicates that in 99 cases out of 100, the significance value is less than 0.05, which ensures the result.

Table 4.4: Kruskal-Wallis test based on the recognition of Intangible Assets in relation to Goodwill by Industry Affiliation

Industry	N	Mean Rank				Rank of Intangible Assets
Basic Materials	17	498,26	Chi-Square			39,301
Consumer Goods	70	438,24	df			9
Consumer Services	76	531,59	Asymp. Sig.			0,000
Financials	78	341,66				
Health Care	74	510,84	Monte Carlo sig.			0,000
Industrials	522	518,99		99% Conf. interval	Lower Bound	0,000
Other	16	582,94			Upper Bound	0,000
Technology	92	511,30				
Telecommunications	45	519,89				
Utilities	5	167,20				
Total	995					

Table 4.4 presents the result from the Kruskal-Wallis test conducted in order to examine if there exists any differences between the recognition of intangible assets by industry affiliation. In the test the 995 PPA:s were examined and their rank values where between 131.5 and 959.5. The first group, the one that contained all the acquisitions done by Basic Material companies received a mean rank of 498.26 and contained 17 acquisitions. In similar manner, the firms in the industries, Consumer Goods, Consumer Services, Financials, Health Care, Industrials, Other, Technology, Telecommunications, and Utilities received the rank averages of 438.24, 531.59, 341.66, 510.84, 518.99, 582.84, 511.30, 519.89, and 167.20.

The test has a significance of 0.000, since it is below the required value of 0.05, the test demonstrates that the recognition of intangible assets differs between industries. Thus, the hypothesis $H_{1.3}$ is accepted. The fact that the 99% confidence interval is between 0.000-0.000 and not exceeding 0.05 indicates that in 99 cases out of 100, the significance value is less than 0.05, which ensures the result.

Table 4.5: Kruskal-Wallis test based on the recognition of Intangible Assets in relation to Goodwill by Technology classifications

Technology	N	Mean Rank		Rank of Intangible Assets
High	211	506,16	Chi-Square	0,896
Low	768	485,56	df	1
			Asymp. Sig.	0,344
			Monte Carlo sig.	0,340
			99% Conf. interval — Lower Bound	0,328
Total	979		99% Conf. interval — Upper Bound	0,352

The above-presented table 4.5 shows the Kruskal-Wallis test performed to investigate differences in the recognition of intangible assets between high- and low tech firms. In the test the 979 PPA:s were examined and their rank values where between 129.5 and 945.5. The first group, the one that contained all the acquisitions in High-tech firms received a mean rank of 506.16 and contained 211 acquisitions. The group with the Low-tech firms contained 768 acquisitions are were assigned a mean rank of 485.56.

Since the significance value is required to be below 0.05 and test's value was 0.344, the test demonstrates that the identification and reporting of intangible assets do not differ between the High- and Low tech industries. Thus, the hypothesis $H_{1.4}$ is rejected.

Table 4.6: Kruskal- Wallis test based on the recognition of Intangible Assets in relation to Goodwill, by Purchase price, years 2008-2012

Purchase price SEK	N	Mean Rank		Rank of Intangible Assets
1-99'000'000	408	302,56	Chi-Square	14,331
100'000'000-499'000'000	153	350,71	df	2
500'000'000-	84	371,80	Asymp. Sig.	0,001
			Monte Carlo sig.	0,001
			99% Conf. interval — Lower Bound	0,000
Total	645		99% Conf. interval — Upper Bound	0,001

The above-presented table 4.6 shows the Kruskal-Wallis test performed to investigate differences in the recognition of intangible assets between acquisitions with different purchase prices. In the test the 645 PPA:s were examined and their rank values where between 86.5 and 622. The first group, the one that contained all the acquisitions with a purchase price between 1 and 99 million SEK received a mean rank of 302.56 and contained 408 acquisitions. In similar manner, the other groups received the rank averages of 350.71 and 371.80.

Since the test significance value is below 0.05 with a value of 0.001, the test indicates that there is a difference between the recognition of intangibles between the sizes of the purchase prices. Thus, the hypothesis $H_{1.5}$ is accepted. The fact that the 99% confidence interval is between 0.000-0.001 and not exceeding 0.05 indicates that in 99 cases out of 100, the significance value less is than 0.05, which ensures the result.

Table 4.7: Kruskal- Wallis test based on the recognition of Intangible Assets in relation to Goodwill by Debt to Equity ratio

D/E	N	Mean Rank			Rank of Intangible Assets
0-0,99	306	433,76	Chi-Square		7,447
1-	629	484,66	df		1
			Asymp. Sig.		0,006
			Monte Carlo sig.		0,006
				99% Conf. interval	Lower Bound	0,004
Total	935			Upper Bound	0,008

Table 4.7 presents the result from the Kruskal-Wallis test conducted in order to examine if there exists any differences between the recognition of intangible assets by firms with high and low debt to equity ratio. In the test the 935 PPA:s were examined and their rank values where between 122.5 and 901.5. The first group, the one that contained all the acquisitions done by low debt to equity firms received a mean rank of 433.76 and contained 306 acquisitions. The firms with high debt to equity ratio received the rank average 484.66.

The test has a significance of 0.006, since it is below the required value of 0.05, it demonstrates that the recognition of intangible assets differ between firms with high and low debt to equity ratio. Thus, the hypothesis $H_{1.6}$ is accepted. The fact that the 99% confidence interval is between 0.004-0.008 and not exceeding 0.05 indicates that in 99 cases out of 100, the significance value is less than 0.05, which ensures the result.

4:3 Bid-Ask spread as a proxy for the Cost of Equity

Table 4.8: Median Bid-Ask spread 2005-2012

Small Cap	1,66%
Mid Cap	0,89%
Large Cap	0,28%

The Bid-Ask spreads that were obtained for this study were on average 0,90%. Since the variable Bid-Ask spread proved to be skewed the median was calculated in addition to the mean value and was 0,60%. The lowest observed spread in the study was one from 2012 and was 0,026%. The highest observed value was from 2010 and was 6,07%. The table above presents the median values of the Bid-Ask spreads for the listings on the Stockholm Stock Exchange between 2005-2012.

4.3.1 Kruskal-Wallis test

Table 4.9: Kruskal-Wallis test based on the Bid Ask spread for the classification of Intangible Assets in relation to Goodwill

Share of Intangible Assets in relation to GW (%)	N	Mean Rank				Rank of Bid-Ask spread
0	230	510,97	Chi-Square			81,652
1-20	195	452,86	df			6
21-40	190	378,84	Asymp. Sig.			0,000
41-60	116	298,75				
61-80	45	362,24	Monte Carlo sig.			0,000
81-99	23	341,39		99% Conf. interval	Lower Bound	0,000
100	56	523,57			Upper Bound	0,000
Total	855					

Table 4.9 reveals the result from the Kruskal-Wallis test performed in order to investigate whether there are any differences between the firms' Bid-Ask spreads, dependent on the share of intangible assets they have chosen to recognize for each acquisition. The test contained 855 observations and their rank values differed between 1.5 and 855. The first group contained acquisitions where the share of intangible assets was 0% and was assigned a mean rank of 510.97. In similar manner, the other groups received the rank averages of 452.86, 378.84, 298.75, 362,24, 341.39 and 523.57.

The test had a significance of 0.000, since it is below the required value of 0.05, it demonstrates that the size of the Bid-Ask spread for firms differ between acquisitions with different shares of intangible assets. Thus, the hypothesis $H_{2.1}$ is accepted. The fact that the 99% confidence interval is between 0.000-0.000 and not exceeding 0.05 indicates that in 99 cases out of 100, the significance value is less than 0.05, which ensures the result.

4.3.2 Multiple linear regression

Table 4.10: Descriptive Statistics and Coefficients

Multiple linear regression formula:

$$Ln(Bid - Ask\ spread)_i = \gamma_0 + \gamma_1 ln(INTA)_i + \gamma_2 ln(STRET)_i + \gamma_3 ln(SPRI)_i + \gamma_4 RoA_i + \gamma_5 RoE_i + \gamma_6 ln(PAG)_i + \gamma_7 ln(MV)_i + \gamma_8 DE_i + \gamma_9 SOC_i + \gamma_{10} ln(FEXL)_i + \gamma_{11} ln(MVBV)_i + \gamma_{12} ln(DYIE)_i$$

*: Value of Significance

Variable	N	Unstandardized Coefficients B	Significance
Dependent Variable: Bid-Ask spread (Logged)	**492**		
Share of Intangible Assets (Logged)	492	-0,052	0,030*
Stock Return (Logged)	492	-0,051	0,413
Stock Price	492	-0,007	0,867
Return on Assets	492	0,007	0,090
Return on Equity	492	-0,006	0,008*
Number of pages in annual report (Logged)	492	-0,450	0,000*
Market value (Logged)	492	-0,358	0,000*
Debt to Equity	492	0,008	0,383
Share ownership concentration	492	0,002	0,405
Foreign exchange listing (Logged)	492	0,069	0,201
Market to book value (Logged)	492	0,051	0,299
Dividend Yield (Logged)	492	-0,003	0,923

Table 4.11: Model Summary

R Square	Adjusted R Square
0,708	0,700

In the study's first conducted multiple linear regression, which contained 492 observations, the logarithmised Bid-Ask spread was used as the dependent variable, as a proxy for cost of equity, arising from capital market information asymmetry. In order to achieve significant correlation between the tested variables, the significance value for a variable had to equal to 0.05 or less. Since the significance value for Share of intangible assets is 0.030 and the coefficients are -0,052, there exists a significant negative relationship between the firms Bid-Ask spread and the Share of intangible assets reported in business combinations. Thus, the study's hypothesis $H_{2.2}$ is accepted.

Furthermore, the other independent variables that showed significant correlation with the Bid-Ask spread were the firms return on equity, number of pages in their annual report, and the market value. The firms' return on equity exhibits a significance of 0,008 and a negative correlation, since the coefficients are -0,006. The pages in the annual reports are also negatively correlated with the Bid-Ask spread with the coefficients -0,450, and the significance value of 0,000. The examined companies market value exhibits a negative correlation with the Bid-Ask spread with a significance of 0,000. For the other independent variables included in the regression no statistical significance was demonstrated.

In Table 4.11 the R square and the adjusted R square are presented. The value R square shows that the dependent variable, being the Bid-Ask spread, is explained to 70,5% by the included independent variables in the study. Since there exist a low difference between the R square value and the adjusted R square value none of the independent variables in the regression where redundant.

4.4 Turnover by Share Volume as a proxy for the Cost of Equity

Table 4.12: Median Turnover by Share Volume 2005-2012

Small Cap	18'675
Mid Cap	73'633
Large Cap	1'580'591

The firms' turnover by share volume that was obtained for this study were on average 1'586'906 shares. Since the variable turnover by share volume proved to skewed the median was calculated in addition to the mean value and was 158'366 shares. The lowest observed volume in the study was one from 2007 and was 23 shares. The highest observed volume was from 2008 and was 25'301'233 shares. The graph above presents the median values for the turnover by share volume for the listing on the Stockholm Stock Exchange between 2005-2012.

4.4.1 Kruskal-Wallis test

Table 4.13: Kruskal Wallis test based on the Turnover by Share Volume for the classification of Intangible Assets in relation to Goodwill

Share of Intangible Assets in relation to GW (%)	N	Mean Rank				Rank of Share Price Volatility
0	241	354,89	Chi-Square			62,164
1-20	196	427,01	df			6
21-40	191	491,78	Asymp. Sig.			0,000
41-60	118	525,65				
61-80	45	519,39	Monte Carlo sig.			0,000
81-99	23	513,80		99% Conf. interval	Lower Bound	0,000
100	59	358,18			Upper Bound	0,000
Total	873					

       Table 4.13 presents the result from the Kruskal-Wallis test performed in order to investigate whether there are any differences between the firms' Turnover by Share Volume, dependent on the share of intangible assets they have chosen to recognize for each acquisition. The test contained 873 observations and their rank values differed between 1 and 872. The first group contained acquisitions where the share of intangible assets was 0% and was assigned a mean rank of 354.89. In similar manner, the other groups received the rank averages of 427.01, 491.78, 525.65, 519,39, 513.80 and 358.18.

       The test has a significance of 0.000, since it is below the required value of 0.05, it demonstrates that the size of the Turnover by Share Volume for firms differ between acquisitions with different shares of intangible assets. Thus, the hypothesis $H_{2.1}$ is accepted once again. The fact that the 99% confidence interval is between 0.000-0.000 and not exceeding 0.05 indicates that in 99 cases out of 100, the significance value is less than 0.05, which ensures the result.

4.4.2 Multiple linear regression

Table 4.14: Descriptive Statistics and Coefficients

Multiple linear regression formula:

$$ln(Turnover\ by\ Share\ volume)_i = \gamma_0 + \gamma_1 ln(INTA)_i + \gamma_2 ln(STRET)_i + \gamma_3 ln(SPRI)_i + \gamma_4 RoA_i + \gamma_5 RoE_i + \gamma_6 ln(PAG)_i + \gamma_7 ln(MV)_i + \gamma_8 DE_i + \gamma_9 SOC_i + \gamma_{10} ln(FEXL)_i + \gamma_{11} ln(MVBV)_i + \gamma_{12} ln(DYIE)_i$$

*: Value of Significance

Variable	N	Unstandardized Coefficients B	Significance
Dependent Variable: Turnover by Share Volume (Logged)	**487**		
Share of Intangible Assets (Logged)	487	0,010	0,856
Stock Return (Logged)	487	0,413	0,003*
Stock Price	487	-0,649	0,000*
Return on Assets	487	-0,016	0,080
Return on Equity	487	0,005	0,317
Number of pages in annual report (Logged)	487	0,414	0,042*
Market value (Logged)	487	1,114	0,000*
Debt to Equity	487	0,045	0,030*
Share ownership concentration	487	0,023	0,000*
Foreign exchange listing (Logged)	487	0,323	0,007*
Market to book value (Logged)	487	0,019	0,859
Dividend Yield (Logged)	487	0,019	0,798

Table 4.15: Model Summary

R Square	Adjusted R Square
0,790	0,785

In the study's second conducted multiple linear regression, which contained 487 observations, the logarithmised Turnover by share volume was used as the dependent variable, as a proxy for cost of equity, arising from capital market information asymmetry. In order to achieve significant correlation between the tested variables, the significance value for a variable had to equal to 0.05 or less. Since the significance value for Share of intangible assets is 0.856, there exists no significant relationship between the firms Turnover by share volume and the Share of intangible assets reported in business combinations. Thus, the hypothesis $H_{2.2}$ is rejected.

Furthermore, the independent variables that showed positive significant correlation with the Turnover by share volume were the firms' stock return, pages in their annual reports, market value, debt to equity ratio, share ownership concentration, and foreign exchange listing. The price of the companies' shares was negatively correlated with the Turnover by share volume. For the other independent variables included in the regression no statistical significance was demonstrated.

In Table 4.15 the R square and the adjusted R square are presented. The value R square shows that the dependent variable, being the Turnover by share volume, is explained to 79% by the included independent variables in the study. Since there exist a low difference between the R square value and the adjusted R square value none of the independent variables in the regression where redundant.

4.3 Share Price Volatility as a proxy for the Cost of Equity

Table 4.16: Mean Share Price Volatility, 2005-2012

Small Cap	35,58%
Mid Cap	29,53%
Large Cap	25,28%

The firms share price volatility that was obtained for this study was on average 29,19%. The lowest observed value in the study was one from 2012 and was 14,64%. The highest observed value was from 2005 and was 65,16%. The graph above presents the mean values for the share price volatility for the listing on the Stockholm Stock Exchange between 2005-2012.

4.3.1 Kruskal-Wallis test

Table 4.17: Kruskal Wallis test based on the Share Price volatility for the classification of Intangible Assets in relation to Goodwill

Share of Intangible Assets in relation to GW (%)	N	Mean Rank				Rank of Turnover by Share volume
0	212	417,11	Chi-Square			15,759
1-20	191	450,32	df			6
21-40	184	369,43	Asymp. Sig.			0,015
41-60	111	368,35				
61-80	43	441,47	Monte Carlo sig.			0,014
81-99	23	436,41		99% Conf. interval	Lower Bound	0,011
100	54	419,44			Upper Bound	0,017
Total	818					

The above-presented table 4.17 reveals the result from the Kruskal-Wallis test performed in order to investigate whether there are any differences between the firms' Share price Volatility, dependent on the share of intangible assets they have chosen to recognize for each acquisition. The test contained 818 observations and their rank values differed between 1 and 818. The first group contained acquisitions where the share of intangible assets was 0% and was assigned a mean rank of 417.11. In similar manner, the other groups received the rank averages of 450.32, 369.43, 368.35, 441.47, 436.41 and 419.44.

The test has a significance of 0.015, since it is below the required value of 0.05, it demonstrates that the size of the Share price Volatility for firms differ between acquisitions with different shares of intangible assets. Thus, hypothesis is $H_{2.1}$ accepted. The fact that the 99% confidence interval is between 0.011-0.017 and not exceeding 0.05 indicates that in 99 cases out of 100, the significance value is less than 0.05, which ensures the result.

4.3.2 Multiple linear regression

Table 4.18: Descriptive Statistics and Coefficients

Multiple linear regression formula:

$$Share\ price\ Volatility_i = \gamma_0 + \gamma_1 ln(INTA)_i + \gamma_2 ln(STRET)_i + \gamma_3 ln(SPRI)_i + \gamma_4 RoA_i + \gamma_5 RoE_i + \gamma_6 ln(PAG)_i + \gamma_7 ln(MV)_i + \gamma_8 DE_i + \gamma_9 SOC_i + \gamma_{10} ln(FEXL)_i + \gamma_{11} ln(MVBV)_i + \gamma_{12} ln(DYIE)_i$$

*: Value of Significance

Variable	N	Unstandardized Coefficients B	Significance
Dependent Variable: Share Price Volatility	**469**		
Share of Intangible Assets (Logged)	469	-0,144	0,561
Stock Return (Logged)	469	6,479	0,000*
Stock Price	469	-1,076	0,010*
Return on Assets	469	0,038	0,378
Return on Equity	469	-0,038	0,119
Number of pages in annual report (Logged)	469	-4,914	0,000*
Market value (Logged)	469	0,413	0,033*
Debt to Equity	469	-0,141	0,137
Share ownership concentration	469	-0,151	0,000*
Foreign exchange listing (Logged)	469	2,335	0,000*
Market to book value (Logged)	469	0,007	0,990
Dividend Yield (Logged)	469	-1,293	0,000*

Table 4.19: Model Summary

R Square	Adjusted R Square
0,493	0,479

In the study's third and last conducted multiple linear regression, which contained 469 observations, the Share price volatility was used as the dependent variable, as a proxy for cost of equity, arising from capital market information asymmetry. In order to achieve significant correlation between the tested variables, the significance value for a variable had to equal to 0.05 or less. Since the significance value for Share of intangible assets is 0.561, there exists no significant relationship between the firms Share price volatility and the Share of intangible assets reported in business combinations. Thus, the study's hypothesis $H_{2.2}$ is rejected.

Furthermore, the independent variables that exhibited positive significant correlation with the Share price volatility were the firms' stock return, market value, and foreign exchange listing. Negative significant correlation was exhibited between the Share price volatility and stock price, dividend yield, pages in the annual report, and the owner ship concentration. For the other independent variables included in the regression no statistical significance was demonstrated.

The value R square in Table 4.19 shows that the dependent variable, being the Share price volatility, is explained to 49,3% by the included independent variables in the study. Since there exist a low difference between the R square value and the adjusted R square value none of the independent variables in the regression where redundant.

5. ANALYSIS

In this chapter the results presented in the thesis empirical results chapter are analysed, based on the frame of reference and statistical models used to examine the study's research questions.

5.1 Recognition of specific intangible assets in business combinations

Like the previous conducted studies by Gauffin and Nilsson (2006-2009, 2011-2012), Hamberg et al., (2009), PwC Norway (2011), Schilling, Altmann and, Feidler (2011), Rehnberg (2012) and, the Nasdaq OMX Stockholm Stock Exchange (2008-2012) this study exhibits that the financial accounting from listed companies, of specific intangible assets separately from goodwill in business combinations, in accordance with IFRS 3, is flawed. The research presented in this thesis displays that the rules of IFRS 3 concerning the acquisition method are not properly complied, as most companies have recognized few or no specific intangible assets in their business combinations.

In a comparison between the two presented tables (Chart 4.1 and 4.2) showing how the recognition has been like during the years 2005-2007 and 2008-2012, one can clearly see that the graph showing the years 2005-2007 is considerably more convex toward origo. This demonstrates, that the companies that were listed on the Stockholm Stock Exchange lists between the years 2008-2012 have approached the mean of the recognition of intangible assets, namely a share of 50%. Consequently, it is a higher overall proportion of intangible assets recognized in the firms PPA:s' in the years 2008-2012, relative to the years 2005-2007. An interesting observation is that the percentage, of the acquisitions that have reported 0% share of intangibles are the same between the two time intervals. Namely, approximately 26% (2005-2007; 85/325 and 2008-2012; 177/670). The other extreme, 100%, exhibited a similar tendency (2005-2007; 25/325 and 2008-2012; 47/670), i.e. that of 7-8% of the acquisitions in total have recognized a share of 100% in the two intervals. To summarize, the acquisitions in which, the share of intangibles is recognized somewhere in between these two extremes i.e. 1% -99%, between the years 2008-2012, reported a higher proportion of intangible assets than the acquisitions conducted in 2005-2007, which explains why the curves between the two time intervals do not have the same convexity. At an aggregated level, namely 2005-2012 (Chart 4.3), it is only about 21% of the reported acquisitions that contained 50% or more intangible assets. Which also can be seen on the curve presented in Chart 4.3. The curve becomes significantly steeper the closer it gets to 100%, which indicates, that when companies have started identifying intangible assets separately from goodwill they become more likely to report a greater proportion of intangible assets. Further evidence of this is that only 32 acquisitions contained a share of intangibles between 81% -99% and more than twice as many, namely 72 acquisitions, have accounted for a 100% share of specific intangible assets.

5.2 Non-parametrical testing of the difference in recognition of intangible assets

To the discussion above, involving the accounting of intangible assets between the examined years, it should be mentioned that the Kruskal-Wallis test, that was conducted to be able to closer examine this matter, clarifies that there is a difference between the recognition on an annual basis. However, it is no incremental increase per year, which can be seen in the years' mean ranks. During the first four years, the recognition of intangible assets is relatively equal, but in 2009, there is a considerable increase followed by a slight decrease over the next two years, only to adopt the highest value in 2012. Similar to what Rehnberg (2012) tried to claim, namely, that the recognition increases annually, this study demonstrates a significant result showing that the recognition has increased between the years 2005-2012, but not on an annual basis.

Just like Landry and Callimaci (2003) and Rehnberg (2012), arguing that the size of the company will be an incentive to disclose a higher portion of intangible assets in business combinations for the firms, the second conducted Kruskal-Wallis test revealed a significant result of precisely this. Namely, that firms listed on the Small, Mid and Large cap lists recognize on average different shares of intangibles. The mean ranks of the three lists are incrementally increasing from Small Cap to Large Cap. To clarify, the Small cap list has the smallest share of recognized intangible assets in general and the Large Cap list has the largest general share of the recognized intangible assets. This result can be further supported by Lang and Lundholm (1993), Godfrey and Jones (1999), and Botosan and Plumlee (2002) who argue that the size of the firm is affecting the amount of its disclosures.

Unlike Rehnberg (2012), this study shows that the recognition of intangible assets is different depending on the firms' industry affiliation. Rehnberg (2012) found no significant result when she categorized the acquiring firms in different groups by industry. A possible reason for this is simply that this research contains far more observations, since it examines several additional years. Similar results as this study exhibits on this matter, were previously presented by Schilling, Altmann and Fiedler (2011) since they found that different industries accounted for various proportions of intangible assets in business

combinations, and former hinted by PwC Norway (2011) as they described that the difference in the recognition between Swedish and Norwegian firms could be due to that the two countries inhabits a different amount industries. This difference in the level of disclosure between industries is not unexpected, since, Piotroski and Roulstone (2004) mentions that the disclosure level can differ between industries. Although Ong and Hussey (2004) before the introduction of IFRS, described that companies in various industries have different proportions of total intangible assets in their balance sheets, this result, presented in this study, could be one of the reasons for why, in this case, companies in different industries have different proportions of intangible assets in their balance sheets i.e. because they simply identify more intangible assets in their acquisitions.

What can be seen, as a subcategory of the discussion on industry affiliation is the categorization of high and low technology companies. The test that was conducted, to examine whether there is a difference in the proportion of recognized intangible assets between high-and low-technology businesses, exhibited that there was no such difference. This negative finding is similar to the result presented by Rehnberg (2012). Collins presents that, high-tech companies report a larger percentage of the total balance sheet as intangibles, than low-tech firms. Which Rehnberg (2012) theorize, could be due to the fact that they identify more intangibles in their business combinations. This theory cannot be proven, but rather disproved by this study. However, since intangible assets can be obtained by other means than through business combinations, namely through separate purchases and or internal processing, it does not mean that high-tech companies have the same proportion or a lower share of intangible assets in their balance sheets as low tech firms. But it shows that this is not due to company acquisitions, as high-tech firms do not allocate more intangible assets than low-tech firms. This indicates, that high technology firms do not have higher incentives for disclosing intangible assets in business combinations than low technology ones, although this type of asset is likely to be of great importance to them and make up a large portion of their total business, as presented by Collins (1997).

Wiles, Dagwell and Windsor (2007) and Marton and Rehnberg (2009) say, that the standard IFRS 3, as it is principle based, leaves great room for managers own assessments. Gauffin and Nilsson (2012) argue that because of this, the management teams tend to fail to recognize intangible assets in small acquisitions because they believe that these assets are of low significance. This study can support this theory presented by Gauffin and Nilsson (2012) as the test conducted in this area demonstrates that there is a significant difference between the proportion of intangible assets and the size of the purchase price. Since the groups' mean ranks are increasing the test implies that at a higher purchase price, a larger share of intangible assets have been recognized in relation to goodwill.

Given that previous research has been ambiguous about whether companies with high external financing recognize more intangible assets in business combinations then others (Marton & Rehnberg, 2009; Rehnberg, 2012), this study may provide clarity in the area. Since the test conducted to examine this, exhibits a significant result that firms with higher debt to equity ratio generally recognize more intangible assets in business combinations than the firms with low external financing. Thus, this study provides a result opposite to the one presented by Marton and Rehnberg (2009). The finding in this study can be explained from the information asymmetry (agency) framework, since highly leveraged firms will be more willing to disclose information in an attempt to combat information asymmetry between them and their stakeholders as presented by Sweeny (1994), DeAngelo et al. (1994), and Sengupta, (1998).

5.3 Recognition of intangible assets in business combinations and the Cost of Equity

5.3.1 Bid-Ask spread as a proxy for the Cost of Equity

As mentioned in the essay's introductory and reference chapter there is asymmetry in the information in the stock market which means that companies must offer their shares at a discount i.e. the cost of equity (Trueman, 1986). This asymmetry exists both prior to the transaction (purchase of a share) and post (known as a long position, principal-agent relationship) (Jensen & Meckling, 1976; Daimond & Verrecchia, 1991; Kim & Verrecchia, 1994; Brennan & Tamarowski, 2000). By disclosing information companies can reduce the information asymmetry, moreover the firm specific information risk component of the cost of equity (Healy and Palepu, 2001; Fields et al., 2001; Frankel and Li, 2004). High quality disclosures lowers the unknown for the investors and therefore lowers their risk in the transaction which will cause them to refine their expectations of the firm and simply demanding a lower return (the cost of equity) from the company, for their risk taking (Botosan, 1997). This will improve trade (the price equilibrium of demand and supply of securities, hence liquidity) and the allocation of capital (Demsetz, 1968; Brennan & Tamarowski, 2000; Healy & Palepu, 2001). In this study three proxies were used to measure the cost of equity, arising from capital market information asymmetry all based on liquidity, namely, the Bid-Ask spread, Turnover by Share Volume and, Share Price Volatility. Where a large spread, low turnover and, high volatility indicates the presence of information asymmetry and a high cost of equity. In tables 4.8, 4.12, and 4.16 the measures median values; for the Bid-Ask spread and Turnover by Share

Volume, and the mean value; for the Share Price Volatility, are presented. As can be discerned, these three measures are aligned with the theory and practical evidence concerning market value and the cost of equity as presented in the literature i.e. that larger companies generally have a smaller cost of equity (see for example; Lang & Lundholm, 1993; Leuz & Verrecchia, 2000; Botosan & Plumlee, 2002). The firms listed on the Large Cap list during the years 2005-2012 simply have the lowest spreads, the lowest share price volatility and, the highest turnover by share volume and the companies listed on the Small Cap list present just the opposite.

The three proxies were tested against the share of recognized intangibles in three different Kruskal-Wallis tests as to get an indication if these measures differ between acquisitions in which it was reported a low respectively a high proportion of intangible assets.

The first test, the one concerning the Bid-Ask spread (Table 4.9) exhibited that there is a difference in the size of the spreads between acquisitions with different shares of recognized intangibles. This result is thus inline with the debate regarding disclosure and transparency level and the cost of equity, namely that, firms with different disclosure and transparency levels experience different costs of equity (see for example; Lang & Lundholm, 1996; Leuz & Verrecchia, 2000; Brennan & Tamarowski, 2000; Healy & Palepu, 2001; Lev, 2001; Hand & Lev, 2003). However, the test cannot fully explain where the differences lie but an indication can be seen in the mean ranks of the examined groups. In terms of these ranks one cannot deduct that the acquisitions with a greater recognized share of intangibles have a smaller spread. But since the spread is dependent on far more variables, further statistical testing is needed to explain the relationship between the reported intangible asset and the cost of equity. The same phenomenon was exhibited in the other two Kruskal-Wallis tests (Table 4.13 and 4.17) i.e. that there is a difference in the size of the Turnover by Share Volume and the Share Price Volatility between the groups that have recognized different proportions of intangibles, but the rank values gave no indication that the cost of equity is less for the firms who recognized a high share of intangibles. But as mentioned before from these tests the hypothesis $H_{2.1}$ is accepted i.e. there is a difference in the cost of equity between the companies that have recognized different proportions of intangibles assets in business combinations. But from this acceptance the authors cannot yet draw the conclusion that higher transparency is better since it reduces the cost of equity, since it requires further and different statistical testing.

To further examine the proxies for the cost of equity, arising from capital market information asymmetry, and the recognized share of intangible assets, three multiple linear regression analyses were conducted in the study. In the first model presented in Table 4.10 the Bid-Ask spread served as the dependent variable. As expected, the regression showed that firms' market value are strongly negatively correlated with their Bid-Ask spreads. This has previously been proven by Lang and Lundholm (1993), Leuz and Verrecchia (2000), and Botosan and Plumlee (2002). Consequently, companies with the help of a significant size can increase the liquidity of its shares, and hence reduce the cost of equity. This confirms the above discussion regarding the median spreads for the various cap lists. For a one million SEK increase in a firm's market value the Bid-Ask spread, hence the cost of equity, decreases with 0,358%.

A further expected and significant relationship can also be inferred from the number of pages of the companies' annual reports and their spread. Runesson (2010) states that the amount of total disclosed information (quantity) and transparency hence quality is positively correlated. With this in mind the negative correlation exhibited in the regression, means that the transparency level of the accounting is negatively correlated with the companies' Bid-Ask spreads. With a one-page increase in the annual reports companies in general reduce their cost of equity with 0,450%. Support for this type of estimate can also be found in the study presented by Botosan (2004) describing that this approach to evaluate the quality of the annual reports is relevant. Because a different methodology, than to quantitatively collect and evaluate information, leads to subjective judgments. Thus, this means that the capital market information asymmetry decreases as the number of pages in the annual reports increases (disclosure), all in line with the majority of the literature in this area (see for example; Healy and Palepu, 2001).

The regression exhibited that there is a significant negative correlation of 0,052 between the recognized share of intangible assets and the Bid-Ask spread. This result means that companies that recognize a higher share of intangible assets in their business combinations, in accordance with IFRS 3, generally have a lower relative Bid-Ask spread, thus a lower cost of equity arising from asymmetric information (Roll, 1984; Mclnish & Wood, 1992; Greenstein & Sami, 1994; Coller & Yohn, 1997; Chung et al., 1999). Since the total spread decreases, the part of the spread that is related to the asymmetric information i.e. the adverse selection component of the spread also decreases, as stated by Bagehot (1971), Copeland and Galai (1983), Glosten and Milgrom (1985), Baily (2005), and, Fabozzi, Modigliani, and Jones (2010). The negative correlation can further be interpreted as for one unit increase in recognized intangible assets (1%) the Bid-Ask spread decreases with 0,052%. This result is aligned with the theory that a higher transparency in the accounting reduces the cost of equity, arising from asymmetric information in the capital market (see for example; Karpof, 1986; Amihud & Mendelson 1986; Lang & Lundholm, 1996; Botosan, 1997; Brennan & Tamarowski, 2000; Healy & Palepu, 2001; Acker et al., 2002). The finding is

similar and can be compared with that of Leuz and Verrecchia (2000) who presented that high quality disclosures, measured as the German companies transition from the adoption of the national GAAP to IFRS, reduced the cost of equity measured as the Bid-Ask spread. Daske et al. (2008) also found a similar result when they measured the transition from national standards to IFRS and Francis et al., (2008) presented a similar outcome when they measured disclosure quality by voluntary ones. Botosan (1997) showed a decrease in the cost of equity in a study, but only for firms that were followed by a small number of analysts. Which indicates in that study, that companies can only reduce its cost of equity, arising from asymmetric information to a certain level. It must also be said that this reduction was not measured via the Bid-Ask Spread, but via a valuation model.

However, it is of importance to stress that it exists an important difference between this study and the ones just mentioned. Namely, that this study shows that not only is it of importance to adopt the IFRS but it matters how well the companies comply with the standards, here measured as the compliance of IFRS 3 in terms of the recognition of intangible assets from goodwill in business combinations, as previously discussed by Hogdon et al., (2008) and Runesson and Marton (2013). Since the regression exhibits a negative correlation between the relative Bid-Ask spread and the share of intangibles although the model controls for firm value and the total amount of disclosure (pages), it means that the compliance level of IFRS 3, when it comes to the recognition of intangibles separately from goodwill in business combinations, can reduce the cost of equity for the companies even further i.e. it is not only the total amount of disclosures that can reduce the cost of equity, as presented by the majority of the literature (see for example; Leuz & Verrecchia, 2000; Healy & Palepu, 2001). The model is thus able to show the isolated affect of the recognition of intangible assets in business combinations on the cost of equity, arising from asymmetric information.

Furthermore, the first regression exhibited that there was no correlation between the Bid-Ask spread and the return on assets, this was not expected since Amihud and Mendelson (1986) state that such a relationship exists. Another negative finding in the first regression was the significant negative correlation between the spread and the return on equity of -0,006. The authors included the return on equity for the same reason as the return on assets namely, as a proxy for risk and the investors' expectations, thus expecting a positive correlation. A high risk in the market will create the demand of a high return from the investors. But one simple explanation for this could be that it is not only the historical return that serves as a base for the future expected return from the investors, and high risk does not mean high return only the possibility of a high return. A possibly positive correlation between these variables would also mean that a high firm performance would increase the cost of equity. But if there is a correlation between firm performance and its leverage (risk) this could still be true. However, there is no further need to analyse these findings to be able answer the study's second research question. Nor did the stock return, dividend yield and the stock price included in the regression show any significant correlations with the relative Bid-Ask spread. Welker (1995), Coller and Yohn (1997), and Chen et al., (2007) state that the stock price is correlated with the Bid-Ask spread. However, the finding regarding the stock price was not surprising since the authors as described in the methodology neutralized the stock price when calculating the Bid-Ask spread as a relative measure as previously conducted and used by Mclnish & Wood (1992), Greenstein & Sami (1994), and Chung et al. (1999).

The independent variables included in the first regression regarding the incentives for disclosure in order to combat the information asymmetry in the capital market e.g. debt to equity ratio, foreign exchange listing, and market to book value exhibit positive correlation with the Bid-Ask spread as theorized but showed no significance. Even though this might seem to be unexpected a possible reason for this, might simply be that the independent variables market value and the total disclosure level (pages) already controls for these incentives since the disclosure from these incentives are a part of the total disclosure level.

5.3.2 Turnover by Share Volume as a proxy for the Cost of Equity

In the second performed multiple linear regression, the Turnover by Share Volume was used as the dependent variable, hence as a proxy for the cost of equity, arising from capital market information asymmetry. Just like the Bid-Ask spread, Datar et al,. (1998) argue that this turnover partially measures liquidity and the investors willingness to trade (see also; Leuz & Verrecchia, 2000; Brennan & Tamarowski, 2000). In times of low liquidity the risk of trading increases thus leading to an elevated demanded return from the investors i.e. the cost of equity. In resemblance to the findings of Leux & Verrecchia (2000) this study exhibits that an overall increased disclosure level, here measured as the number of pages in the annual report, can reduce the cost of equity measured as the turnover by share volume. For every additional page firms in general experience an increase of 414 shares in their share turnover on a daily basis in the capital market. This finding was therefore anticipated, however, the regression did not exhibit that firms generally experience an increase in the share turnover by additional compliance with the standard IFRS 3, i.e. by recognizing a higher share of intangibles in business combinations. But it should be noted

that the correlation is positive, as anticipated but carried no significance. Additional to the overall disclosure level the multiple linear regression showed that firms can by their size affect the turnover by share volume. This result is somewhat obvious since larger firms generally have more outstanding shares than smaller ones, which will very likely lead to a higher turnover of the same (Leuz & Verrecchia, 2000). Another somewhat evident finding is that of the negative significant correlation of the shares stock price and the turnover. By a 1 SEK increase in the stock price the general share turnover decreases with 614 shares on a daily basis. Thus, relatively expensive shares are traded less frequently in the market, all in line with economic theory in this area (see for example; Brennan & Tamarowski, 2000).

Since the stock return was included to control for the market makers inventory and order costs when adopting an information based view of the Bid-Ask spread, as previously conducted by Coller and Yohn (1997), and then left in the regression when the dependent variable was switched form the Bid-Ask spread to The Turnover by Share Volume this significant correlation can be interpreted as follows. For every unit increase in the variance of the stock return (1%) the turnover increases in general with 413 shares per day. To clarify, when the turnover in share volume increases the market makers inventory and order costs follows, as expected (Amihud & Mendelson, 1986; Coller & Yohn, 1997; Datar et al., 1998; Florackis et al., 2011).

The regression further exhibits that the more exchanges companies are listed on the greater the turnover of their shares, this is expected and is similar to the discussion mentioned above, regarding the number of shares outstanding (Leuz & Verrecchia, 2000). However, it is important to notice that this would also indicate, since the turnover is a measure of the asymmetric information, that companies listed on several exchanges experience a lower information asymmetry since their turnover is higher, which would be in conflict to the theories regarding home bias i.e. that it exists a greater information asymmetry between the firm and its foreign investors than domestic ones (Webb et al., 2008). But one should be very carful if one draws such a conclusion, since it probably only comes down to the number of outstanding shares, and not that this is evidence for that companies listed on foreign exchanges experience a lower information asymmetry than those only listed on one exchange.

Finally, the regression also exhibits significant correlations for the debt to equity ratio and the share ownership concentration. The share ownership concentration is positively correlated with the turnover, for one additional increase in the share ownership concentration (i.e. 1% increase in the ownership of the largest shareholder of the total shares) the share turnover is elevated, which could serve as evidence for decreased information asymmetry, in general by 23 shares per day. This is consistent with the theory presented by Leuz and Verrecchia (2000) namely, that firms with lower ownership concentration experience a higher information asymmetry in the capital market which serves as an incentive for those firms to disclose more information, in a combating manoeuvre. The debt to equity ratio is also positively correlated with the turnover. For every unit increase in the debt to equity ratio the firms in general experience a higher share turnover by 45 shares per day. This result is somewhat ambiguous, since it is not aligned with the theory that firms with a greater need for external financing have greater incentives for disclosure since they experience a greater information asymmetry as presented by Sweeny (1994), DeAngelo et al. (1994), and Sengupta (1998). However, keep in mind, that this theory is based on the principal agent relationship between the firm and its creditors and was included to control for one of the known incentives for firm disclosures i.e. affecting the overall disclosure level and not necessarily to explain the relationship between the ratio and the investors in the market. It shall also be noted once again that the measure Turnover by Share volume only partially measures liquidity, which in turn indicates the presence of information asymmetry. In the literature the Turnover by Share Volume is known to be a somewhat noisy proxy (Datar et al, 1998).

5.3.3 Share Price Volatility as a proxy for the Cost of Equity

In the third conducted regression in this study, the Share Price Volatility was chosen to serve as the dependent variable. The volatility is a market imperfection and a response to the incomplete information in the market (Lang & Lundholm, 1996; Lev, 2001; Hand & Lev, 2003). A high volatility in a share, signals high risk, which is entailed with a higher demanded return from the investors for the investment in that specific firm (Botosan & Plumlee, 2002). Just as the other two regressions the third regression exhibits that the overall disclosure level i.e. the number of pages in the annual report are correlated with the cost of equity, arising from capital market asymmetry as measured as volatility. Unlike the findings presented by Leuz and Verrecchia (2000) this study provide evidence that the overall all disclosure level have a significant relationship with the Share Price Volatility. But, it shall be noted that this study examines the general volatility on a yearly basis and not the changes in it due to information issuance under a short time window, as conducted in the study by Leuz and Verrecchia (2000). The discovery is also aligned with the findings exhibited by Lang & Lundholm (1996) who found evidence for, that the volatility improved, hence decreased, under an increased level of firm disclosure. However it shall also be stated that other findings in the literature are present, one of them being the results presented by Botosan and

Plumlee (1997) who argue that the type of disclosure matters and its frequency, since high frequency disclosure can exacerbate the volatility. However, this is not the case in this thesis since this study concerns only the annual reports of the companies and not other more frequent disclosures. Furthermore, the regression shows that the company cannot further reduce the share price volatility by a high compliance with the IFRS 3 when it comes to the recognition of intangible assets. But, it shall be noted that the recognized intangible assets show a negative correlation with the volatility, exactly what was expected from the authors based on the literature in this field, but without significance.

The model exhibits that for each additional exchange the companies are listed on they in general experience an increase in the volatility of 2,335%, hence the cost of equity, arising from capital market information asymmetry. This is consistent with the theory regarding the home bias, namely, that firms listed on several exchanges generally are exposed to a higher information asymmetry (Webb et al., 2008). From the model it can also be interpreted that firms with lower ownerships concentration are a subject to higher level of information asymmetry, measured as the volatility, consistent with the theory presented by Leuz and Verrecchia (2000). For a 1% increase in the ownership concentration firms generally exhibit a decrease in the Share Price Volatility by 0,151%.

As discussed above, regarding the first two regressions, the companies are able to exhibit a lower cost of equity, arising from information asymmetry measured as the Bid-Ask spread and Turnover by Share Volume, through their size, but this is only because the firm size affects the size of the Bid-Ask spread and the Turnover by Share volume themselves. So when the cost of equity is measured as the Share Price Volatility the market value of the firms does not negatively correlate with the asymmetry in the market since the measure volatility is not something that companies can affect through their size as they can with the Bid-Ask spread and Share Turnover. The correlation is thus, reverse i.e. positive. This finding is aligned with the theory that larger firms experience a higher information asymmetry, and therefore are faced with the need to disclose information at a higher level than smaller ones (Godfrey & Jones, 1999; Leuz & Verrecchia, 2000) Firms cannot simply combat the information asymmetry that takes the shape of the market imperfection, Share Price Volatility, through their size since it only exacerbates the asymmetry.

The strongest positive correlation in the third regression is that of stock return and volatility. It demonstrates that for a unit increase in the stock return (1%) the firms exhibit a 6,479% elevation in the the Share Price Volatility. This finding is expected and simply confirms the foundational theory of risk and return (see for example; Botosan, 1997; Botosan & Plumlee, 2002).

Just as discussed by Armstrong, Core, Taylor, and Verrecchia (2000) this study, in the third regression, presents that companies that are exposed to a higher level of asymmetric information generally have a lower dividend yield. This is simply mirrored in the regression, since the companies whose shares has a greater yield, on average, experience less volatility. For a 1% increase in the dividend yield the volatility decreases with 1,293%. It can also be interpreted from the model, that for a one-unit increase in stock price (1 SEK) the companies exhibits approximately a 1% decrease in the volatility.

Furthermore, it should be stated the volatility is perhaps the noisiest proxy of the three, used in the study, for the cost of equity, since it depends on several additional variables. This is indicated through a comparison between the three regression models' summaries presented in tables 4.11, 4.15, and 4.19 as the model holding the volatility as the dependent variable is the model that has the least explanatory power. To clarify, the independent variables included in the regression are only able explain the dependent variable to 49,3%.

5.3.4 Summary analysis and additional comments regarding the recognition of intangible assets and the cost of equity

From the results presented in the fourth chapter and the analysis taken place above one can clearly see that the hypothesis $H_{2.2}$ is once accepted, since significant correlation has been demonstrated by measuring the Bid-Ask Spread and rejected twice since no significant correlations have been presented when Turnover by Share volume and Share Price Volatility served as proxies for the cost of equity, arising from capital market information asymmetry. However, this does not mean that the answer to the study's second research question is negative, since it is not a majority vote. One cannot deny the finding regarding the Bid-Ask spread, as it is a proxy perhaps less noisy than the other ones used in the study. The spread is considered to address the problem of adverse selection through its clarity and objectivity as presented by Roll (1984), Kyle (1985), Glosten and Harris, (1988), Leuz and Verrecchia (1994), Brennan and Subrahmanyam (1996), and Callahan (1997).

The finding can also serve as evidence for the discussion and thoughts presented by Lev and Zarowin (1999), and Amir and Levin (2006), namely that an important part in improving the financial statements is to increase the reporting of intangible assets. It can also serve as additional information to the comment made by Rehnberg (2012), namely that, reporting of intangible assets has some kind of signal value to the investors, since it actually exhibits that increased recognition of intangibles are significant with a lower cost of equity. The finding also shows a certain contrast to the statement made by Skinner (2008),

i.e. that the financial market will function without the reporting of intangibles. It might function with out it, but as the finding in this study shows, not as well, since the recognition of intangible assets in business combinations mitigates adverse selection problems in the market.

The finding may also serve as evidence to the debate regarding systematic information risk. Due to the fact that this study is based upon the notion that the cost of equity is a compensation for risk, it means that, if one can observe higher cost of equity due to asymmetric information risk the finding serves as evidence for the existence of systematic information risk (Kothari et al ., 2008; Leuz and Schrand, 2009).

6. CONCLUSION, FINAL DISCUSSION, AND ADDITIONAL COMMENTS FROM THE AUTHORS

- ***Are there any differences in the recognition of specific intangible assets in business combinations, in accordance with IFRS 3, between the examined years, and due to the characteristics of the acquiring firms, and the size of the acquisitions?***

The presented findings in this thesis, exhibit that there exists significant differences between the shares of recognized intangible assets separate from goodwill, in business combinations, both between the years and due to the characteristics of the acquiring firm, and the size of the acquisitions. A significant difference is observed between the shares of recognized intangible assets and the years the acquisitions were conducted. However, it is not possible to conclude that there has been a gradual increase over the examined years, but the result shows that companies in general recognize a higher share of intangible assets in the acquisitions taken place in 2009-2012, in relation to the ones conducted in 2005-2008.

Another finding is that of, the significant difference between the recognition and the size of the companies. This study reveals that larger firms in general recognize a larger share of intangibles, in business combinations, compared to smaller ones.

Furthermore, the study presents evidence regarding the recognition and industry affiliation. Namely, that firms within different industries account for different shares of intangible assets, in accordance with IFRS 3. However, the study is not able to find such a significant difference in the recognition regarding high- and low-technology firms. The study is also able to demonstrate that the are differences in the recognition among acquisitions with different purchase prices. Namely, at a higher purchase price companies in general recognize a higher proportion of intangible assets separate from Goodwill.

Finally, this research also exhibits that firms, which are heavily dependent on creditors i.e., have a greater need for external financing, are more likely to allocate the surplus value of the purchase price to intangible assets, and therefore recognizing them in their business combinations.

- ***Is there a relationship between the accounting of specific intangible assets from goodwill in business combinations, in accordance with IFRS 3, and the cost of equity arising from capital market information asymmetry?***

Convincing arguments, that a commitment by a company to increase the level of its disclosures will lower the cost of equity, arising from information asymmetry, are provided within economic theory. This relationship has further been examined and proved in prior literature on a total disclosure level suggesting that increased disclosure matters but not specific accounting standards per se.

The evidence in this study is consistent with the notion that companies committing to an increased level of disclosure will garner economic significant benefits (as well as statistical ones). But the study does not only demonstrate that the total amount of the companies' disclosures matters but also that the level of compliance with the standard IFRS 3, hence an increased transparency, will further benefit the companies. The study shows that firms that recognize a higher share of intangible assets separately from goodwill in business combinations generally have a lower cost of equity, as measured as the Bid-Ask spread after it has been controlled for various firm characteristics and incentives for disclosure (e.g., market value, total disclosure level, foreign exchange listing, and, debt to equity ratio).

Furthermore, the study is unable to exhibit a negative correlation between the two other tested proxies for the cost of equity i.e. Turnover by Share Volume and the Stock Price Volatility, and the share of recognized intangible assets, in accordance with the IFRS 3. However, the research offers some evidence, that there are differences in these two measurements amongst the companies with different sized recognition of intangibles assets, in business combinations. But it is important to note that the just mentioned findings, only describe that there exists differences between the recognition and these two variables, but not why this is.

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Based on the study's conclusion, the authors would like to eventually pursue a short discussion about their thoughts on the findings. Since, this research only examines the level of compliance with IFRS 3, and not subjectively assesses the valuation of intangible assets in detail, the study is not able to provide answers on how to, in the best possible way, value and account for intangible assets, but only, that it is important to recognize them. Thus, the on-going debate regarding the "best practice" on how to evaluate and measure intangible assets, both within and without the IFRS cannot, and will not, be answered in this research. However, from this study, one can say that investors on some level accept the valuation and find

interest in the accounting that IASB advocates, regarding intangible assets in business combinations. Simply, because this reporting contributes to the lowering of their expected rate of return, moreover, lowering the risk otherwise present in uncertainty, which is equivalent to the cost of equity for the companies that procure their capital in the stock market.

To be able to conduct this study, the authors have assumed that the companies, which reported a low proportion of intangible assets in business combination, have not fully complied with the purpose of IFRS 3. However, one of the reasons for why companies did not recognize a higher share of intangibles assets, could simply be due to the fact that it did not exist any intangible assets in the acquired company. But, according to the on-going debate it is in general accepted among experts that companies consciously or unconsciously do not recognize all of the intangible assets in their business combinations. One possible reason for this could be that firms lack a best practice approach to the recognition since acquisitions not seldom are a "one time" occurrence with a unique process. This could be applied to the negative finding in this study regarding high- and low technology firms, since it may be, in such a process, that it doesn't matter if the firms are either high- or low-tech since it will still be a complex process either way. But this is simply a theory, and it cannot be proven by the result of this study.

To the discovery made in this thesis regarding the increase in recognition in the year 2009, in relation to the years before, the authors would like to add a comment. This increase might be due to the financial crisis that broke out in the year 2008, which probably caused the companies to be more thorough in their accounting due to the uncertainty that took place in the macro economic environment of that time.

In the present day, there is a large on-going discussion regarding the treatment and accounting of goodwill. Which, in the bigger picture can feel a bit like misdirected focus. This is simply because the developed rules for identification of intangible asset in business combinations are set out to reduce the amount of goodwill in the financial statements, and thus, the way to manage and account for goodwill becomes less important. The authors, therefore, believe that the solution to the problems of goodwill is given by going to the bottom of the problem i.e. in the recognition of intangible assets in business combinations, in which the goodwill arises.

However, as this study has shown, the sole objectives of these rules have not yet reached its purpose, since it is the corporate compliance and its regulation that creates the financial reporting and not the standard itself. Possible solutions to this problem could be stricter regulation or rules, but as experts in the field have previously stated, such rules could lead to a reverse effect i.e. the accounting will go from being about right, to all wrong.

The authors would also like to add that, whether in the case of goodwill or intangible assets in the financial statements, the matter is still intangible, and how do one measure something one cannot see, feel or weigh? It can thus be uncertainty in the accounting, whether it is called goodwill or intangible assets. However, as this study demonstrates, the reporting of specific intangible assets is perhaps able to create some kind of illusion of safety for the investors. It may also be the only thing that is required, as this is not an exact natural science.

It is important, that when one views the result of this study, regarding the cost of equity and the recognition of intangibles, realize that it is necessary for firms not only to comply with standard IFRS 3, when they seek to lower their cost of equity. This is simply because the standards from the IASB should be seen from a holistic point of view i.e. the sum is greater than all the standards together. Thus, it is important, to not only comply with IFRS 3, since it only gives an additional decrease in the cost of equity, but also to follow all the other standards in order to increase the overall accounting transparency. Further on, this finding also means that the proportion of recognized intangible assets in business combinations, could be used as a proxy for companies' overall disclosure level, simply because the companies that have a high level of compliance with IFRS 3, i.e. a large share of recognized intangibles, probably also have a high level of compliance when it comes to the rest of the standard.

7. SUGGESTIONS FOR FURTHER RESEARCH

One interesting step for further research would be to expand the study to the Nordic region. This will further increase the number of observations, which means that it would be interesting to once more examine the recognition's supposed correlation to the proxies Turnover by Share Volume and Share Price Volatility. A larger number of observations could thus lead to a significant correlation. In such a study it would also bee interesting to do a cross-regional comparison, to be able to examine if there are any differences in the recognition on a national level.

Another possible refinement of this study would be to include the ASC-spread, as mentioned in the methodology chapter, to further be able to examine, if it is the adverse selection component that decreases in times of high transparency. To further be able to explain the relationship between transparency and the cost of equity, arising from asymmetric information. Furthermore, there are additional independent variables that could have been used in the regression. The authors of this thesis have been limited both in time and data and were thus not able to include variables such as, number of market makers, analyst following, number of insiders and, number- and composition of board members, that could be of interest, since they also could be able to explain the dependent variable i.e. the cost of equity. It would also be appropriate to perhaps conduct a more tailored regression for each of the proxies Turnover by Share Volume and Stock Price Volatility than the ones used in this research.

It would also be interesting to examine the supposed relationship between disclosure level, cost of equity and earnings quality. It is believed in the literature that there exists a complementary relationship between the quality of disclosure and earnings. During the time of this research the literature and methodology concerning on how to properly measure earnings quality was some what ambiguous, it seems that this area of research had not yet reached a consensus. Thus, the authors considered it not appropriate during the time of this research, to include this variable in the study.

Furthermore, the authors of this thesis consider it to be interesting to further categorize and examine if there is a certain type or types of intangible assets that reduces the cost of equity, arising from asymmetric information. Since this study only examines the intangible assets separated from goodwill as a whole.

An explanatory study of various factors in addition to that of the information asymmetry framework would also be of interest. Since, it could help in explaining the inconsistent application of IFRS 3 in a broader perspective. It would also be beneficial to conduct a qualitative research in order investigate why the companies recognize such different shares of intangible assets and if the recognition is done in order to reduce to cost of equity, or if this recognition only is due to the compliance of the standard IFRS 3 itself?

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