THE CAPITAL-MARKET REACTION TO THE MANDATORY ADOPTION OF IFRS IN RELATION TO THE ECONOMIC STATE OF COUNTRIES IN THE EUROPEAN UNION

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ABSTRACT

This thesis examines the possible relation between the economic state of countries in the European Union and the capital-market reaction due to the adoption of IFRS. Specifically, the possible difference in capital-market reaction due to the adoption of IFRS between countries with a strong economy and countries with a weak economy will be examined. The sample consist of 905 firms with a total of 10.836 firm-years from on the one hand the countries the Netherlands, Germany and Denmark (strong economy) and on the other hand the countries Italy, Portugal and Spain (weak economy). The results show that a difference exists in the capital-market reaction due to the adoption of IFRS between countries with a strong economy and countries with a weak economy. In addition, a mutual difference in the capital-market reaction between the countries with a strong economy has been found. Finally, the results do not find a mutual difference in the capital-market reaction due to adoption of IFRS between countries with a weak economy. Because the unique examining of the relation between economic state and the capital-market reaction due to the adoption of IFRS, this thesis contributes to the existing literature.

Keywords: IFRS adoption, capital-market reaction, economic state

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1.1 BACKGROUND

One of the most significant regulatory changes in the accounting history is the introduction of the International Financial Reporting Standards (IFRS). "International Financial Reporting Standards (IFRS) are accounting rules (standards) issued by the International Accounting Standard Board, an independent organization based in London, UK," (Ball 2006, p.6). The adoption of these accounting standards as issued by the IASB resulted in the use of a set of financial reporting standards within the European Union, but also between the European Union and many other countries in the world that require or permit application of IFRS (Armstrong et al. (2010), p.32). In 2001, IFRS in the European Union was introduced. In March 2002, a resolution passed in the European Parliament, which requires all firms that are listed in the European Union member states, to prepare their consolidated annual financial statements with the IFRS application (Armstrong et al. 2010, p.33). The mandatory adoption of IFRS by the European Union (EU) was a fact on 1 January 2005. From that moment, EU Regulation No. 1606/2002 (the IAS Regulation) required listed firms in the EU to prepare their consolidated financial statements according to IFRS. The intended goals were to help to ensure a high degree of transparency and comparability of the published financial statements and, consequently, improve the efficient functioning of the EU capital market (EC 2002). Whether these goals have been achieved, mixed evidence exists (e.g. Ahmed et al. (2012), Barth et al., (2007), DeFond et al. (2011)).

Before 2001, the international accounting standards already existed. They were issued by the International Accounting Standards Committee (IASC) which was a body set in 1973 by other professional accountancy bodies from ten countries (Japan, Netherlands, Germany, France, Australia, United Kingdom, Ireland and Canada and the United States) (Ball 2006, p.6). To take over the rule-performing function of the IASC, in April 2001 the International Accounting Standards Board (IASB) was established. The IASB as successor of the IASC and the IASC itself are to develop a set of high quality reporting standards. To reach this goal, the IASC has released principle-based accounting standards, the International Accounting Standards (IAS) (Barth et all, 2007). The rules described by the IASB are labelled the International Financial Reporting Standards (IFRS) but they still recognize and accept the IAS as legitimate (Ball 2006, p.6).

1.2 RELEVANCE

The adoption of IFRS is a worldwide phenomenon and spreading over countries. On behalf of this occurrence, the investigation of the impact of the IFRS adoption is relevant. The development of IFRS is an evolving process with continuous new insights; consequently, it is a dynamic topic concerning future research and findings.

The motivation performing this thesis is the fact that if the outcome is a difference in the capital-market reaction due to the application of IFRS concerning countries with a strong economy and countries with a weak economy investigating listed companies, then the conclusions of prior scientific researches have to be supplemented with a note that the capital-market reaction is not generalizable and in addition depends on the economic status of the country. On the impact of IFRS with the distinction in countries with strong or weak economies in the past little or no prior research has been performed, consequently this thesis is relevant.

By using the distinction in the economic status of the countries, it will be possible to account the effects of the IFRS adoption on the capital-markets to the right economic status. This opens an avenue for further research like investigating the probable cause of this difference. Probably not all countries benefit from IFRS in the same way. Consequently, the relevance of this thesis is high. Alternatively, if the outcome is that no significant difference exists in the capital-market reactions, this research has added more strength to the existing scientific literature about the capital market reaction after the adoption of IFRS including a longer sample period.

This thesis focuses on the capital-market reactions concerning the mandatory adoption of IFRS in some countries of the European Union. It contributes to the scientific economic literature and to the existing scientific research in two ways. First, by increasing the sample period, more data post-IFRS can be examined that can endorse or reject the existing findings in prior scientific research concerning the impact of the IFRS adoption on the capital market. Second, scrutinizing the difference or the similarity in the capital-market reactions of the IFRS adoption concerning the economic status of the examined countries.

This is triggered by the fact that prior research often focuses on the impact in a single country or market, or on the impact in a whole continent like the European Union, but never uses the distinction between countries with strong and countries with weak economic state. As far as known, the addition of these two paths to the existing scientific economic literature and research is unique.

1.3 OBJECTIVE AND RESEARCH QUESTION

Much research has been performed concerning the impact of the adoption of IFRS on various levels, e.g.; Market reaction to the adaption of IFRS in the European Union (Armstrong et al. 2010), intended and unintended consequences of the mandatory IFRS adoption (Brüggemann 2012), Mandatory IFRS reporting in the world: early evidence on the economic consequences (Daske et al., 2008). These researches focus on the economic consequences and on the market reactions.

Some other comprehensive studies are: Mandatory IFRS Adoption and the Contractual Usefulness of Accounting Information in the Executive Compensation (Ozkan et al. 2012); does Adoption of IAS/IFRS deter the use of Earnings Management? (Capkun et al, 2012). These researches focus on the executive compensation and the use of earnings management.

Other researches in their turn focus on reporting, information and accounting quality; Does mandatory IFRS adoption improve the information environment (Horton et al. 2013), IFRS adoption and accounting quality: a review (Soderstrom and Sun, 2007). In addition, the sample periods of the studies are different depending on the subject that is investigated.

As signalled before, much research has already been performed concerning the impact of the IFRS adoption in the world. These researches amongst others concern the impact on the capital-markets, the improvement of the information quality, the financial reporting, the audit fees, and the use of earnings management. Because a difficulty exists in segregating these effects from the effects of the changes unrelated to the financial reporting, scientific empirical studies may overstate the capital-market effects. It is yet unclear in which way investors in the European Union would react to IFRS adoption concerning the economic state of the country.

When it is expected that the adoption of IFRS creates higher quality in the financial reporting and thereby improves the transparency, lowering the information asymmetry and hence the information risk, consequently decreasing the cost of capital, one can assume that the investors would react positively to the application of IFRS (Armstrong et al. 2010). This indeed is the case and is supported by prior research. For example, Barth et al. (2007) found that the application of IFRS is associated with higher financial reporting quality. In addition, much research has been performed, showing that a link exists between the financial reporting quality and the cost of capital. For example, Baiman and Verrecchia (1996), Leuz and Verrecchia (2000) and Barth et al. (2007). However, what would the capital-market reaction be if the sample were divided in companies within countries that have a strong economy and countries that have a weak economy?

The samples used in prior studies always concern listed companies in a country or continent. No distinction is used concerning the state of the economy of those countries.

As signalled before this was the trigger to scrutinize the difference or the similarity in the capital-market reaction of the IFRS adoption concerning countries with strong and countries with weak economic status. Consequently, the main question of this thesis is:

"Do listed firms in strong economic European Union countries experience systematically different capital-market reactions concerning the mandatory IFRS adoption than the listed firms in weak economic European Union countries?"

To answer this main thesis question, it is necessary to use the support of some sub-questions. The supportive sub-questions are:

1) Which theory is relevant concerning financial accounting research?
2) What are the International Financial Reporting Standards and what is their main influence on the financial statements?
3) Which prior research has been performed related to this subject?
4) What are the hypotheses that have to be tested concerning answering the main question?
5) What is meant by capital-market reaction and in which way can this be measured?
6) Which model fits best to perform the empirical part concerning this thesis?
7) Which external factors have to be taken into account when performing the empirical part of this thesis?
8) What are the results of the empirical part of this thesis?
9) What is based on the results the interpretation and the conclusion?

The sub-questions are limitative but answering them in the broadest way will provide structure and guidance towards the final goal of this thesis, which is answering the main question resulting in a contribution to the existing scientific research.

1.4 METHODOLOGY

The main research method is quantitative empirical analyses. This will be supported by a literature study to understand the theoretical background of financial accounting research. To get a clear sight of prior research with interfaces to this subject, a comprehensive literature review is part of the research. After setting up a conceptual framework and formulating the hypotheses, the proxies for operationalization will be determined.

The use of existing proxies and regressions that are proven to act as a benchmark concerning determining the capital market reaction to the implementation of IFRS, potentially complemented with relevant control variables, will help to determine the impact and answer the main question of this thesis.

The examined sample exists of two groups of firms. The first group consists of firms from three countries in the European Union with a strong economy. These countries are the Netherlands, Germany and Denmark. Respectively the main stock exchanges of these countries are AEX, DAX and CSE. The second group of the sample consists of firms from three countries in the European Union with a weak economy. These countries are Spain, Portugal and Italy. Respectively the main stock exchanges of these countries are IBEX 35 Madrid, PSI 20 and FTSE MIB Milan.

The distinction in the economic state ensures that the sample exists of two groups. The results of the first group will be compared with the results of the second group. In addition, the results of the countries

within the groups will also be compared with each other. Consequently, the regression will be used more than once. Furthermore, a difference-in-differences analyses will be performed to determine the significance of the changes in the means of the variables for each country before and after mandatory adoption of IFRS.

The sample period will be from 2001 until 2014. This is a significant extension of the period in comparison with existing studies investigating the impact of the adoption of IFRS. This sample covers four years before the adoption and ten years after the adoption of IFRS. Further details on the content of the research design will be presented in chapter 5.

1.5 DEMARCATIONS AND LIMITATIONS

The main objective of this thesis is to provide insight into whether the impact of the adoption of IFRS will depend on the economy state in a country. Some circumstances may exist that have impact on the results of this thesis, perhaps the impact is small, and however, these circumstances should be signalled.

First, the sample period contains some events that could bias the results. The sample period is from 2001 to 2014. The years around the mandatory IFRS adoption in the European Union (2004-2006), could have small impact on the results because of the transition period in which maybe the capital market reaction to the adoption of IFRS could be different from the years after the adoption when the adoption was fully accepted and known by the investors. Second, the economic crisis within the European Union starting in 2008 can have substantial impact on the results. Using literature of prior research trying to clarify this impact without commenting the matter too deeply. To exclude the noise as much as possible, if possible, control variables will be used.

Next to the sample period, there are more countries than the chosen ones with strong or weak economy as main characteristic, it is questionable whether the results are generalizable under different circumstances.

More factors exist that can have an impact on the results, amongst other the macro-economic changes, the degree of enforcement, the common law or code law country. Concerning these limitations with the aid of prior research, some statements will be present but they are not in scope of this thesis.

1.6 STRUCTURE

Chapter 2 comments the theory behind financial accounting research in detail and explains about IFRS and its impact on financial statements. This will answer sub-questions 1 and 2. Chapter 3 presents prior research with high relevance and interfaces concerning this thesis. These previous studies will serve as the foundation concerning determining which approach to choose performing the empirical part of this thesis, resulting in answering sub-question 3. The hypotheses that will be tested, are discussed in Chapter 4. The chosen approach will be explained in chapter 5 including the research model, which answers sub-questions 5, 6 and 7. Chapter 6 presents insight in the empirical part of this thesis and shows the results, consequently answering sub-question 8. Chapter 7 contains the conclusion, the limitations, and the recommendations concerning potential future research, which answers the last sub-question.

2 BACKGROUND THEORY

2.1 INTRODUCTION

This chapter presents some relevant theoretical background in the context of accounting research and which in addition is essential concerning the better understanding of the topic in this thesis. This will answer sub-questions 1 and 2. Paragraph 2.2 discusses the financial accounting theory in general. Paragraph 2.3 focusses on conservative accounting where 2.4 looks at the capital market accounting research. Paragraph 2.5 scrutinizes on corporate disclosure and the possible link with the capital market reaction. In addition, paragraph 2.6 points out the purpose and the meaning of the International Financial Reporting Standards and 2.7 presents more information on rules- and principles based accounting standards. Paragraph 2.8 discusses common law and code law and 2.9 shines a light regulation and enforcement. The outline of these theories should give the reader enough understanding to examine the topic of this thesis. Paragraph 2.10 finalizes with a summary of this chapter.

2.2 FINANCIAL ACCOUNTING THEORY

Accounting goes a long way back in history. Double entry bookkeeping already appeared in 1494 in Italy, developed by Paciolo. This work was later on translated to English. Some other important accounting events took place in England in the years that followed. The first concept of a joint stock firm was developed in the eighteenth century in England. Limited liability of shareholders and the transferability of shares this way was created. A result of this development was that shares could be bought and sold on the stock market. Because investors where in need of financial information concerning the firms of which the stock were traded, this was the beginning of the transition for financial accounting. It was in the interest of the investors and the firm that the provided financial information was reliable. This was the basis for the development of the accountancy profession and for regulation by the government. It was by the Company Act in 1844 that providing an audited balance sheet for stakeholders appeared in the law (Scott, 2011).

In the twentieth century, the United States grew fast in economic power. Major developments in Financial Accounting terms shifted to the U.S. The most significant creation was the instalment of the Security and Exchange Commission (SEC) by the Securities Act of 1934. The main goal of the Security Act was to protect investors through a disclosure-based structure. The SEC is responsible for ensuring that the investor gets reliable information. In addition, in other countries the development of Financial Accounting has proceeded (Scott, 2011).

Different definitions and theories of accounting exist. Watts and Zimmerman (1986, p.2) communicated that accounting theory "seeks to explain and predict accounting practice". Kabir (2005, p.2) adopts the following definition of accounting theory determined by Littleton (1953): "--- the business of accounting

theory is to examine beliefs and customs critically, to clarify and extend the best from experience, and to direct attention to the genesis and outcome of accounting work".

This definition facilitates different angles of accounting research concerning normative and empirical accounting (Kabir, 2005). In relation to the topic adoption of IFRS and financial accounting, the normative and positive accounting theory are interesting to explain further.

Malmi and Granlund (2009) explain that these theories instruct how one should be doing something and why. Normative theories are often presented as uniform truth even though they do not provide sufficient understanding concerning their potential limitations. In addition, the changing nature of the normative theories creates difficulties to study these theories. For Watts and Zimmerman (1986) theory does not describe how the accounting practice should function, consequently they support the positive accounting theory.

According to Watts and Zimmerman (1979, p.274) a positive accounting theory, is "a theory capable of ex- plaining the factors determining the extant accounting literature, predicting how research will change as the underlying factors change, and explaining the role of theories in the determination of accounting standards". Positive accounting theory explains and predicts accounting practice but does not prescribe it. This is a different angle than the normative accounting theory. The positive theory can help with better understanding the source of the pressures driving the accounting-standard-setting process (Watts and Zimmerman, 1978).

2.3 CONSERVATIVE ACCOUNTING

Some events that happened in the past, like the market crash of 1929, the global credit crisis in 2008, and the known accounting abuses (e.g. Enron, Ahold), resulted in a movement in the direction of more conservative accounting. Basu (1997, p.4) interprets conservatism as "capturing accountants' tendency to require a higher degree of verification to recognize good news as gains than to recognize bad news as losses", in other words earnings reflect bad news more quickly than good news (asymmetry in recognition). This is one of the many interpretations in the available literature. The conservative principle in addition is known as the prudence concept meaning recording expenses and liabilities as soon as possible, but the revenues only when they are realized or assured (http://www.businessdictionary.com/definition/prudence-concept.html). Conservatism has an important role in accounting. However, many scholars have found it complicated to embed the concept fully in the normative accounting theory (Hellman, 2008).

Accounting conservatism has a long history, especially in code law countries. For example, in Germany it was an accepted wisdom that the best way to reach creditor protection is using conservative accounting. The implementation of IFRSs in the financial statements is an opportunity to alter this wisdom (Haller and Eierle, 2004).

Up until 2004, prudent determination of profit was qualified as the most suitable method in Germany. This caused the prudence principle to be leading in the German accounting regime. The effectiveness of using this principle as protection for creditors and investors is questioned more and more in the recent time. This principle enables income smoothing, making it possible to harm investors and creditors. Using IFRS in individual accounts, providing stakeholders with useful decision-making information becomes easier (Haller and Eierle, 2004).

In 1989, the IASC issued the Framework for the Preparation and the Presentation of the Financial Statements. The IASB adopted this framework in 2001. In this framework, the balance sheet approach was chosen instead of the income statement approach (Hellman, 2008). The "balance sheet approach" quailed the valuation of assets and liabilities as the focus of financial reporting. In this approach, the income statement accounts are judged in the light of changes in the related balance sheet accounts and are consequently the second purpose. This approach is often linked to the use of conservatism in accounting. In contrast with the "balance sheet approach," the "income statement approach" focusses on the determination of expenses, revenues, and earnings and qualify this as the main goal of financial reporting. Based on this approach, the balance sheet is the residue of the income statement accounts (Dichev, 2008). When all changes in the balance sheet accounts arise through the income statement accounts, in addition called clean surplus accounting, the balance sheet and the income statement approaches are mutually exclusive. This implies that when a statement is prepared, the other one is created automatically. In practice, accounting does not always follow the clean surplus principle (Demerjian, 2011). Based on the Generally Accepted Accounting Principles (GAAP), "dirty surplus" has evolved which implies that not all changes in the balance sheet accounts arise through the income statement accounts, mainly caused by users' different information demands according to Holthausen and Watts (2001).

According to Paton and Littleton (1940, p7), because of the choice of the IASB to adopt the balance sheet approach, the main concern of accounting shifted from "periodic matching of costs and revenues" to "defining, recognizing, and measuring assets and liabilities appropriately". Revenues are measured as increases in assets or decreases in liabilities and expenses as decreases in assets or increases in liabilities. Why both the FASB and the IASC/IASB adopted the balance sheet approach instead of the income statement approach is not well understood (Hellman, 2008). Because it was impossible to implement fully the balance sheet approach in the first conceptual framework of the IASC that was issued in 1989 as signalled before, parts of the income statement approach remained.

The following statement of the IASB acknowledges this: *". . . the application of the matching concept under this Framework does not allow the recognition of items in the balance sheet which do not meet the definition of assets or liabilities"* (IASB Framework, paragraph 95). This statement is based on the

matching concept which naturally is related to the income statement approach, consequently implies maintaining this approach (Hellman (2008).

The IASB Framework from 1989 contains a certain ambiguity regarding the use of conservatism. The Framework qualified prudence as the characteristic that makes financial statement information more useful. However, paragraph 37 of the IASB Framework presents a view of conservatism that implies that increased disclosure causes that less conservatism can be justified. Summarizing paragraph 37, it connotes a more restrained use of the conservatism principle then the German view signalled earlier (Hellman, 2008). Most accountants accept the use of conservatism, yet there is no exact definition of it (Gharibi and Nemati, 2015).

2.4 CAPITAL MARKET ACCOUNTING RESEARCH

The relation between financial statement information and capital markets, in addition is qualified as capital markets research. Capital market research consists of several fields. The most interesting and relevant topics are market efficiency vs. accounting information, fundamental analysis and accounting-based valuation and the value relevance of financial reporting (Kothari, 2001). The evidence of market inefficiency has stimulated researchers' interest in the signalled topics. This evidence in addition has created a wider interest for research examining long-horizon stock-price performance following accounting events (Kothari, 2001). The starting point for capital markets research in the late 1960s was the development of the efficient markets hypothesis (Kothari, 2001). Kothari (2001) states that the voluminous published research indicates that at least four sources of the demand for capital markets research in accounting exists. These four sources will be briefly commented below.

2.4.1 FUNDAMENTAL ANALYSES AND VALUATION

The value of a firm is an essential element concerning many stakeholders such as shareholders, investors and lenders. Firm value can be defined as the present value of expected future net cash flows, discounted at the appropriate risk-adjusted rate of return (Kothari, 2001). This applies in an efficient market. The financial statement of a firm summarizes the current state and performance. Amongst other information sources, the financial statement is essential concerning the assessment of the company's future net cash flows hence making the firm's market valuation possible. The Financial Accounting Standards Board (FASB) (1978) underpins this in its conceptual framework by stating that financial statements should help investors and creditors in assessing the future cash flows. It is expected that a relation exists between the financial performance and the future cash flows.

In addition, the association between the financial performance and the security prices or price changes is expected. To provide evidence for these associations, capital markets research is essential. To determine the intrinsic value of a firm, fundamental analysis implies that the stakeholder uses current and past financial statements to gather information combined with industry and macroeconomic data.

Concerning determining the difference, this intrinsic value can be measured against the current market price. If a difference occurs, this is an indication of the expected rewards for investing in the security. Because capital markets research on fundamental analysis examines whether it successfully identifies mispriced securities when investigating the market efficiency, fundamental analysis cannot be separated from capital markets research (Kothari, 2001).

2.4.2 TESTS OF MARKET EFFICIENCY

What is market efficiency? "A market in which prices always fully reflect available information is called efficient" (Fama, 1970, p.383). Whether security markets are efficient or not, is essential to standard setters, to managers, to investors and to other stakeholders. Fama (1970) in addition stated that the primary role of the capital market is allocation of the ownership of the economy's capital stock. Inherently, the security prices determine the allocation of the wealth among firms and individuals. Financial information is the main influencer of the security prices, leading to much interest in market efficiency research.

The accounting profession has significant interests in market efficiency. Market efficiency has an impact on certain aspects that are essential to accountants. For example, if one switches the accounting method without a cash flow or signalling effect and no incentive consequences, in an efficient market the security prices will not be affected (Kothari 2001, p.110). Another example is that the rewards from fundamental analysis would decrease if an efficient market occurs. Of course, the opposite of all signalled before will be the case if the market was not efficient. Consequently, the demand concerning market efficiency research is evident. Concerning the market efficiency several subjects have been tested and one of these subjects is testing the market efficiency in accounting. Most literature about accounting draws conclusions about market efficiency from two types of tests; event studies and cross sectional tests of return predictability (Kothari 2001, p.110). Some examples of event studies are Bernard and Thomas (1989) and Ball and Brown (1968). Examples of research that has been performed on the market efficiency in the context of accounting methods are Kaplan and Roll (1972), Ball & Kothari (1991), Hand (1990).

Cross-sectional tests mostly examine if the cross section of the returns on portfolios is consistent with a model like Capital Asset Pricing Model (CAPM), when a specific trading rule is used. The most common trading rules that have been used, were either univariate indicators or multivariate indicators (Kothari 2001, p.110). An example of a univariate indicator is the earnings yield (earnings per share for the most recent 12-month period divided by the current market price per share).

Research that uses univariate indicators, for example are tests on the (mis)pricing of the market regarding the published earnings and cash flow yield, accounting accruals and analysts' forecasts. Ratio-based fundamental analysis are examples of tests using multivariate indicators earning long-horizon abnormal returns.

In addition, research on market efficiency can be divided into three categories (Fama, 1970). Weak-form tests, semi-strong form tests and strong-form tests. To understand these tests, it is essential; to know more about the theory behind the three forms of market efficiency.

An information efficient market, as it is supposed in the finance and investment theory, refers to a market where prices at any time fully reflect all the available relevant information (Fama, 1970). The base for this definition of efficiency is linked with the role of the market prices for resource allocation, i.e. asset prices determine the conditions under which capital is made available to the various competing parties in the capital market. When prices fully reflect all the available information about the underlying economic entities, the financial resources will be allocated in the right manner and will be most productive.

The weak form is considered when prices reflect all the historical information, including any implicit information in all the historical price movements. Actual price movements are then totally independent of historical changes, which implies the absence of price patterns that have some predictive value. According to the weak form of the Efficient Market Hypotheses (EMH), the application of an investment strategy will generate no systematic extraordinary returns (Fama, 1970).

The semi-strong form of the EMH occurs when the current price reflects all the publicly available information at that time. The market reacts immediately on new incoming available information, in the correct manner, both in terms of direction and in terms of magnitude. Acting on the base of, for example, newspaper articles and annual reports, no opportunity to achieve extraordinary returns exists (Fama, 1970).

The strong form of the EMH applies when the price reflects all information, including not yet publicly known, the so-called 'inside information'. In this case, it is impossible to obtain systematic extraordinary returns for those who have access to publicly unavailable information, such as investment analysts working in financial departments of banks (Fama, 1970).

The three before signalled forms of the EMH are not independent of each other. To be efficient in the semi-strong form, the market in addition needs to be efficient in the weak form, simply because historical information is a subset of the public information. Similarly, because otherwise the price does not reflect all the relevant information for a market to be efficient in the strong form, it needs to be efficient in the weak and in the semi-strong form (Fama, 1970).

2.5 CORPORATE DISCLOSURE

What is Corporate Disclosure? "Corporate disclosure can be defined as the communication of information by people inside the public firms towards people outside," (Farvaque et al., 2012, p.8) "Financial reporting and disclosure are potentially important means for management to communicate

firm performance and governance to outside investors," (Healy and Palepu, 2001, p.405). Corporate disclosures are expected to improve the market liquidity and lower the cost of capital (Leuz and Wysocki, 2006). Potentially, if the number of disclosures increases, corporate governance and managers' investment decisions will improve. These are possible benefits of corporate disclosure. Another possible reinforcing capital market benefit, although indirect, is the attraction of institutional investors. On the other hand, the cost aspect for example contains direct costs such as for preparing, certifying, and publishing corporate information. Because this information in addition can be used by employees, by competitors, by politicians and by regulators as a consequence of disclosure in addition indirect costs can occur, (Leuz & Wysocki, 2006). In order to determine whether disclosures increase the firm value, implying the disclosure is beneficial to the firm, the costs have to be weighed against the benefits.

2.5.1 CORPORATE DISCLOSURE AND MARKET LIQUIDITY

Verrecchia (2001) has the opinion that the link between disclosure and the information asymmetry reduction is the most potential to link the efficiency to the disclosure. Information asymmetry among investors can cause adverse selection within the share markets. Adverse selection implies that one party has an information advantage over the other party (concerning a transaction). This is the core of the link between the disclosure and the market liquidity (Verrecchia, 2001). If an investor has an information advantage over another investor, most likely the uninformed investor will doubt or question the trading reasons of the informed investor. The uninformed investor will consequently adjust the price at which he is willing to buy or sell as a form of protection against the losses form trading with an informed counterpart. The probability of trading with an informed investor is reflected by this price adjustment including the effect of the potential information advantage of an informed trader (Leuz & Wysocki, 2006).

Reduction of shares that uninformed investors are willing to trade is the result of the information asymmetry and the adverse selection. The adverse selection problem can be mitigated by corporate disclosure. As stated before by Leuz & Wysocki (2006) and by Verrecchia (2001), corporate disclosure increases the market liquidity by levelling the information availability or - level among investors. The main effect of the corporate disclosure is the decrease of the probability an investor realizes a potential information advantage and become privately inform.

This effect reduces the investor's need to price and protect which results in the increase of the market liquidity (Leuz & Wysocki, 2006).

2.5.2 CORPORATE DISCLOSURE AND THE COST OF CAPITAL

The previously signalled describes the link between corporate disclosure and the market liquidity. The other important theories are the ones that link the corporate disclosure with the cost of capital. In 1987, Merton has conceived and developed a model to demonstrate this link. Because of the available market

information, this model is based on risk sharing. Because of incomplete information availability to investors and due to the latter not being aware of all firms in the economy, risk sharing is incomplete and inefficient (Merton, 1987). When investors become aware of the lesser-known firms due to disclosure by these firms, the investor base is enlarged. This improves risk sharing and consequently lowers the cost of capital.

Another path for proving the link between disclosure and the cost of capital is through estimation risk (e.g. Coles and Loewenstein, 1988; Barry and Brown, 1984 and 1985). The base of this idea is that first important parameters have to be estimated (e.g. beta factor), and then the role of information in the estimation has to be analysed. Barry and Brown (1985) have modelled information signals resulting from a historical time-series of returns. However, these studies could not answer all questions regarding the link between firm-specific disclosures and the cost of capital particularly in unequal information environments. When in these studies investigating the way it is modelled, still too much discussion exists about the diversified accountability of the estimation risk.

Later studies show that estimation risk can be modelled using a more conventional information-economics approach. Lambert et al. (2006) uses this approach and relates the information signals to the future cash flows. The approach more general changes in the information environment can absorb and perform analysis of firm-specific disclosures. Lambert et al. (2006) finds that the assessed covariances of a firm's cash flows with the cash flows of other firms decrease while the quality of the disclosures increases. It is almost inevitable that this effect moves the cost of capital closer to the risk-free rate. Because this information effect can be found in almost all covariance terms with other firms, it is not diversifiable. Where forming of portfolios with many stocks occurs, provided that this valid for only the effect on the firm-specific variance diversifiable of this effect is most likely possible in large economies (Leuz & Wysocki, 2006). When the theory of the CAPM model is compared with the results of Lambert et al. (2006), they are in conformity with each other. No suggestion is created that information generates a separate risk factor. The information effect should be captured in firms' beta factor and in the market risk premium for the economy.

Lambert et al. (2006) demonstrates that a firm's cost of capital in two ways is influenced by accounting information: direct and indirect effects. Market participants' assessments of the distribution of future cash flows is affected by higher quality accounting information, which is a direct effect. Higher quality accounting information in addition affects a firm's real decisions, which is an indirect effect. In turn, this influences the expected value and the covariance of the firm cash flows.

Next to the effect on the cost of capital, corporate disclosures potentially can change firm value. The managers' decision is affected which has impact on the distribution of the future cash flows. Lambert (2001) among many other studies on the agency theory suggests that firm value increases due to more

transparency and better corporate governance. This improves the managers' decisions that has a direct effect on the expected future cash flows, and it generally effects the cost of capital indirectly.

2.6 INTERNATIONAL FINANCIAL REPORTING STANDARDS (IFRS)

As signalled before, the introduction of the International Financial Reporting Standards is one of the greatest events and regulatory change in the accounting history. It is a worldwide phenomenon with significant impact.

2.6.1 INTRODUCTION OF IFRS

What are IFRS? Ball (2006, p.2) defines IFRS as follows: "International Financial Reporting Standards (IFRS) are accounting rules (standards) issued by the International Accounting Standard Board (IASB), an independent organization based in London, UK". The scope of IFRS is to be a set of rules that apply equally to financial reporting by public companies worldwide (Ball, 2006). Before the development of IFRS as target reporting standard, the 'International Accounting Standards' (IAS) applied internationally. These international standards by the International Accounting Standards Committee (IASC) were issued between 1973 and 2000. The IASC in 1973 by some professional accountancy bodies across the world was established (Canada, Mexico, Netherlands, United Kingdom, and United States). In April 2001, the IASB has taken over this rule-making task from the IASC and describes its rules under the new label IFRS, however the IASB continues accepting the prior rules (IAS) as legitimate (Ball, 2006).

2.6.2 MANDATORY ADOPTION OF IFRS BY THE EUROPEAN UNION

In 2001, IFRS in the European Union was introduced. A number of firms in the period between 2001 and 2005 adopted IFRS voluntarily. The mandatory adoption of IFRS by the European Union (EU) was a fact on January 1, 2005. From that moment, EU Regulation No. 1606/2002 (the IAS Regulation) required listed firms in the EU to prepare their consolidated financial statements according to IFRS. This obligation of IFRS forced over 7,000 public traded companies to report conform IFRS and to let go of various previously used domestic accounting standards (Byard et all, 2010). Byard et all (2010) states that the effect of the mandatory adoption on analysts' information environment could be two-sided.

It may improve the information environment due to the possible benefits like enhanced disclosure, more transparency and increased comparability of financial reports, or it may render financial reporting less informative because IFRS reporting could be suboptimal compared with the local accounting standards representing firms' performance.

The effect of the mandatory implementation of IFRS in addition depends on the enforcement regimes in the EU countries. If the enforcement is weak, firms may tend to adopt IFRS only in name and not

implement it in the financial reporting practices. When the domestic standards already optimize financial reporting and the enforcement is weak, lack of incentive for implementing and embedding IFRS occurs.

Good functioning capital markets depend on contribution by listed companies. According to supporters of IFRS, application of a single set of high quality accounting standards is conditionally concerning this contribution (Quigley, 2007). IFRS are high quality accounting standards, hence Ball (2006) summarizes that they can facilitate an increase in the reporting transparency, decrease the information costs, cross-border comparability and the reduction of the information asymmetry. All these potential benefits that are mainly triggered by the introduction of IFRS, increase the competitiveness, the liquidity and the efficiency of markets (Ball, 2006). However, Ball (2006) in addition states that little or conflicting evidence exists that IFRS contributes more to the information flow towards market participants and to better comparability of financial information compared to previous accounting regimes. Suitable enforcement mechanisms have to be in place to achieve convergence and harmonisation (Ball, 2006). The question remains whether the benefits of this implementation outweigh the costs.

2.6.3   IFRS vs U.S. GAAP

The history of the onset of IFRS already has been commented in the previous chapters. The history of U.S. GAAP goes back to 1939 when the American Institute of Accountants (AIA) formed the Committee on Accounting Procedure (CAP). This committee issued 51 Accounting Research Bulletins (ARB). In 1957, the AIA was renamed to the American Institute of Certified Public Accountants (AICPA). In 1959, the AICPA formed the Accounting Principles Board (APB) which issued 31 APB opinions.

In 1973, the Financial Accounting Standards Board (FASB) was formed which issued 168 Statements of Financial Accounting Standards (SFAS). From July 1, 2009, the Accounting Standards Codification (ASC) is the single source of the authoritative U.S. GAAP. The ASC integrated all previous sources of U.S. GAAP (www.accountinginfo.com). Ball (1995) concludes that more international convergence exists regarding the accounting standards. The main cause is that markets and politics are more and more integrating cross-border.

This revolutionary internationalization inevitably creates a greater demand for convergence in the financial reporting. In addition, the rapidly growth of the availability of all kinds of information through the internet, makes it possible to access it from all over the world. However, some markets and political forces are local and probably will remain local in the nearby future. This makes it uncertain how far the convergence will go in the financial reporting practice (Ball, 2006).

Ball (2006, p.13) defines convergence as "the process of narrowing differences between IFRS and IFRS and the accounting standards of countries that retain their own standards". These countries have a few

options of which policy to apply regarding financial reporting: (a) demand financial reporting to comply with the domestic standards, depending on economic and local political factors, with no formal recognition of IFRS, (b) prohibit application of IFRS, (c) permit reporting under either IFRS or domestic standards, (d) ask domestic companies to report under domestic standards and cross-listed companies to report under either domestic standards or IFRS (Ball, 2006). Retaining domestic standards is a customized way of adoption. The SEC allows US companies to use either IFRS or U.S. GAAP (United Stated General Accepted Accounting Principles). The SEC eliminated the obligation for companies that report under IFRS, to comply with U.S. GAAP. IFRS is regarded to be more principles-based than U.S. GAAP, making it more flexible and relying less on detailed rules (Beneish and Yohn, 2008). Leuz (2003) concluded that when comparing IFRS with U.S. GAAP regarding the reduction of the information asymmetry, IFRS is equivalent to U.S. GAAP in terms of a high-quality set of accounting standards.

Barth et al. (2007, p.3) states that "prior research generally finds that the accounting amounts of non-US firms' applying IAS and US firms applying US GAAP generally are of higher quality than those of non-US firms applying domestic standards". In general, Barth et al. (2007) finds that firms reporting under IAS show less earnings smoothing and timely recognize losses. They find that firms reporting under IAS have a higher accounting quality than firms that do not report under IAS. They in addition conclude that the accounting quality of the firms in the U.S. that apply U.S. GAAP is higher than the firms that apply IAS. Barth et al. (2007) in addition communicate that it is premature to conclude for sure that U.S. firms reporting under U.S. GAAP have a higher accounting quality than those reporting under IAS. Suppose that a great portion of the IAS classified firms in the sample are affected by potential sources of classification error, then the findings are biased (Barth et al., 2007).

Lin et al. (2012) finds that when applying U.S. GAAP, this resulted in higher accounting quality than reporting under IFRS. They in addition find that a transition from U.S. GAAP to IFRS create a lower accounting quality.

In other countries IAS has a more positive effect on the accounting quality than GAAP has. For example, Leuz and Verrecchia (2000) find that applying IAS has a more positive effect on the trading volume and on the bid-ask spreads than reporting based on German GAAP.

Bartov et al. (2005) shows that when companies reported based on IAS, a stronger earnings/return relation appears than when reporting based on German GAAP. Prior research shows that still a difference exists in the outcome of already conducted studies regarding the impact of the application of IFRS and of US GAAP.

Based on IFRS and U.S. GAAP from the 1st of January 2014, KPMG (2014) outlines the differences between the two. In addition, much convergence exists between IFRS and U.S. GAAP but below a few of the differences will be summarized.

TABLE 1: DIFFERENCES BETWEEN IFRS AND U.S. GAAP (source KPMG, 2014)

Differences between IFRS and U.S. GAAP	
The Conceptual Framework is a point of reference for preparers of financial statements in the absence of specific guidance in IFRS	The Conceptual Framework is non-authoritative guidance and is not referred to routinely by preparers of financial statements
Financial statements are prepared on a going concern basis, unless management intends or has no realistic alternative other than to liquidate the entity or to stop trading	Financial statements are generally prepared on a going concern basis (i.e. the usual requirements of US GAAP apply) unless liquidation is imminent.
An entity with one or more subsidiaries presents consolidated financial statements unless specific criteria are met	there are no exemptions, other than for investment companies, from preparing consolidated financial statements if an entity has one or more subsidiaries
The separate components of a single transaction are classified as operating, investing or financing	Cash receipts and payments with attributes of more than one class of cash flows are classified based on the predominant source of the cash flows unless the underlying transaction is accounted for as having different components
Income taxes paid are classified as operating activities unless it is practicable to identify them with, and therefore classify them as, financing or investing activities	income taxes are generally required to be classified as operating activities
There is no practical expedient that allows entities to measure the fair value of certain investments at net asset value	a practical expedient allows entities to measure the fair value of certain investments at net asset value
Regarding consolidation, uniform accounting policies are used throughout the group	Regarding consolidation, uniform accounting policies within the group are not required
'Push-down' accounting, whereby fair value adjustments are recognised in the financial statements of the acquiree, is not permitted under IFRS	'push-down' accounting, whereby fair value adjustments are recognised in the financial statements of the acquiree, is permitted for acquisitions on or after 18 November 2014
Generally, an entity presents its statement of financial position classified between current and non-current assets and liabilities. An unclassified statement of financial position based on the order of liquidity is acceptable only if it provides reliable and more relevant information	US GAAP does not contain a requirement to present a classified statement of financial position. Unlike IFRS, there is no restriction on when an unclassified statement of financial position based on the order of liquidity can be presented
Although IFRS requires certain items to be presented in the statement of financial position, there is no prescribed format	SEC regulations prescribe the format and certain minimum line item disclosures for SEC registrants. For non-SEC registrants, there is limited guidance on the presentation of the statement of financial position, like IFRS
If an item of property, plant and equipment comprises individual components for which different depreciation methods or rates are appropriate, then each component is depreciated separately	Component accounting is permitted but not required. When component accounting is used, its application may differ from IFRS
Intangible assets may be revalued to fair value only if there is an active market	The revaluation of intangible assets is not permitted

2.7 RULES- AND PRINCIPLES-BASED ACCOUNTING STANDARDS

Two different categories of accounting standards exist, rules-based and principles-based. Rules-based standards attempt to lay down detailed rules for in which way to account, in contrast to principles-based standards which lay down general principles only and rely on auditor professional judgement to make sure that the application of the standards is correctly performed (Scott, 2011). A widely-held view is that U.S. accounting standards are more rules-based and that IAS or IFRS are principles-based (Benston et al., 2006). The Enron scandal caused the rules-based approach based on GAAP (General Accepted Accounting Principles, local standards) to come under fire.

Immediately after the Enron scandal, the Sarbanes-Oxley Act of 2002 included a provision giving instructions to the SEC (Securities and Exchange Commission) to conduct an investigation into the Adoption by the United States Financial Reporting System of a Principles-Based Accounting System (Benston et al., 2006).

2.7.1 RULES-BASED ACCOUNTING STANDARDS

The Financial Accounting Standards Board (FASB) issued a Proposal in 2002, *Principles-Based Approach to U.S. Standard Setting*, which explains that the detail and the complexity in accounting standards has its origin in the demand-driven development and the adjustments. Many exceptions exist and the FASB has to give a large amount of interpretation and implementation guidance for application of the standards (FASB, 2002). The major challenge for the FASB was to maintain the verifiability and the comparability that resulted in extensive guidance to accompany the accounting standards (FASB, 2002). To avoid situations in which transactions or events are interpreted differently due to professional judgements, the FASB rejects 'principles only' standards in its Proposal (FASB, 2002). In the United States and in more and more other countries, the demand for standards by management and auditors that clearly answer each accounting issues, was growing. Because the accountants wanted to have rules on which they can fall back to in case of costly lawsuits, this trend appeared. This was one of the triggers for the FASB and its predecessors to developed rules-based standards. In addition, the standards setters produced rules for as many situations as possible, e.g. to reduce the possibility for the use of earnings management by managers and to provide auditors and regulators with authoritative guidance (Benston et al., 2006).

When working based on a rules-based system, auditors have detailed implementation guidance. These rules notably decrease uncertainty considering the accountant's role. This results in almost an automatic pilot way of application of the rules by the accountant. This mechanical way of application causes, to a certain extent, the accounting profession being noted as "dull". Under a rules-based system, the auditor merely reports formal compliance of a firm's financial statements with a set of rules (Carmona and Trombetta, 2008). Under a principles-based system there's more to it than just this.

2.7.2 PRINCIPLES-BASED ACCOUNTING STANDARDS

The FASB (2002, 2004) and the SEC (2003) have rejected the rules-based standard setting, even though the demand for these rules was significant. They turned to principles-based standard setting, most likely because in the context of the accounting scandals, the FASB and the SEC probably think that the business case for rules-based standards is not valid (positive) anymore, i.e. the costs outweigh the benefits (Benston et al., 2006).

According to Carmona and Trombetta (2008), principles-based standards refer to fundamental understandings that inform transactions and economic events. It is essential to know that in case of principles-based standards, these understandings dominate any other rule settled in the standard. Furthermore, generic accounting standards are issued by principles-based systems. In contrast to rules-based standards, the principles-based standards will not cover every controversial issue but will keep some space for professional judgement concerning the major processes, e.g. record keeping and measurement (Carmona and Trombetta, 2008).

The American Institute of Certified Public Accountants (AICPA) advised that the financial statements should be prepared according with "accepted principles of accounting". However, because they affirmed that financial reporting was built on principles that were nothing more than rules and conventions, the discussion continued (Gill, 2002). The accountants came to a joint understanding about the definition of 'principle', the seventh edition conform the Oxford English Dictionary: "A general law or rule adopted or professed as a guide to action; a settled ground or basis of conduct or "practice" (Gill, 2002, p.969).

One can imagine that bringing IAS/IFRS (principles-based) to countries with a rule-based system can conflict with the national regulatory setting. The open and flexible mind-set that conditionally goes with the principles-based nature of IAS/IFRS standards has an impact on the accountants and on the auditors' development of the educational background and skills. In other words, because of the adoption of IFRS the accountants and the auditors have to have a thorough knowledge of business and economics. In this context, the accountant should delve into the business and the economic background of transactions before deciding what steps need to be taken concerning the accounting treatment (Carmona and Trombetta, 2008).

Schipper (2003) indicates that professional judgement is the most important and distinctive element that accountants are required to practice based on the system of principles-based accounting. Ethical and legal skills that hardly come forward based on the rules-based accounting now belong to the minimum competence of the auditor. Additionally, the auditor needs to understand in which extent the IAS/IFRS standards are being complied with by the companies. Informed judgement of the goings and financial situation of the company is conditional concerning this understanding (Carmona and Trombetta, 2008).

2.8 COMMON-LAW VS CODE-LAW

Legal systems in addition influence accounting standards. Countries around the world can differ in their approach regarding to accounting policies. This is mainly caused by the difference in regulation. The distinction exists between common-law and code-law (in addition called civil-law) regulation in the world (Christensen et al., 2007). Concerning the current commerce, international trade and overseas stock exchange, it has become more important to delve into this difference in law systems.

Common-law has its origin in England during the 11th and 12th centuries, developing a judicial system to centralize control over courts. The judges made decisions regarding common pleas brought to court. This formed the legal precedents that is now known as common-law. This system decreased the influence of the king. Based on the common-law system a clear separation exists between the executive and the legal system. This and the fact that common-law is developed with input from common people issues is reflected in the way of standard setting in common-law countries. This resulted in private organizations like the FASB in the US setting the accounting standards, derived from information demands from investors instead of from government involvement (Soderstrom and Sun, 2007). Examples of common-law countries are Australia, Canada, UK and the USA (Ball et al., 2000).

On the other hand, code-law was elaborated to make it possible for governments to control the setting as well as the interpretation of the laws. Most West-European countries have code-law, e.g. France, Germany, Belgium Italy and Spain (La Porta et al., 1998). In these countries, the commercial law is instituted by courts including the accounting standards. The accounting standards are a part of the commercial law and consequently are influenced by the governmental priorities (Soderstrom and Sun, 2007). This political influence in the accounting standard setting in code-law countries turns accounting into a measure for dividing profits among shareholders as dividends, governments as taxes, labour unions as salaries and wages and banks as interests. This is in contrast with the common-law countries where accounting has a role of providing information to the investors and other stakeholders (Ball et al., 2000).

La Porta et al. (1998) find that common-law countries have better accounting systems and better protection of investors than code-law countries. In general, based on code-law than based on common-law investors have weaker legal rights. Shareholders have the strongest protection in the common-law countries (e.g. England, UK and Australia). In these countries, legal enforcement is higher. International accounting literature concludes that accounting quality in these countries is higher. Based on the French-civil-law, the protection of shareholders and of the creditors is the weakest. German civil-law and Scandinavian countries are somewhere in between these two (La Porta et al., 1998).

When scrutinizing on law enforcement, Germany and Scandinavian civil-law countries rank the highest followed by common-law countries and again the lowest in French-civil-law countries (La Porta et al., 1998).

The enforcement role of the legal systems is essential in relation to the accounting quality after the adoption of IFRS. The IASB is responsible for issuing IFRS, hence has no enforcement power (Soderstrom and Sun, 2007). This implies that the security exchanges and courts where firms are listed, have this power (Schipper, 2005). As many commented literature shows, the legal systems within the EU, vary significantly which might result in varying accounting quality after the adoption of IFRS. In addition, Ball (2006) describes that accountants and auditors have to apply general principles rather than detailed standards and have to adapt these principles to specific situations. This way of working is caused by the fact that IFRS are principles-based. Of course, not all situations are and can be prescribed based on IFRS which implies that interpretation of the principles is needed. Consequently, in these cases in determining the accounting quality the legal system is essential. Soderstrom and Sun (2007) expect that in common-law countries (strong shareholder protection) interpretation will most likely tend to present fair information to the shareholders. In code-law countries (strong creditor/stakeholder protection) interpretation will most likely satisfy contracting demand of banks.

Kinsey et al. (2008) explain that code-law countries are been driven by the use of conservatism, financial reporting alignment with tax regulations and broad-stakeholder orientation. The government, the shareholders, the debtholders, the employees and the managers are all viewed as stakeholders who rely less on public information due to their access to private information. Consequently, in these countries the incentives to reduce earnings volatility are higher. Kinsey et al. (2008) expects that the benefits of the adoption of IFRS and the impact on the capital markets would be higher in these countries than in the common-law countries where the private investor or stockholder is the primary orientation of the financial reporting. As signalled before, the accounting systems in the common-law countries are built on the disclosure needs of the shareholders who require a high standard of public disclosure (Kinsey et al., 2008).

Ball et al. (2000) find that the timeliness of the accounting income in common-law countries is much better than in code-law countries, apparently due to taking losses quicker in the financial statements. On the contrary, in code-law countries the institutional features more likely resolve the information asymmetry. Ball et al. (2000) concludes that the agency costs of monitoring managers are reduced by enhanced common-law disclosure. This counters the benefit of closer shareholder-manager contact in code-law countries.

2.9 REGULATION AND ENFORCEMENT

Christensen et al. (2012) states that a better understanding of the sources that create the benefits of the adoption of IFRS is essential concerning regulators, researchers and policy makers, considering the trend

towards worldwide IFRS reporting. The impact of the regulation, of the enforcement and of the political influences on the IFRS adoption need to be highlighted. Prior research shows with reservation that when countries have better functioning and stricter legal systems, the impact of the IFRS adoption is significantly higher. Furthermore, this effect is stronger in the EU than in the rest of the world. Christensen et al. (2012) concludes that the liquidity effects due to IFRS adoption are unrelated to the economic shocks and are not caused by other EU Directives. It seems like the liquidity effects are mainly caused by the financial reporting environment, but they in addition can reflect the parallel changes in the enforcement or other reporting related improvements. Enforcement implies setting up a system of mechanisms to prevent errors in the financial reports. Christensen et al. (2012) in addition find that the liquidity effects are limited to those EU countries that at the same time made changes in their enforcement. No evidence was found concerning liquidity effects in non-EU countries even though they have strong regulation implementing track records or strong legal systems which was striking. These findings are inconsistent with prior research that outlined the view that the capital-market benefits due to IFRS adoption occur provided that the level of enforcement is sufficient.

Byard et al. (2010) overall find that the mandatory adoption of IFRS improves the information environment only if the changes are substantial and strictly enforced. Ernstberger et al. (2012) conclude that accounting outcomes are influenced by both accounting regime and by the degree of enforcement. The research by Ernstberger et al. (2012) studies the enforcement of the financial reports in Germany and focusses on recent reforms. These reforms connote restructured auditor oversight and the introduction of new independence rules for auditors. Analysis show that these reforms have increased the enforcement in Germany and in addition have affected stock liquidity and earnings quality in a positive way. Florou and Pope (2012) find that the positive impact of the IFRS adoption on the institutional holdings is confined to countries with strong enforcement and reporting incentives and furthermore where the difference between the domestic standards and IFRS is relatively high.

Hail and Leuz (2007) in addition document that around the introduction of the mandatory IFRS reporting, many EU countries have taken extra efforts to tighten their enforcement regimes. Consequently, it is possible that these concurrent changes in enforcement cause the improvements in the financial reporting and not the adoption of IFRS. Christensen et al. (2012, p.171) in addition concludes the same, "countries made enforcement (and possibly other) changes to support the introduction of IFRS and it is this bundle that drove the capital-market effects".

Strong political influence on accounting is mostly linked with code-law countries. This influence is strong compared to common-law countries and occurs specifically at firm and at national levels. As signalled before, the government publishes and enforces national accounting standards, which take the

demand of banks, major political groups and business associations into account. This politicization results in a 'stakeholder' governance model at firm level (Ball et al., 2000).

2.10 SUMMARY

Accounting exists for a long time and goes way back in history. The first stock market in England was established somewhere in the eighteenth century. In the twentieth century, the major development within financial accounting shifted towards the U.S. The theory of the normative and the positive accounting has been commented. Conservative accounting has its origin in 1929, but in 2008 the scandals of Enron and Ahold gave an extra trigger for more conservative accounting. Capital Market Research consists of several fields, market efficiency vs. accounting information, fundamental analysis and accounting-based valuation and the value relevance of the financial reporting. Fundamental analysis and market efficiency have been briefly commented in this chapter. Corporate disclosure has an impact on the market liquidity and on the cost of capital. This link has been commented in this chapter. Furthermore, the IFRS have been outlined and some of the standards are summarized. Next to this, some background information has been commented (e.g. mandatory adoption of IFRS by the European Union).

A summary of some differences between U.S. GAAP and IFRS are shown in tabulation no. 1. The theory behind rules-based and principles-based has been scrutinized. Common law and code law, both are explained in this chapter. Finally, the regulation and the enforcement in relation to adoption of IFRS is highlighted.

The next chapter presents related empirical studies.

3   RELATED EMPIRICAL STUDIES

3.1   INTRODUCTION

Much research has been performed concerning the impact of the adoption of IFRS. This chapter presents a summary of prior research that is relevant concerning performing the empirical analysis in this thesis and is not limitative as a listing to indicate all literature that is consulted in order to write this thesis. This will answer sub-question 3. The relevant studies will be summarized by presenting the following points for each study: what is the objective of the research (what has been researched), which sample has been used and what are the main conclusions. Paragraph 3.2 discusses the research of Hail and Leuz (2007). Brüggemann et al. (2012) is presented in paragraph 3.3 where 3.4 focusses on Armstrong et al. (2010). Daske et al. (2008) is discussed in paragraph 3.5 and Christensen et al. (2007) in paragraph 3.6. Prather-Kinsey et al. (2008) is presented in paragraph 3.7 and 3.8 continuous with discussing Li (2009). Paragraph 3.9 looks at Daske, H. (2006). In addition, a critical analysis of all these researches is presented in paragraph 3.10 added. These studies are the handles concerning the determination of the proper research approach in this thesis. The subjects of these studies are all about the impact of the introduction of IFRS. A select choice is made of all the available literature. Paragraph 3.11 closes the chapter with a summary.

3.2   HAIL AND LEUZ (2007)

In October 2007, Hail and Leuz publish the research: "Capital Market Effects of Mandatory IFRS Reporting in the EU: Empirical Evidence". The objective of this research is to present a review of the relevant literature regarding the mandatory adoption of IFRS concerning EU countries in 2005. The empirical analysis focusses on the effects of the mandatory adoption of IFRS on the cost of capital and on the market liquidity. The signalled link between the corporate disclosures, the cost of capital and the market liquidity in prior research has been examined. Academic literature has conceptually well-developed this link [e.g., Verrecchia (2001), Healy et al. (1999)]. This link is the thread of this research.

The sample used by Hail and Leuz (2007) contains all unique firms in the European Union with a fiscal year ending on or after January 1, 2001, until December 31, 2005. This implies that the sample consists of firms with fiscal-year ending in December. Because of data limitations, to capture the firms with fiscal-year endings in 2006 Hail and Leuz (2007) could not extend the sample period with one year. The sample covers 5,683 unique EU firms with a total of 21,656 firm-year observations. France, Germany and the U.K. dominate the sample, almost two third of the firm-years is from these countries. In addition, Hail and Leuz (2007) compose a benchmark sample consisting of worldwide firms that do not adopt IFRS because they chose not to do so or are not allowed to, that covers 21,710 unique firms with a total of 82,943 firm-year observations.

In this sample, Japan, Canada, Australia and the United States comprise almost 68% of the firm-year observations. To estimate the association between the capital market variables and the mandatory IFRS reporting to determine possible capital market effects for EU firms due to mandated IFRS reporting,

Hail and Leuz (2007) use multiple regression analyses. Worldscope, DataStream and I/B/E/S are used concerning the data collection.

Regarding the capital-market effects concerning the mandatory reporting within the EU, the empirical results show a mixed picture. No major changes are visible in the capital-market variables that could imply that the effects of adopting IFRS in reporting are modest. The outcome variables show small and significant univariate changes. Because the descriptive analyses do not control for many factors, the inferences and the conclusions are based on the multiple regression analyses that control for other known determinants.

Hail and Leuz (2007) find some proof of the cost of capital being lower for firms reporting based on IFRS in the fiscal year 2005 compared to non-IFRS firms. But the effects are small and not solid for the introduction of firm-fixed effects. The possibility exists that the effect is weakened by the markets foreseeing these effects prior to the mandatory adoption of IFRS. A stronger result is visible in the liquidity proxies around the mandatory adoption period. The market liquidity improvement is suggested by the frequency of the zero-return days and by the price impact of the trades. The bid-ask spread results are statistically insignificant. However, the liquidity results are stronger when firm-fixed effects were introduced.

Firms that already had voluntary adopted IFRS experience less effects in 2005 than the first-time adopters. The post-EFRAG effect was stronger concerning the voluntary adopters showing a downward trend in the cost of capital and an increase in the three liquidity variables, which could be caused by a (short-lived) market reward for voluntary IFRS adopters. In addition, it is possible that the first-time adoption benefits are short-lived. Finally, Hail and Leuz (2007) remind the reader the findings should be viewed as a first indication of the impact of IFRS adoption on the capital markets. In addition, some heterogeneity in the capital-market effects across EU countries and firms could exist. These effects in addition depend on the legal systems and the enforcement, the reporting incentives, prior strategies regarding convergence and patterns in the voluntary adoption at in the industry level.

3.3 BRÜGGEMANN ET AL. (2012)

In June 2012, "Intended and Unintended Consequences of Mandatory IFRS Adoption: A Review of Extant Evidence and Suggestions for Future Research" by Brüggemann et al., was published. The objective of this paper is to comment the economic consequences of the mandatory adoption of IFRS in the EU and communicates specific suggestions for future research.

The paper differentiates between the intended and the unintended economic consequences of the mandatory IFRS adoption, were intended and unintended are defined in relation to being or not being able to reconcile with the IAS Regulation's communicated objectives. These objectives do not include

the impact of financial reporting on the contractual relationships. Brüggemann et al. (2012, p.2) in addition state that the "distinction between intended and unintended consequences, therefore, relates to the distinction between the information (or valuation) and contracting (or stewardship) roles of accounting".

This adds an extra dimension to this research. Brüggemann et al. (2012) do not perform quantitative analyses, consequently, no sample is used. The research presents empirical evidence from prior studies.

The sample of papers that Brüggemann et al. (2012) review, is divided in three parts, studies that focus on empirical evidence on financial reporting effects, studies that focus on empirical evidence on capital market effects and studies that focus on empirical evidence on macroeconomic effects. The part of the studies that focusses on empirical evidence on financial reporting effects consist of three focus areas; compliance and accounting choice studies, accounting properties studies and value relevance studies. Concerning this part, a total of 12 studies is reviewed by Brüggemann et al. (2012). The part of studies that focusses on empirical evidence on capital market effects consist of two focus areas; direct evidence and indirect evidence. Concerning this part, a total of 13 studies by Brüggemann et al. (2012) is reviewed. Concerning the part of the studies that focusses on empirical evidence on macroeconomic effects, 4 studies are reviewed by Brüggemann et al. (2012). This results in a total of 29 reviewed studies from the time period between 2008 and 2012.

The study of Brüggemann et al., (2012) has two main findings. First, contradictory evidence if the fixed objectives of the IAS regulation have been achieved, has been found. The results do not show an increase in the transparency or in the comparability of the financial statements. Some research design challenges contribute to this ostensibly mismatch in findings. Brüggemann et al. (2012) conclude that the indented as well as the unintended consequences need to be further scrutinized for assessing the cost and the benefits of the mandatory adoption of IFRS.

On the other hand, Brüggemann et al. (2012) determine that much evidence exists that the IFRS adoption positively effects the capital markets and the macro economy. Secondly, Brüggemann et al., (2012) find little evidence on unintended consequences of the mandatory adoption of IFRS. They communicate guidance for future research on these effects (e.g. search for evidence about the effect of IFRS adoption beyond the samples and data gathered from commercial databases). Brüggemann et al. (2012) conclude that the indented as well as the unintended consequences need to be further scrutinized for assessing the cost and the benefits of the mandatory adoption of IFRS.

3.4 ARMSTRONG ET AL. (2010)

In 2010, "Market Reaction to the Adoption of IFRS in Europe" by Armstrong et al., was published. The objective of this study is to comment the adoption of IFRS in Europe and mainly focusses on the reactions of the European stock market to 16 events related to the IFRS adoption. These events are identified between 2002 and 2005, which are assessed as influencing the probability that IFRS would be adopted in Europe. The 16 events were identified by searching for keywords that have to do with accounting regulation in the Dow Jones News Retrieval and in press releases or documents from regulatory boards like the IASB, EFRAG and the EC.

The sample consists of all European firms provided that the event returns are available for all of the 16 events. This gathers a sample of 3,265 firms with a total 52,240 observations. Concerning the cross-sectional tests, additional data is required. This results in a decrease of the sample size to 1,956 firms. The daily price data is collected for 2002 until 2005 from DataStream.

As commented before the study by Armstrong et al. (2010) explores the equity market reaction within Europe regarding 16 events that are related to the IFRS adoption in Europe. Many firms across Europe and in cross-sections, domiciled in countries with different local accounting standards, at the same time changed to a uniform set of accounting standards, IFRS. Because of the outlook of the IFRS adoption, investors were curious and began to investigate what the effects could be on the financial reporting, like convergence and a changing information environment. The assessed events related to the IFRS adoption provided a chance for assessing the expectations of the investors regarding the net costs and the benefits of the IFRS adoption.

Armstrong et al. (2010) find that European firms with a lower information quality before adoption and a higher information asymmetry before the adoption, show an increased positive reaction. This is coherent with the investors' expectation that the information quality will improve because of the IFRS adoption. The reaction of banks that have lower information quality before the adoption of IFRS, is even more positive. This is coherent with the investors' expectation that the information quality will improve, especially related with the IAS 39 adoption, concerning these firms. Armstrong et al. (2010) finds that firms domiciled in code law countries react negatively, due to weaker enforcement in those countries. Concluding, the findings of Armstrong et al. (2010) indicate that the investors in European firms expect that the IFRS adoption would minimal result in net benefits related to the increase in the information quality, more stringent enforcement of the IFRS standards, and finally the investors expect more convergence. Armstrong et al. (2010) leave the determination whether these expectations were fulfilled or not, to future research.

3.5 DASKE ET AL. (2008)

In April 2008, Daske et al released the paper "Mandatory IFRS reporting around the world: Early evidence on the economic consequences", which has as objective to study the impact of the mandatory IFRS adoption on the worldwide economy. The paper analyses the effect in 26 countries around the world. Effects in firm value, in cost of equity capital and in the stock market liquidity are analysed. These constructs should capture the potential changes in the financial reporting quality and consequently should provide insight in the potential improvements due to the mandate of IFRS.

Daske et al. (2008) use a sample whereas the fiscal year-ending falls on or after January 1st of 2001, until December 31, 2005. Because of the data availability at the time of the analyses, the sample ends in 2005. Firms with fiscal-years ending after 31 December 2005 are coded as local GAAP in 2005 and are used as control firms. All firms from the sample countries that require IFRS adoption are gathered with the condition that the necessary data for performing the analyses conform the firm-year regression has to be available. This results in a sample of 8,726 unique firms with 34,673 firm-year observations. Daske et al. (2008) in addition use a benchmark sample consisting of 17,389 unique firms from non-IFRS adoption countries. To reduce the potential undue weight of some countries with many firms in relation to the rest this benchmark sample is limited to 150 firms per country which results in 9,326 randomly selected firm-year observations. The price and the trading volume is gathered from Datastream, financial data from Worldscope and share price data from I/B/E/S.

Daske et al. (2008) finds that after the mandatory IFRS adoption the market liquidity significantly increases. Cohesively, due to the increase of the liquidity the cost of the capital decreases whereas Tobin's q increases only based on the condition that the possibility of the effects occurring before the official IFRS adoption date is accounted for by Daske et al. (2008). This could imply that the market foresees the economic consequences due to the mandatory IFRS adoption. Noteworthy is that even if the results are robust, a substantial variation in the significance and in the magnitude of the effects exist. This variation indicates the difficulty to benchmark the economic consequences. The positive liquidity and valuation effects are found for late voluntary adopters (switching to IFRS just before it becomes mandatory).

Positive capital market effects are documented for early as well as late voluntary adopters in the year when the switch to IFRS is mandatory. The magnitude of these effects is more often larger than the effects for the mandatory adopters that indicates that the voluntary adopters profit from conferred externalities by the mandatory adopters e.g. increased amount of comparable firms that could trigger improved risk-sharing amongst more investors. Tests are conducted for this assumption but no significant outcome was found. Another explanation could be that the institutional environment changes at the same time that IFRS is voluntary adopted.

Through cross-sectional analyses, Daske et al. (2008) finds that the capital market benefits only occur in countries with strong enforcement regimes and only if the institutional environment supports and

gives strong incentives for transparency to firms. Little change is found in the other countries regarding the firm value and the market liquidity.

In countries where the differences between IFRS and local GAAP are large and in countries where no convergence strategy exists, the effects of the mandatory adoption are stronger. Daske et al. (2008) concludes that as a whole, the evidence shows economical significant capital market benefits around the mandatory IFRS reporting.

3.6 CHRISTENSEN ET AL. (2007)

In 2007, the paper "Cross-sectional variation in the economic consequences of international accounting harmonization: The case of mandatory IFRS adoption in the UK," by Christensen et al., was published. The objective of this paper is to study the economic consequences due to the mandatory adoption of IFRS focussing on the United Kingdom (UK) listed firms. Both short term price responses related to news about the adoption of IFRS as the changes in the cost of equity by Christensen et al. (2007) are examined. These effects complement each other when examining the effects of mandatory adoption of IFRS.

Christensen et al. (2007) define the pre-announcement of IFRS period from January 1st 1996 until December 31, 1998 and the post announcement period from October 1st, 2001 until September 30, 2004 (both periods consist of 36 months). The sample from the UK consists of all firms in DataStream, the still existing ones but also the ones that stopped the business. Financial institutions, foreign firms, preferred stocks, negative book value of equity firms and cross-listed on a foreign stock exchange are excluded from the sample. Firms that already are compliance with IFRS or U.S. GAAP in addition are excluded. This results in 469 firms for the UK sample. Leverage, foreign sales and size data is gathered from DataStream.

In contrast to Germany, the firms in the UK have had no option to comply with an international accounting regime instead of the domestic standards. Consequently, the compliance with IFRS in the UK is low during the sample period. Christensen et al. (2007) developed a counter-factual proxy for the willingness to adopt IFRS by the UK firms derived from German firms' choices regarding the accounting standards. This proxy is proven to be valid by Christensen et al. (2007) implying it predicts cross-sectional variation in the economic consequences due to the mandatory adoption of IFRS by firms in the UK. Christensen et al. (2007) in addition find evidence that the reaction of the stock price of firms in the UK to announcements regarding IFRS adoption, is related to the proxy that measures the willingness of the UK firms to adopt IFRS.

A negative relation between the change in cost of equity and the willingness to adopt IFRS proxy is found. The effect of the mandatory IFRS adoption regarding the cost of equity depends on the firm characteristics.

In addition, this study communicates the evidence that commitments that are made in one country can serve as a guideline for predicting the economic consequences due to the impact of mandated regulation in another country. Christensen et al. (2007, p.377) states "whereas the prior literature generally argues that relative reductions in cost of capital is related to the quality improvements in the legal framework, this study suggests that relative benefits are at least partly explained by firm-specific factors".

3.7 PRATHER-KINSEY ET AL. (2008)

In 2008, Prather-Kinsey et al. released the paper "Capital Market Consequences of European Firms' Mandatory Adoption of IFRS". The objective of this study is to examine the reaction of the capital market due to the mandatory adoption of IFRS by determining if an increase exists in the value relevance of published earnings and an increase in the information content of the earnings announcements. In addition, the possible decrease in the cost of the equity capital is examined. The paper analyses if the financial statements of the IFRS adopters are viewed as more relevant and informative (transparent) by investors than prior to the adoption of IFRS. Heterogeneity in capital market reactions due to IFRS adoption and the impact of IFRS adoption on the cost of equity in addition are examined.

Prather-Kinsey et al. (2007) selected a sample from end 2004 until end 2006 focussing on European firms that adopted IFRS in 2005, plus did not use IFRS earlier than 2005 (i.e. reported under local GAAP in 2004) and reported under IFRS only after 2005. In order to alleviate the U.S. GAAP effects because prior research found that financial reports composed under U.S. GAAP show higher quality than the reports that are composed under IFRS, firms that reported under U.S. GAAP during the sample period, are excluded from the sample. This resulted in a sample of 157 firm year observation in 2004 and 157 firm year observations in 2006. For the stock market data and the financial reports, the Thomson Worldscope database on FactSet was used. For cross checking Bloomberg and Capital IQ from S&P were used.

Prather-Kinsey et al. (2007) overall find that investors expect and perceive additional net benefits from IFRS adoption. Because the differences between the domestic GAAP and IFRS were experienced as greater before the IFRS adoption, they find that the market consequences of the mandated IFRS adoption are larger for firms in code law countries than for firms in common law countries.

The efforts to make the financial statements more suitable (i.e. transparent) for external investors consequently were greater for firms domiciled in code law countries than for firms domiciled in common law countries. Because the value relevance of earnings and book equity of firms in common law countries did not change significantly in the sample period, Prather-Kinsey et al. (2007) conclude that the local standards based on common law are comparable with IFRS and that code-law based local standards differ more from IFRS.

Coherent with the findings of Daske et al. (2007), Prather-Kinsey et al. (2007) in addition find that the legal environment is of significant importance in determining the effects of the mandatory adoption of IFRS. The communication of earnings conform IFRS is found usefully by market participants. The cost of equity capital decreased for both the firms domiciled in code law countries as for the firms that are domiciled in common law countries.

3.8 LI (2009)

In 2009, the paper of S. Li "Does Mandatory Adoption of International Financial Reporting Standards in the European Union Reduce the Cost of Equity Capital?" was published. The objective of this study is to determine whether the cost of capital is reduced due to the mandatory IFRS adoption in the European Union in 2005. In addition, the gap of the largely unclear economic consequences of the mandated adoption of IFRS is to be filled by the exploration of the effects on cost of equity by the mandatory adoption of IFRS in the EU.

The sample period is from 1995 until 2006. Because the International Accounting Standards Committee (IASC) completed the IAS Comparability/Improvement Project, 1995 is chosen as the beginning of the examining period. The sample consists of a total of 1,084 firms from 18 EU countries with fiscal year endings within the sample period. In order to be included in the sample the data for both the pre-mandatory and the post-mandatory period has to be available for the firms. This results in 6,456 firm-year observations (including 1,781 firm-year observations for IFRS). The transition period is excluded from the sample (i.e., the last year before the mandatory IFRS adoption and the first year of mandatory IFRS adoption). An additional sample of 2,846 firm year observations (including 665 firm-year observations for IFRS) is gathered. The data for computing the regression is obtained from the Compustat Global database, analyst forecast and price information from I/B/E/S.

Li (2009) finds that the cost of capital significantly decreases amongst mandatory adopters after the mandatory IFRS introduction in 2005, mainly caused by the increased disclosure and by the enhanced comparability of the financial statements. This does not apply for the voluntary adopters of IFRS, no significant change in the cost of equity after mandated IFRS adoption is found for these firms. An additional condition that counts for the significance of the reduction of the cost of equity is that this only occurs in countries with strong enforcement mechanisms.

3.9 DASKE, H. (2006)

In 2006, Daske releases the paper "Economic Benefits of Adopting IFRS or US-GAAP – Have the Expected Cost of Equity Capital Really Decreased?" The objective of this paper is to investigate the common presumptions that the cost of capital decreases form firms that adopt international recognised financial reporting standards such as U.S. GAAP or IAS/IFRS.

The sample period is from the fiscal year 1993 until 2002. This is the time period in which reporting under international standards by German firms, took place for the first time. After eliminating all firms of which the required data is not available for performing the analyses, a total sample of 735 firms from Germany with 24,359 firm month observations remain.

A breakdown of the total sample in the used accounting standards results in 127 firms reported only based on U.S. GAAP, 155 firms reported only based on IFRS/IAS, 24 switched from German GAAP (HGB) to U.S. GAAP and 52 firms switched from German GAAP (HGB) to IFRS/IAS. The rest of the firms (377) reported the results completely based on German GAAP. The used data sources are I/B/E/S, Worldscope and DataStream.

Daske (2006) does not find supporting evidence for the presumption that the application of the international reporting standards decreases the cost of capital. The overall results suggest higher cost of capital for firms reporting based on international standards. One of the explanations could be the difficulty of estimating the cost of capital equity due to the inaccuracy of the estimates (Easton and Monahan, 2005). Another explanation could be that the quality of the financial statements is driven by reporting incentives of the firm or by the institutional settings instead of by applied reporting standards (Ball et al. 2003). The last explanation that Daske (2006) gives, is that the transition period in Germany could in addition have impact on the results, mainly because the magnitude of the available information has increased but also the comparability of financial statements has decreased due to the rich accounting diversity meaning firms reporting under HGB, IAS/IFRS or U.S. GAAP.

3.10 CRITICAL ANALYSES PRIOR STUDIES

Many research has been performed on the effects of mandatory adoption of IFRS. Some researches focus on the impact of the IFRS adoption in general where other researches focus on specific effects like the capital market reaction, the effects on the cost of capital, and on the economic consequences of the mandatory adoption of IFRS.

Hail and Leuz (2007) performed research on the effects of the mandatory IFRS adoption on the cost of capital and the market liquidity. The sample contains firms from the European Union unlike Prather-Kinsey et al. (2008) that use a sample consisting of firms from Europe and Daske et al. (2008) use a sample with firms from worldwide countries that adopted IFRS.

However, the choice for the European Union sample is logical since it meets the demand of the research of Hail and Leuz (2007). The most common benefit of a European Union sample is that the cross-country regulation should be more aligned than countries that are not part of the European Union or are not related with each other, hence the effects of the mandatory IFRS adoption are influenced by legal enforcement [Daske et al. (2008), Li (2009), Prather-Kinsey et al. (2008)]. Daske (2006) and Christensen et al. (2007) examine samples from Germany respectively from the UK. The question that remains is to

which extent are the results generalizable. According to Hail and Leuz (2007), finding a benchmark is difficult because all EU firms are mandated to adopt IFRS. In addition, the issue exists of firms voluntary adopting IFRS before it is mandated. Anticipation effects prior to the mandated IFRS adoption in the markets could weaken the results. The report of Hail and Leuz (2007), like any other of the presented reports in this chapter, does not focus on a cost-benefit analyses.

It focusses on observable capital market benefits and leaves the costs and other possible benefits out of scope. Brüggemann et al. (2012) review 29 prior relevant researches between 2008 and 2012, which is not the actual sample period but the period of the release of the reviewed studies. Brüggemann et al. (2012) do not use an own data sample for quantitative analyses. Because countries in addition can have changed the enforcement and governance regimes during the sample period which has an effect on the findings, Hail and Leuz (2007) find it difficult to subscribe the effects solely to the IFRS adoption.

Almost all the presented researches use multiple regression analyses whether or not supplemented with additional analyses and added models. Hail and Leuz (2007) for example use four capital market proxies, cost of capital, bid-ask spread, illiquidity and the proportion of zero return days. These four proxies are aggregated to one variable *EconCon* (economic consequences) which is processed in a multiple regression. Daske et al. (2008) follow this example and in addition use four proxies for market liquidity but slightly differentiate relative to Hail and Leuz (2007) by using zero returns, illiquidity, trading costs and bid-ask spreads where trading costs is different than Hail and Leuz (2007). The research by Prather-Kinsey et al. (2008) slightly differs from Daske et al. (2008) and Hail and Leuz (2007). Prather-Kinsey et al. (2008) analyse if the investors find the financial statements more transparent, informative and more relevant due to the IFRS adoption and in addition examine if the adoption of IFRS caused a decrease in the cost of capital. The assessment whether the legal systems and enforcement of IFRS application has any influence (e.g. the distinction between common law and code law), is added as an extension. Prather-Kinsey et al. (2008) provide insight in the heterogeneity in the capital market reactions by analysing the quality of the enforcement and the legal system of the domicile country of the firms. Armstrong et al. (2010) in addition control for code law and common law countries, the enforcement in code law countries is expected to be less strictly. In contrast with Prather-Kinsey et al. (2008) and Armstrong et al. (2010), Daske et al. (2008), Hail and Leuz (2007), Li (2009) and Daske (2006) do not control for common law or code law.

But the research by Hail and Leuz (2007) does try to address all the constraints in the empirical research including controlling for other known determinants next to the control for market wide trends and differences in the firm characteristics. Prather-Kinsey et al. (2008) used the value relevance model of Ohlson et al. (2005) to determine if IFRS adoption caused the increase of book values of income and equity. Concerning determining if the cost of capital is influenced by other factors like firm size, shareholders right, legal origin (i.e. common law or code law) and some economic factors like inflation,

the Ordinary Least Squares regression is used. In contrast with other researches, as signalled before, Brüggemann et al. (2012) does not perform an own quantitative research. Instead a review of prior literature is presented with suggestions for future research. Brüggemann et al. (2012) add an additional dimension to the academic literature by not only focussing on the intended consequences, but also scrutinizing on the unintended consequences of the mandatory IFRS adoption.

In addition, Brüggemann et al. (2012) provide an exact overview of the correct actual population of IFRS adopters, proving that the actual sample sizes in the most academic studies are substantially smaller than the real number of adopters due to a systematic bias towards large firms (Garcia et al., 2006).

Daske (2006) investigates the common presumptions that the cost of capital decreases concerning firms that adopt international recognised financial reporting standards such as U.S. GAAP or IAS/IFRS. The Residual Income Valuation model and the Abnormal Earnings Growth model plus multiple regression analyses in this research are used. Daske (2006) does not control for legal systems or enforcement in Germany which might influence the results. In addition, the focus lies on the German firms, hence the results might be not generalizable. On the other hand, Daske (2006) extends the literature by directly estimating the cost of equity capital through using recent developed methods by employing both the residual income valuation model (Gebhardt et al. hence- forth GLS, 2001; and Easton et al. henceforth ETSS, 2002), and the abnormal earnings growth model (Gode and Mohanram, henceforth GM, 2003; and Easton 2004). Daske (2006) proposes a monthly estimation instead of a yearly based and in addition excludes the transition period.

Compared to the other studies, Armstrong et al. (2010) perform an event study by examining the European stock market reaction to 16 events associated with the adoption of IFRS. For determining the investor reaction to the movement toward adoption of IFRS, three-day market-adjusted returns centralized around the 16 events are studied. For performing cross-sectional analysis, a multiple regression is used like some of the studies presented before. However, the event study relies on a degree of equity market efficiency that reflects each event in the stock prices, notably, the question is how solid this assumption is due to variation across the markets during the sample period. If the market is not efficient enough, the outcome can be biased.

Christensen et al. (2007) study the economic consequences due to the mandatory adoption of IFRS focussing on the United Kingdom (UK) listed firms. An event study in addition is part of the research by Christensen et al. (2007), but is slightly different than Armstrong et al. (2010). Christensen et al. (2007) divide the events period in a pre-decision and a post-decision period. The decision refers to when the issue of IFRS adoption was completely settled by the responsible bodies and authorities. Both the short-term price response reacting on news about the adoption of IFRS, and the impact on the cost of equity are studied. On one hand, focussing on short-run abnormal returns has an advantage that it enables

isolation of specific days when news is published and affects all the firms in the sample. But on the other hand, the disadvantage exists that it relies on the precise identification of the event days with the assumption that no policy consultation has been leaked to the market. The paper is not concerned about testing the possibility that IFRS adoption has more value in Germany than in the UK, which implies that the adoption has more benefits for German firms than it has for UK firms.

The paper is not concerned about the possibility that the IFRS adoption causes information quality to decrease because the UK accounting standards are of higher quality than IFRS. In addition, institutional differences between Germany and the UK exist, that cannot be transferred to the UK setting, which causes noise in the proxy for the UK's willingness to the IFRS adoption. Besides, the paper has a relative small sample. Another remarkable finding is that Christensen et al. (2007) takes the willingness of the adoption of IFRS into account. Concerning the willingness to adopt IFRS by the UK firms derived from German firms' choices regarding the accounting standards, a counter-factual proxy is developed. This proxy is proven to be valid by Christensen et al. (2007) implying it predicts cross-sectional variation in the economic consequences due to the mandatory adoption of IFRS by firms in the UK.

Li (2009) examines whether the cost of capital is reduced due to the mandatory IFRS adoption in the European Union in 2005. The role of legal enforcement in the effects of the mandatory IFRS adoption is examined. Li (2009) focusses on the EU in contrast to Daske et al. (2008) that use a worldwide sample. Li (2009) has added additional data in the post adoption period and tests to account for a possible transition effect. This study extends on Daske et al. (2008) by showing behind the cost of equity effects possibly two mechanisms exist, increased disclosure and enhanced comparability. In addition, Li (2009) controls for cross-listing and for cross-country inflation rates.

Hail and Leuz (2007) and Daske et al. (2008) have a data sample ending in 2005, leaving the firms with fiscal year ending in 2006 out of the sample. This could have impact on the outcome of the empirical research, because the more observations of firms that have mandatory adopted IFRS, the better the reliability and the visibility of the effects will be. In addition, the firms and the markets are still in a transition period, which could influence the results.

Because they examine the economic consequences caused by news and decisions about the IFRS adoption Christensen et al. (2007) focus on the periods from 1996-1998 and 2001-2004. Regarding the sample period of Prather-Kinsey et al. (2008), this is a relatively short one. The effects might be one time shocks. The effects of the mandatory adoption of IFRS in addition could be caused due to the governance changes in the period around the IFRS adoption and these effects could be relatively larges due to the small sample size. In addition, cross-listed firms are not excluded. However, the sample is more robust because early adoption effects are excluded by the sample choice. Li (2009) has a sample period from 1995 until 2006 which is long, however the sample period after adoption is short and might

not capture the long run consequences of the mandated IFRS adoption. As signalled before, this in addition applies to Hail and Leuz (2007) and Daske et al. (2008).

3.11 SUMMARY

The summarized studies regarding the impact of the mandatory adoption of IFRS, show a mixed picture. Hail and Leuz (2007) find no major changes in the capital market variables that indicate that the effects of the mandatory IFRS adoption are modest. Brüggemann et al. (2012) find enough evidence that the adoption of IFRS positively effects the capital markets and the macro economy, but find no increase in the transparency or in the comparability of the financial statements. Armstrong et al. (2010) find that the information quality and the asymmetry improves due to the IFRS adoption that has a positive effect on the investors that could improve the market liquidity. Hail and Leuz (2007) find some proof that the cost of the capital decreases concerning firms reporting based on IFRS compared to non-IFRS firms, but the effects are small.

When firm-fixed effects are introduced, the liquidity effects are stronger. First-time adopters experience larger effects than firms that have already voluntarily adopted IFRS. Daske et al. (2008) finds that market liquidity significantly increases after the mandatory IFRS adoption, consequently decreasing the cost of capital. Daske et al. (2008) in addition finds positive capital market effects concerning early as well as late voluntary adopters in the year when the switch to IFRS is mandatory. The signalled studies all recognize that the institutional environment (e.g. enforcement regime, legal systems and strategies regarding convergence) influences the extent of the impact of the mandatory IFRS adoption. Daske et al. (2008) concludes that as a whole, the evidence shows economical significant capital market benefits around the mandatory IFRS reporting. Christensen et al. (2007) find that stock price reaction around the announcement regarding IFRS, is related to the willingness to adopt IFRS by the UK firms and in addition define that the effect of the mandatory IFRS adoption regarding the cost of equity depends on the firm characteristics. Prather-Kinsey et al. (2008) find that investors perceive net benefits from the IFRS adoption. Market consequences are larger for firms domiciled in code law countries than for firms domiciled in common law countries.

Li (2009) determines that the cost of equity capital significantly decreases amongst the mandatory adopters after the mandatory IFRS introduction in 2005, this only occurs in countries with strong legal enforcement. This effect is not visible for the voluntary adopters. Daske (2006) finds no supporting evidence for the presumption that the application of the international reporting standards decreases the cost of capital. The overall results suggest higher cost of capital for firms reporting based on international standards. The scrutinized studies do indicate that the results and the conclusions should be interpreted with some caution.

When investigating the most suitable research design and used models, a combination of the models used by Kinsey et al. (2008), Hail and Leuz (2007) and Daske et al. (2008) suits the best concerning performing the empirical analyses for this thesis. Appendix A presents a summary of the reviewed literature in chapter 3. The next chapter presents the hypotheses.

4 HYPOTHESES DEVELOPMENT

4.1 INTRODUCTION

As signalled before, the main objective of this thesis is to provide insight into whether the impact of the adoption of IFRS depends on the economy state in a country. In order to answer the research question and to make operationalization possible, it is necessary to develop hypotheses that will be tested in the

execution of this research. This will answer sub-question 4. Paragraph 4.2 outlines these hypotheses and 4.3 finishes with a brief summary.

4.2 HYPOTHESES

Mandatory IFRS adoption can have a certain impact on the capital market, like examined by prior research and outlined in the previous chapters [(Hail and Leuz, 2007), (Prather-Kinsey et al. 2008), (Christensen et al. 2007), Daske et al. (2008)]. The results show a mixed picture, but the overall trend is that the mandatory adoption of IFRS does influence the capital market reaction. Prior research has been performed with a sample of firms from multiple countries in the European Union ((Hail and Leuz, 2007), (Li, 2009)) and research with a sample of firms from one country in the European Union [(Christensen et al. 2007), (Daske, 2006)]. This thesis focuses on the capital market reaction on the mandatory IFRS adoption in specific countries within the European Union, with the distinction between countries with a relative strong economy and countries with a relative weak economy. As signalled before, the sample consists of two groups of firms. The first group consists of firms from three countries in the European Union with a relative strong economy. These countries are the Netherlands, Germany and Denmark. Respectively the main stock exchanges of these countries are AEX, DAX and CSE. The second group of the sample consists of firms from three countries in the European Union with a relative weak economy. These countries are Spain, Portugal and Italy. Respectively the main stock exchanges of these countries are IBEX 35 Madrid, PSI 20 and FTSE MIB Milan.

First, the sample of firms from the countries with a strong economy and the sample of firms from the countries with a weak economy will be tested and compared for potential differences concerning the capital market reaction due to the mandatory IFRS adoption. The following hypotheses support this test:

> *Hypothesis 1:*
> *A **difference exists in the capital-market reaction between firms in countries with a strong economy and firms in countries with a weak economy.***

Next, the potential mutual difference in the capital market reaction due to mandatory IFRS adoption between the sample firms in countries with a strong economy will be examined. The following hypotheses support these tests:

> *Hypothesis 2:*
> *A **mutual difference in the capital-market reaction exists between firms concerning countries with a strong economy.***

Finally, the potential mutual difference in capital market reaction between the sample firms in countries with a weak economy will be examined. The following hypotheses will be tested.

> *Hypothesis 3:*
> ***A mutual difference in the capital-market reaction exists between firms concerning countries with a weak economy.***

4.3 SUMMARY

In order to perform the research, the hypotheses have been formulated. By combining the results of these hypotheses, the research question will be answered in full.

The next chapter will outline the empirical research design.

5 RESEARCH DESIGN

5.1 INTRODUCTION

This chapter describes the research design of this thesis. This will answer sub-questions 5, 6 and 7. The theoretical background and the related empirical research have been studied profoundly in the previous chapters. This will be the fundament for designing the research approach. Paragraph 5.2 outlines the possible research methodology. Paragraph 5.3 scrutinizes the research design including the used models and delineates the sample description. Paragraph 5.4 presents the validity framework. Paragraph 5.5

describes the sample and 5.6 outlines the descriptive statistics of the data. Paragraph 5.7 finishes with a summary of this chapter.

5.2 RESEARCH METHOD

When investigating the research methods, the distinction between qualitative and quantitative research need to be signalled. Qualitative research involves taking interviews, plotting a survey and performing observations. This type of research scrutinizes on finding the reason, the opinion and the motivation of the examined group. On the other hand, quantitative research uses data that can be quantified that involves numerical and statistical explanation. To determine patterns and concerning fact-finding, a measurable data sample need to be used. Commonly, a large population is used for creating generalizable results.

The main research method concerning this thesis is quantitative empirical analyses. In addition, this thesis has access to a large set of quantitative data through the university library, which creates the opportunity to answer *how much* questions by modelling relationships and using regression analyses to assess how much of a change in one variable will produce a specified change in another. Consequently, this suits this research in archival research using reliable secondary data sources (Smith, 2011).

5.3 RESEARCH DESIGN

As signalled before, the goal of this thesis is to demonstrate a possible influence of a countries' economy state on the impact of the adoption of IFRS and the capital market reaction. In chapter 4, hypotheses were developed which will be tested. Considering the prior research that has been studied concerning this thesis and the different approaches that have been used by these researches, the most appropriate approach for answering the hypotheses and consequently the research question, is a combination of the models used by Kinsey et al. (2008), Hail and Leuz (2007) and Daske et al. (2008) The used regression models by these researches represent the capital market reaction around the IFRS adoption worldwide. Consequently, the bulk of this research approaches will be used, in order to make it suitable concerning this thesis.

First, this paragraph will outline the research design of the empirical analyses, including the development of the multiple regression. Next, the sample and the data collection will be described, followed by descriptive statistics concerning the variables that capture the capital market reaction.

Using the multiple regression statistical technique, enables the estimation of the relation between the mandated IFRS adoption and the variables that capture the capital market reaction. Contemporaneously, controlling for factors that might have impact on the capital market variables in addition is possible by using the multiple regression.

THE MULTIPLE REGRESSION MODEL

Firm-year analyses of the capital-market effects around the IFRS mandate will be performed. In order to determine the multiple regression that will be used concerning the firm-year analyses, the approach of Daske et al. (2008) will be followed. (1) Defining the key variables, (2) determining the dependent variables concerning the capital-market effects due to the mandatory IFRS adoption, (3) set variables to control for influences or general trends that are not caused by the IFRS adoption, (4) set variables to control for firm characteristics. The variables will be explained next, and in addition Appendix C presents a summary of all the used variables and Appendix D presents the used formulas for the variables.

First, following Daske et al. (2008) concerning capturing the average capital market effects around the time that the IFRS adoption was mandated, the variable *First-time Mandatory (FTMAND)* is created. This is a key binary indicator variable. This variable has the value of one for firms that do not report based on IFRS until it becomes mandatory of which the fiscal year ends on or after the local IFRS adoption date. Additionally, for firms which adopt IFRS 'before' the country proclaims to report based on IFRS or 'after' this notification, but before IFRS is mandated, indicator variables are created. These variables are *Early Voluntary (EARLYVOL)* and *Late Voluntary (LATEVOL)* adopters. To capture any capital market effects once IFRS is mandated concerning all firms that end precisely on or after the mandatory adoption date, two terms for interaction are determined, *Early Voluntary*Mandatory (EVMAND)* and *Late Voluntary*Mandatory (LVMAND)*.

Second, following Hail and Leuz (2007), this thesis will use three proxies concerning determining and measuring the market liquidity around the mandatory IFRS adoption and will be deployed as the dependent variables. These variables are; *Zero Returns (ZERO)*, *Price Impact (PRICEIMP)*, and *Bid-Ask Spread (BIDASK)*.

Zero Returns is the ratio that during a year captures the trading days with zero returns. This ratio is computed taking the measurement period into account. The yearly median of the Amihud (2002) illiquidity measure is used concerning the *Price Impact*. It captures the price impact of the trades. The ratio is determined by the daily absolute stock return divided by the daily total traded volume.

Trading days with zero returns are excluded. Since the ratio is undefined concerning zero-volume days, the average is calculated over all the positive-volume days. A higher trading volume will result in a lower illiquidity measure (Lou and Shu, 2014). The *Bid-Ask Spread* is the difference between the bid and the ask price divided by the centre point. To obtain a yearly firm specific observation, the annual median of the daily trading spreads will be used. Relative to the fiscal year ending of the firms, the span is -5 month until +7 month. To "account for leakage of information, this is necessary, IFRS-related communication by firms with investors during the transition period or first-time IFRS interim reporting, which often starts before the fiscal year-end of the adoption year" (Daske et. al 2008, p.1133).

In order to complete the variables for measuring the capital market reaction, the effects on the cost of equity capital and the firm equity valuation will be examined. The latter is captured by the variable *Tobin's q* (Daske et al., 2008). The variables *Cost of Capital (COC)* and *Tobin's q (TOBQ)* are described next. Following Kinsey et al. (2008), the *Cost of Capital* is calculated by using the Modified Price Earnings Growth model developed by Easton (2004) and also used by Francis et al. (2005).   A comparison of various models is made by Easton and Monahan (2005) and the outcome was that the PEG model exceeds all other alternatives in relation to risk proxies. Chen et al. (2003) also have a preference for the PEG model. Chen et al. (2003) show that the Abnormal Earnings Growth (AEG) model and Price- Earnings-Growth (PEG) model are the ones least affected by deviations from the clean surplus relation. Following Easton (2004), Kinsey (2008) computes the Cost of Capital by the square root of the inverse of the price-earnings growth ratio, which is derived from the Modified price-earnings growth valuation model when assuming $d^{\hat{}}_{t+\tau} = 0$, that is no dividends are taken into account. For calculating the Cost of Capital for the research of this thesis, the original Modified price-earnings growth valuation model of Easton (2004) will be used. *Tobin's q* is introduced as proxy for the equity valuations of the firms and is measured as the market-to-book ratio of the total assets. It is expected that the liquidity effects in the variables that measure the capital market reaction could affect the cost of capital and that a decrease in the cost of capital can lead to an increase in Tobin's q.

Third, controls for trends and changes in the cost of capital, in the market liquidity and in the firm value unrelated to the IFRS adoption. In order to perform this, concerning determining and capturing the effects regarding the dependent variables in a particular industry and year, the Campbell (1996) industry classification will be used (Appendix B). Substantial variation across industries can appear. Therefore, it is essential to construct industry indicators using the industry classification of Campbell (1996). To control for this variation, the *Industry q (INDUSQ)* is calculated by determining the yearly median Tobin's q in each Campbell (1996) industry (Appendix B). In addition, Daske et al. (2008) use a benchmark of firms that report based on local GAAP (i.e. firms that are not mandated for reporting based on IFRS).

Concerning testing the hypotheses in this thesis, this addition is not necessary because the research question is about determining the difference between two samples that all report based on IFRS after mandated adoption regarding the impact of IFRS in relation with the economy state.

Fourth, the regression will control for firm characteristics by including control variables in addition to the before signalled control variables. Regarding the regressions of liquidity, Daske et al. (2008) follow Verrecchia (2000) by controlling concerning the *Return Variability (RETVAR)*, the *Share Turnover (SHARTURN)* and the *Firm Size*. Following Hail and Leuz (2007), Daske et al. (2008) control for *Financial Leverage (FINLEV)*, *Firm Size (TASSETS)*, *Return Variability (RETVAR)*, *Market Value (MARKVAL), U.S. Listing (USLIST)* and *Forecast bias (FCBIAS)*. Daske et al. (2008) use *Asset Growth*

(ASSETGR) as additional control variable. This thesis follows that example. Next, the control variables will be explained.

U.S Listing represents Non-U.S. firms of which the shares are traded over-the-counter or listed on a U.S. exchange. Several researches determine that cross-listing can significantly affect the market value of a firm in a positive way (e.g., Lee, 2004; Miller, 1999). Regarding the impact on the cost of capital, because the investors' position is strengthened consequently making it easier concerning the firm to raise external capital, it is noted that U.S. cross-listing affects the cost of capital (Doidge et al., 2004; Reese and Weisbach, 2002). Verrecchia (2001) and Lambert et al. (2007) acknowledge that foreign firms that listed in the U.S. are required to report conform the SEC disclosure rules, consequently lower cost of capital can appear due to the increase in the disclosures. *Market value* could influence the hypothesized effect, i.e. lowering the cost of capital and increasing the valuation (Hail and Leuz, 2006b). Consequently, it is essential to control for market value. *Market Value* is calculated by multiplying the stock price with the number of shares outstanding (in US$ millions).

Chordia et al. (2001) determine that a negative and strong relation exists between the stock returns and the *Share Turnover*. Stock return is linked to the liquidity variables, consequently controlling for *Share Turnover* is inevitable. *Share Turnover* is calculated by dividing the annual trading volume by the market value of the outstanding equity. Fama and French (1992, 1993) determine that the Cost of Capital is positively associated with the firms' *Return Variability*. In order to capture this effect, controlling for *Return Variability* is necessary (Hail and Leuz, 2006b). The *Return Variability* is determined by computing the annual standard deviation of the monthly stock returns. Fama and French (1992, 1993) determine that the Cost of Capital is negatively associated with the firm size (total assets), consequently controlling for *Total Assets* in the regression is required. *Total Assets* represents the total assets of a firm in EUR millions. *Financial Leverage* is the extent to which a firm relies on debt as a source of financing. *The Financial Leverage* in addition, is known as the debt-equity ratio (Berk and DeMarzo, 2011). If a company uses high debt-financing, the financial leverage will be high.

Consequently, the firm has to pay high interest amounts, which has impact on the earnings per share. In its turn this influences the Cost of Capital. Fama and French (1992, 1993) determine that the Cost of Capital is positively associated with the firms' *Financial Leverage*. This ratio is calculated by dividing firms' total liabilities by total assets.

Controlling for *Forecast Bias* is essential concerning two reasons. First, during the transition period the possibility exists that the analysts' ability regarding forecasting earnings is impaired. Second, if bias appears in analysts' forecast, this could affect the implied cost of capital estimates when the market backs out the bias (Daske et al., 2007a). The *Forecast Bias* is calculated as last year's one-year-ahead I/B/E/S mean analyst consensus forecast minus this year's actual earnings, scaled by the lagged total assets. Using lagged values controls for scale differences and unwanted bias that could weaken the

regression effects. Fu (2011) shows that firms who reduce their assets consequently experience higher returns compared with firms that increase their assets. The influence of the returns is important for the liquidity measures in this thesis. Consequently, controlling for *Asset Growth* is necessary. *Asset Growth* is represented by the one-year percentage change in total assets.

Following Daske et al. (2008, p. 1104) accounting data and market values are measured as of the fiscal year-end, the liquidity variables, cost of capital, share turnover, return variability, and forecast bias as of month +7 after the fiscal year-end.

The variables are all combined and the time-series regression model estimated by Daske et al. (2008) is composed. This regression model will be used to answer the hypotheses, i.e. determining if any difference exists in the effects of IFRS adoption on the liquidity, cost of capital and Tobin's q (capital market reaction) taking the economy state of the countries in to account.

The regression model is as follows:

$$EconCon = \beta_0 + \beta_1 Early\ Voluntary + \beta_2 Late\ Voluntary + \beta_3 Early\ Voluntary*Mandatory$$
$$+ \beta_4 Late\ Voluntary*Mandatory + \beta_5 First\text{-}Time\ Mandatory + \beta_6 U.S.\ Listing +$$
$$\beta_7 Market\ Value + \beta_8 Share\ Turnover + \beta_9 Return\ Variability + \beta_{10} Firm\ Size +$$
$$\beta_{11} Financial\ Leverage + \beta_{12} Forecast\ Bias + \beta_{13} Asset\ Growth + \beta_{14} Industry\ q + \varepsilon_{i,t}$$

where Cost of Capital, Tobin's q and the liquidity proxies are represented by *EconCon* and all the commented control variables are included in the regression model. Daske et al. (2008) use a sample whereas the fiscal year-ending is on or after January 1st of 2001, until December 31, 2005. Firms with fiscal-years ending after 31 December 2005 are coded as local GAAP in 2005 and are used as control firms. This thesis has a sample with fiscal-years observations from 2001 until 2014, consequently coding firms as local GAAP is not necessary.

All data is obtained from Datastream and I/B/E/S. For example, prices, numbers of shares outstanding, total assets, total liabilities, book value and market value of equity etc. are gathered from Datastream. The mean analyst 12- and 24 month forward forecasts and reported actuals are gathered from I/B/E/S.

In addition, to answer the hypotheses and to determine if a significant difference exists in the capital-market reaction between firms in countries with a strong economy and firms in countries with a weak economy, an independent samples t-test will be employed. The mean of the variables from the countries with a strong economy will be compared with the mean of the countries with a weak economy. With this method (difference-in-differences), the difference or similarity of the means within the sample of countries with a strong economy and within the sample of countries with a weak economy before and after mandatory adoption of IFRS can be captured.

5.4 THE VALIDITY FRAMEWORK

In order to answer the research question, the concept has to be operationalised and the validity concerns have to be presented. Concerning operationalising the concept, the general accepted predictive validity framework of Libby boxes will be used (Libby, 1981). The construction of the Libby boxes helps with conducting accounting experiments successfully. The Libby Boxes are constructed and presented in Figure 5-1 on the next page.

FIGURE 5-1: THE PREDICTIVE FRAMEWORK OF LIBBY
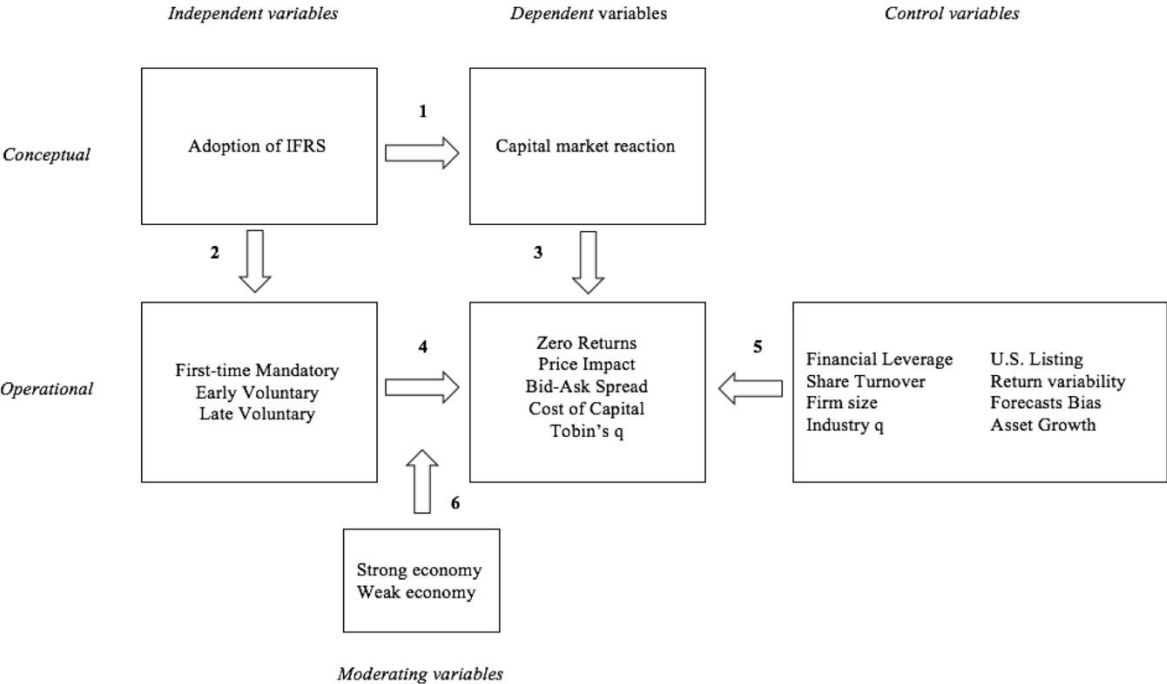
Link 1 in figure 5-1 represents the relation between the hypotheses and the theory on construct level. In order to test the theory, it has to be operationalized. Link 2 and 3 represent this operationalization of the theoretical concepts (empirical part).

Link 4 depicts the relation between the operationalized independent variables and the operationalized dependent variables, which refers to the internal validity. Link 5 is established to capture the factors that influence and create a variance in the outcome of the test, other than the variance caused by the independent variables. Link 6 describes the possible moderating effect on the relationship between the dependent and the independent variables (Smith, 2011).

The objective of this thesis is to examine the difference in the capital market reaction due to the adoption of IFRS taking the economic state of the sample countries into account. *First-time Mandatory*, *Early Voluntary* and *Late Voluntary* are used as independent variables to measure the adoption of IFRS. *Zero Returns*, *Price Impact*, *Bid-Ask Spread*, *Cost of Capital* and *Tobin's q* are used as dependent variables to capture the capital market reaction. The control variables are *Market Value, Financial Leverage*,

Share Turnover, *U.S. Listing*, *Return variability*, *Forecasts Bias*, *Firm size*, *Asset Growth* and *Industry q*. The economic state of a country could moderate the influence of the independent variables on the dependent variables. That is the research topic of this thesis, does the economic state of a country influence the impact of the IFRS adoption on the capital market?

According to Smith (2011), in accounting research the question of addressing the validity of the research should always be asked. The definition of validity according to Smith (2011, p.34) is "validity measures the degree to which the research achieves what it sets out to do".

Gordon and Porter (2009, p.31) communicate that "validity refers to how well the test actually addresses the research question, and ensuring validity is the most important part of designing the tests". Smith (2011) distinguishes between construct validity, internal validity and external validity. These validity types are generally accepted.

The links 2 and 3 in figure 5-1 depict the construct validity. "Construct validity refers to how well the variables used in a study capture the ideas and events in the hypothesis," (Gordon and Porter, 2009, p.33). As signalled before, the concept cannot be measured directly and consequently is operationalized. The adoption of IFRS is measured by the independent variables *First-time Mandatory*, *Early Voluntary* and *Late Voluntary*. These are binary indicator variables. Binary indicator variables concerning capturing the adoption of IFRS in prior research are frequently used (e.g., Hail and Leuz (2007), Li (2009), Christensen et al. (2007), and Daske et al. (2008)). The distinction in time period regarding the IFRS adoption is made by distinguishing between voluntary adopters (early and late) and mandatory adopters, defined by fiscal year endings before or after a defined point in time depending on the moment when the IFRS adoption was mandated in the countries of the sample firms. The specification in early- and late adopters creates an extra dimension in capturing the voluntary adoption in relation with the announcement of plans to require IFRS reporting by the home country of the firms. No measurement issue exists concerning these variables, consequently no construct validity issue exists.

As signalled before, the dependent variables that capture the capital market reaction are *Zero Returns*, *Price Impact*, *Bid-Ask Spread*, *Cost of Capital* and *Tobin's q*. These proxies are well known and have been explicitly used and validated by prior researches to capture the capital market reaction. The first three proxies measure the market liquidity. The conceptual development of the link between the corporate disclosure and the market liquidity is well represented in the academic studies, in addition establishing a link between the corporate disclosure and the cost of capital in addition is examined and well developed (Hail and Leuz, 2007). This implies a high construct validity; however, in attributing the effects only to the adoption of IFRS because of the change in enforcement and regimes that could have an impact on the findings, the results should be interpreted with caution. Heterogeneity in the capital market effects across the firms exists (Hail and Leuz, 2007). No measurement issues appear concerning the control variables implying that the construct validity is no issue.

Gordon and Porter (2009, p.31) classify internal validity at its purest level as "how well the study captures a cause-and-effect relationship". This implies to which extent do the independent variables influence the dependent variables, and is this effect of the dependent variable totally attributable to the independent variable. A high internal validity is difficult to achieve other than in an experimental environment such as a laboratory that allows no other influences than the direct effect on the dependent variables. In addition, some studies determine relationships between the variables instead of cause and effect relationships (Gordon and Porter, 2009).

Link 4 in figure 5-1 represents the internal validity. Even though prior research has examined the impact of the mandatory adoption of IFRS on the capital market (e.g. Armstrong et al. (2010), Daske et al. (2008), Kinsey et al. (2008), Li (2009)), the results were mixed and these researches have determined that the direct influence depends on more factors besides the used relation between the dependent and the independent variables. This implies a low internal validity concerning the chosen operationalization, however by controlling for as many influencing factors as possible, the low validity is reduced.

"External validity refers to how well the results from a study can be applied to other settings, such as a specific client or to other investors" (Gordon and Porter 2009, p.32). To gain external validity, it is essential to focus on certain points when gathering the sample. When the population has been chosen, the sample need to be able to represent the entire population. The best way this could be realized is by random selection and by using a sample that is large enough to be generalized to the rest of the population. Sometimes non-random samples are used, but unfortunately this decreases the external validity (Gordon and Porter, 2009). In this thesis the sample size is relatively large with a total of 187.484 firm-year observations that have been collected from firms of which the required data is available. All stock exchange quoted firms have been selected (if the data is available) from the sample countries, which implies that the sample can represent the entire population.

However, the question that remains is if the results are generalizable to other countries outside the sample. This depends on the economic, institutional and the regulation environment of the other countries and has to be examined carefully. Due to the chosen sample and the research approach, the external validity of this study is expected to be sufficient.

An essential note that Gordon and Porter (2009, p.39) communicates, is "when assessing the internal and external validity of the study, remember that it is difficult, if not impossible, to have high levels of both internal and external validity in one study. Experiments usually have high internal validity because of the level of control allowed but low external validity because of those same extensive controls". This is a trade-off which cannot be ignored.

5.5 SAMPLE DESCRIPTION

The distinction in the economic state ensures that the sample exists of two groups and consequently creates the possibility to compare the results of the first group with the results of the second group and in addition to compare the results within the group. The sample period covers all listed firms in the sample countries with the fiscal years ending from January 1, 2001, until December 31, 2014. The data is collected from Datastream and I/B/E/S.

In order to determine which countries to label as strong economy and which country to label as weak, a few key indicators for the Euro area have been examined per country (e.g. Gross Domestic Product per Capita (GDP), Private consumption, Investments, Gross Public Dept. and Labour Market). The main source for the economic situation of the European countries was the website of the European Commission: Economic and Financial affairs. According to the Ministry of Economic and Financial affairs (QA memo, 2009) the Gross Domestic Product is the most broadly used indicator of the economic activity from the SNA (System of National Accounts). Because the GDP methodology is standardized internationally, comparing countries all over the world is enabled. Based on the GDP per capita, the Netherlands, Denmark and Germany belong to the upper part of the ranking. Spain, Portugal and Italy belong to the middle part of the ranking.

In order to prevent bias of the results, the countries that belong to the bottom part are not used, this are Bulgaria, Romania, Latvia and Greece.

The sample collection starts with gathering all firms from the countries Netherlands, Germany, Denmark, Spain, Portugal and Italy. These countries require IFRS reporting which is a requirement for being included in the sample. To weaken the effects of the economic crisis, the firms that belong to the industry that is affected the most, i.e. the Financial and the Real estate industry (SIC 60-69) from the sample are omitted. In addition, the requisite data for calculating the variables for the firm-year regression signalled in the previous paragraph, should be available for the firms to be included in the sample. This gathers 905 unique firms with 10.836 firm-years for the treatment sample.

Details of the firm-year observations including the adoption figures by country are provided by table 2.

TABLE 2: SAMPLE COMPOSITION

Number of unique firms, Firm Years and adoption figures by country

| | | | IFRS | | | | | | U.S. Listing | |
| | | | Early Voluntary | | Late Voluntary | | First-Time Mandatory | | | |
IFRS Adoption Countries	Unique Firms	Firm-Years	Firm-Years	%	Firm-Years	%	Firm-Years	%	Firm-Years	%
Netherlands	92	1.246	0	0,0	70	5,6	1.176	94,4	84	6,7
Germany	125	1.708	140	8,2	573	33,5	995	58,3	28	1,6
Denmark	116	1.596	0	0,0	210	13,2	1.386	86,8	14	0,9
Italy	321	3.430	14	0,4	224	6,5	3.192	93,1	98	2,9
Portugal	56	714	0	0,0	84	11,8	630	88,2	0	0,0
Spain	195	2.142	0	0,0	84	3,9	2.058	96,1	42	2,0
Total	905	10.836	154	1,4	1.245	11,5	9.437	87,1	266	2,5

Mandatory adopters cover 87,1% of the firm-year observations and consequently represent the largest part of the sample. Say 12,9% of the treatment sample consists of voluntary adopters (1,4% early voluntary and 11,5% late voluntary). This group is smaller. It is clear that Germany has the highest voluntary adoption rate (41,7%) and Spain has the lowest (3,9%). In addition, the percentages of the countries vary considerably.

In the next paragraph the descriptive statistics about the dependent variables that are used for the firm year analyses are presented. Figures regarding Mean, Standard Deviation, Median and the Percentiles are tabulated.

5.6 DESCRIPTIVE STATISTICS

Table 3, Panel A shows the descriptive statistics of the dependent variables regarding the sample data. Panel B presents the descriptive statistics of the continuous independent variables.

TABLE 3: DESCRIPTIVE STATISTICS

Panel A: Dependent variables								
Variable	N	Mean	Std. Dev.	P1	P25	Median	P75	P99
Zero Returns	8.805	22,5%	28,9%	0,0%	2,7%	7,9%	32,5%	100,0%
Bid-Ask Spread	9.014	2,9%	7,9%	0,0%	0,4%	0,9%	2,5%	42,7%
Price Impact	7.560	0,105	0,545	0,000	0,000	0,001	0,016	2,588
Cost of Capital	2.072	18,2%	16,2%	0,0%	7,9%	14,4%	23,9%	80,8%
Tobin's q	8.701	0,337	24,44	-6,964	0,548	0,724	0,879	1,257
Panel B: Continuous independent variables								
Variable	N	Mean	Std. Dev.	P1	P25	Median	P75	P99
Market Value	8.770	4.429,9	12.321,4	2,417	50,155	226,08	1.803,6	67.072,4
Share Turnover	8.616	566,3	971,7	0,000	2,602	226,94	709,9	4.909,4
Return Variability	8.929	0,108	0,096	0,021	0,061	0,087	0,125	0,456
Total Assets*	9.300	9.583,6	27.630,5	4,540	118,7	524,0	3.871,0	134.717
Financial Leverage	9.336	0,606	0,258	0,070	0,475	0,613	0,736	1,243
Forecast Bias	4.936	0,003	0,073	-0,011	0,000	0,000	0,000	0,040
Asset Growth	9.060	10,0%	58,8%	-46,4%	-4,4%	2,8%	11,7%	183,2%
Industry q	10.948	0,721	0,721	0,537	0,677	0,733	0,769	0,890

*Total Assets are denominated in EUR thousands

The mean of the variable *Zero Returns* is 22,5% which implies that on 22,5% of the trading days no changes in the closing prices occurred. The mean of the *Bid-Ask Spread* is 2,9% while the *Price Impact* has an average of 0,105. Tobin's q has a mean of 0,337. For some of the variables the mean differs much from the median which indicates that these variables are highly skewed.

5.7 SUMMARY

This chapter has outlined the research design of this thesis. The main research method of this study is quantitative empirical analyses. In addition, the development of the multiple regression has been presented including the explanation of all the used variables. Concerning determining the approach for this thesis, the research approaches by Kinsey et al. (2008), Hail and Leuz (2007) and Daske et al. (2008) have been used as example. The use of the multiple regression statistical technique, enables the estimation of the relation between the mandated IFRS adoption and the variables that capture the

capital market reaction. In order to compare the means of the samples to capture the difference or similarity of the means within the sample of countries with a strong economy and within the sample of countries with a weak economy, a difference-in-differences test will be used. The sample consists of six countries, divided in two groups; Netherlands, Germany and Denmark that have a strong economy and Spain, Portugal and Italy that have a weak economy. In addition, chapter 5 has commented the validity framework concerning the research design of this thesis and the descriptive statistics are presented.

The next chapter contains the results of the empirical part of this thesis.

6   EMPIRICAL RESULTS

6.1   INTRODUCTION

This chapter will outline the empirical results of this research. This will answer sub-question 8. Paragraph 6.2 presents the presuppositions and the conditions that are necessary to determine that the variables are suitable for performing the multiple regression analyses. Paragraph 6.3 investigates the continuous variables regarding normality, homoscedasticity and linearity. Paragraph 6.4 outlines the results of the difference-in-differences test of the cost of capital, the valuation and the liquidity effects. Paragraph 6.5 presents the regression results and 6.6 closes the chapter with the summary.

6.2   PRESUPPOSITIONS MULTIPLE REGRESSION ANALYSES

For determining that the variables are suitable for performing the multiple regression analyses, some conditions have to be met.

The first condition supposes that all the variables should have an interval- and/or ratio scale. This is the case for all the variables except for some independent variables used in this thesis. The dependent variables *Zero Returns*, *Bid-Ask Spread*, *Tobin's q*, *Price Impact* and the *Cost of Capital* are all continuous variables with a ratio scale. Concerning the independent variables, *Market Value*, *Share Turnover*, *Return Variability*, *Total Assets*, *Financial Leverage*, *Forecast Bias*, *Asset Growth* and *Industry q* this are all continuous variables with a ratio scale. The rest of the independent variables, *First-Time Mandatory*, *Early Voluntary*, *Late Voluntary*, *Mandatory*, *Early Voluntary*Mandatory* and *Late Voluntary*Mandatory*, do not have an interval- and/or ratio scale because these are categorical variables and therefore dummies have been created for these variables. However, the second condition concerns independent variables and states that independent variables in addition are allowed to be categorical variables. Taking this into account, the first and the second condition cover the variables that are used in the regression model and consequently these conditions have been met.

The third condition demands a theoretical causality exists between the dependent and the independent variables. Extensive analyses of prior research and the construction of the validity framework, assume and show that a causal link exists.

The fourth condition prescribes that no multicollinearity between the continuous variables may exist. This implies that the check has to be performed that no variables strongly influence and strengthen between each other in the regression model exists. This can bias the multiple regression model meaning the decrease of the reliability. If the VIF score is below 3, then no multicollinearity exists. If the score is above 3, then probably multicollinearity exists. If the score is above 5, then multicollinearity is very likely the case.

If the VIF score is higher than 10, multicollinearity definitely exists. In addition, the tolerance statistic must have a value of higher than 0.1. The test of multicollinearity is performed.

Every independent variable in the model has been tested. Table 4 presents the results of the test.

TABLE 4: TEST FOR MULTICOLLINEARITY

Independent variables	Market Value Collinearity Statistics		Share Turnover Collinearity Statistics		Return Variability Collinearity Statistics		Total Assets Collinearity Statistics		Financial Leverage Collinearity Statistics		Forecast Bias Collinearity Statistics		Asset Growth Collinearity Statistics		Industry q Collinearity Statistics	
	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF
Market Value	-	-	0,462	2,166	0,464	2,153	0,982	1,018	0,465	2,150	0,462	2,166	0,462	2,163	0,462	2,164
Share Turnover	0,978	1,022	-	-	0,995	1,005	0,978	1,022	0,980	1,020	0,978	1,022	0,979	1,022	0,978	1,022
Return Variability	0,963	1,038	0,974	1,027	-	-	0,958	1,044	0,964	1,038	0,958	1,044	0,960	1,042	0,961	1,041
Total Assets	0,980	1,021	0,460	2,172	0,460	2,172	-	-	0,467	2,141	0,460	2,172	0,461	2,167	0,461	2,171
Financial Leverage	0,950	1,052	0,945	1,058	0,949	1,053	0,957	1,045	-	-	0,944	1,059	.945	1,058	0,974	1,027
Forecast Bias	0,998	1,002	0,998	1,002	0,999	1,001	0,998	1,002	0,999	1,001	-	-	0,998	1,002	0,998	1,002
Asset Growth	0,994	1,007	0,993	1,007	0,995	1,005	0,994	1,006	0,994	1,006	0,992	1,008	-	-	0,992	1,008
Industry q	0,959	1,043	0,958	2,166	0,962	1,040	0,959	1,043	0,989	1,011	0,958	1,043	0,958	1,044	-	-

Because all the VIF scores are lower than 3 and all the tolerance statistics are higher than 0.1, the conclusion is that the regression model is free from multicollinearity.

The fifth and the last condition concerns the used data. The variables have to exist of correct values. All the data used in this thesis has been drawn from Datastream and I/B/E/S. These databases have been proven to be reliable and correct. Much of the previous relevant researches in addition have used these databases. In conclusion, the variables and the used data is assumed to be reliable.

6.3 NORMALITY, HOMOSCEDASTICITY AND LINEARITY

Next to the presuppositions of the previous paragraph, for testing the presuppositions of the multiple regression model a residual analysis has to be performed. This analysis concerns the normality, the homoscedasticity and the linearity.

1. Normality: the normal distribution is a theoretical distribution which is essential in statistical research. If a sample is normal distributed, the mean, the mode and the median are equal. In addition, the skewness and kurtosis are 0. In addition, 68,3% of the observations is within one standard deviation (σ) from the mean (μ) and 95,5% of the observations is within two standard deviations (2σ) from the mean. Appendix E presents the histograms with normal curves for the used regression model. The outliers have been investigated by calculating the Leverage Values and Cook's Distance to ensure that no value with high influence on the regression coefficient is omitted. The results imply that the regression model is normal distributed with some skewness for *Zero Returns* and some kurtosis for the variables.

2. Homoscedasticity: to determine homogeneity of variance (homoscedasticity), the scatterplots in Appendix F have been set up. Homoscedasticity implies that the variance of the residuals is constant and independent from the independent variable and applies for the continuous independent variables. A rule for homoscedasticity is that the least estimated standard deviation should not be more than twice as small as the largest one. The scatterplots in Appendix F show that the residuals for each variable are sufficient randomly spread and consequently homoscedasticity can be determined for the regression model.

3. Linearity: in order to determine the linearity in the regression model, appendix G presents the scatterplots for all the variables in the matrix shape. Most of the scatterplots show linearity a few are distorted. It is possible to transform some variables to logarithmic values and most probably in addition these would become linear. However, to keep the model simple and interpretable, this has not been performed with the substantiation that the linearity and the associations between the variables have been commented in previous chapters. Extensive research of prior literature determines the validity of the regression model and consequently the assumption for this thesis is that the regression model is linear.

6.4 DIFFERENCE-IN-DIFFERENCES ANALYSES

To get a clear picture of the development of the cost of capital, Tobin's q and liquidity variables before and after the mandatory adoption of IFRS regarding the difference between the groups' strong and weak economy and the mutual difference between the countries, a difference-in-differences analyses is performed. This supports the regression analyses in the next paragraph and presents a good view of the differences. The univariate comparison of the means of the dependent variables is presented below.

TABLE 5: ANALYSES OF THE DIFFERENCE IN IMPACT OF IFRS ADOPTION BETWEEN COUNTRIES WITH A STRONG ECONOMY AND COUNTRIES WITH A WEAK ECONOMY

(Netherlands, Germany, Denmark vs. Italy, Portugal and Spain)

Zero Returns

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Strong economy $N = 3.938$	(1)	37,80%	27,80%	-10%***
Weak economy $N = 4.867$	(2)	18,48%	15,21%	-3,27%**
	(1) - (2)	19,32%***	12,59%***	-6,73***

Price Impact

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Strong economy $N = 2.908$	(1)	0,144	0,208	0,064***
Weak economy $N = 4.652$	(2)	0,053	0,048	-0,005
	(1) - (2)	0,091***	0,160***	0,069***

Bid-Ask Spread

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Strong economy $N = 4.049$	(1)	3,02%	3,58%	0,56%***
Weak economy $N = 4.965$	(2)	1,52%	2,77%	1,25%***
	(1) - (2)	1,5%***	0,81%***	-0,69%***

Tobin's q

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Strong economy $N = 3.864$	(1)	-0,054	-0,398	-0,344
Weak economy $N = 4.837$	(2)	0,808	0,861	0,053
	(1) - (2)	-0,862	-1,259***	-0,397***

Cost of Capital

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Strong economy $N = 985$	(1)	19,96%	18,96%	-1,00%
Weak economy $N = 1.087$	(2)	18,56%	16,92%	-1,64%
	(1) - (2)	1,40%	2,04%	0,64%

*, ** and *** stand for significant differences in the mean of the dependent variables, respectively levels 10%, 5% and 1% (two-sided t-test)

Table 5 presents the differences in the mean values of the liquidity, in the cost of capital and in the valuation variables between countries with a strong economy and countries with a weak economy before and after the mandatory IFRS adoption.

The percentage of days with zero returns in countries with a strong economy decreases significantly from 37,8% in the preadoption years to 27,8% in the after-adoption years. This is as expected and corresponds with the findings of Daske et al. (2008). Concerning the countries with a weak economy, the percentage of days with zero returns in addition decreases significantly from 18,48% in the preadoption years to 15,21% in the after-adoption years. But the decrease is larger for the countries with a strong economy. The difference is -6,73% and is statistically significant at 1% level. Scrutinizing on Price Impact and the Bid-Ask Spread, a significant difference appears between countries with a strong economy and countries with a weak economy. The means of the Price Impact shows a significant difference at 1% level of 0,069 with a significant larger increase for the countries with a strong economy (0,064 at 1% level) compared with the countries with a weak economy (-0,005 with no significance). The mean values of the Bid-Ask Spread in addition differ significantly with -0,69 at 1% level.

Summarizing, the liquidity variables show a significant difference in mean value between the countries with a strong economy and countries with a weak economy regarding the impact of the mandatory IFRS adoption. The effect in the valuation variable *Tobin's q* before and after the mandatory adoption of IFRS is not significant in the countries with a strong economy and not in the countries with a weak economy (-0,344 resp. 0,053 with no significance). However, the difference between the two groups (-0,397) is statistically significant at 1% level. On the other hand, the impact of the mandatory adoption on the *Cost of Capital* is not significant for both groups. The difference of the impact between the groups in addition is not significant. The effect of the mandatory adoption on the liquidity, on the valuation and on the cost of capital is in conformity with the findings of Hail and Leuz (2007) and Daske et al. (2008). Regarding the difference in mean values between countries with a strong and countries with a weak economy, in response to the analyses before a clear difference is visible.

Next, the difference-in-differences analyses will focus on the mutual differences in the mean values of the countries with a strong economy. Tables 6a, b and c present the results. Table 6a compares the Netherlands with Germany, table 6b compares the Netherlands with Denmark and table 6c compares Germany with Denmark.

TABLE 6A: ANALYSES OF THE MUTUAL DIFFERENCE IN IMPACT OF IFRS ADOPTION IN COUNTRIES WITH A STRONG ECONOMY

(Netherlands vs.Germany)

Zero Returns

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Netherlands N = 951	(1)	27,99%	19,92%	-8,07%**
Germany N = 1.621	(2)	36,71%	30,54%	-6,17%**
(1) - (2)		-8,72%***	-10,62%***	-1,9%***

Price Impact

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Netherlands N = 958	(1)	0,177	0,170	-0,007
Germany N = 573	(2)	-	0,273	
(1) - (2)			-0,103*	- **

Bid-Ask Spread

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Netherlands N = 979	(1)	2,61%	2,85%	0,21%**
Germany N = 1.692	(2)	2,62%	4,49%	1,87%***
(1) - (2)		-0,01%**	-1,64%***	-1,66%***

Tobin's q

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Netherlands N = 933	(1)	-0,238	1,193	1,431
Germany N = 1.554	(2)	0,795	0,711	-0,084***
(1) - (2)		-1,033***	0,482***	1,515***

Cost of Capital

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Netherlands N = 476	(1)	23,48%	20,34%	-3,14%
Germany N = 255	(2)	17,67%	12,48%	-5,19%**
(1) - (2)		5,81%	7,86%***	2,05%***

*, ** and *** stand for significant differences in the mean of the dependent variables, respectively levels 10%, 5% and 1% (two-sided t-test)

Table 6a compares the mutual difference in the impact of the IFRS adoption regarding the Netherlands and Germany. The percentage of days with zero returns in the Netherlands decreases significantly from 27,99% in the preadoption years to 19,92% in the after-adoption years. Concerning Germany, the percentage of days with zero returns in addition decreases significantly from 36,71% in the preadoption years to 30,54% in the after-adoption years. However, the decrease is larger for the Netherlands. The difference is -1,9% and is statistically significant at 1% level. Regarding the *Price Impact,* no significant impact appears in the mean value of the Netherlands. Germany lacks data for the *Price Impact* in the pre-adoption years and consequently no direct comparison can be performed concerning that part. The difference in the after-adoption years (-0,103) is slightly significant at level 10%. Concerning the *Bid-Ask Spread*, a significant difference appears between the Netherlands and Germany. The mean values of the *Bid-Ask Spread* differ significantly with -1,66 at 1% level. Concluding, the liquidity variables show a significant difference in mean value between the Netherlands and Germany regarding the impact of the mandatory IFRS adoption. The effect in the valuation variable *Tobin's q* before and after the mandatory adoption of IFRS is significant concerning Germany (-0,084 at level 1%) but not concerning the Netherlands (1,431 with no significance). However, the mutual difference between the Netherlands and Germany regarding the *Tobin's q* (1,515) is statistically significant at 1% level.

The impact of the mandatory adoption on the *Cost of Capital* again is not significant concerning the Netherlands but significant concerning Germany (-5,19 at level 5%). The mutual difference of the

impact of the IFRS adoption on the *Cost of Capital* between the Netherlands and Germany is significant (2,05% at 1% level). Striking is the fact that except for the percentage of days with zero returns, all the other findings are largely significant in favor of Germany. This could indicate that the difference is caused by Germany having a stronger economy than the Netherlands considering the subject of this thesis. Regarding the mutual difference in the mean values between the Netherlands and Germany, in response to the analyses before a clear difference is visible.

Table 6b compares the mutual difference in the impact of the IFRS adoption between the Netherlands and Denmark. As observed before, the *Zero Returns* in the Netherlands decreases significantly from 27,99% in the preadoption years to 19,92% in the after-adoption years. Concerning Denmark, the percentage of days with zero returns in addition decreases significantly from 46,92% in the preadoption years to 30,01% in the after-adoption years. The decrease is larger in favor of Denmark. However, the difference is 8,84% and is statistically not significant. Regarding the *Price Impact,* no significant impact appears in the mean value of the Netherlands. Concerning Denmark, a significant difference exists between the pre-adoption and the after-adoption years. In addition, no significant mutual difference exists in the *Price Impact* mean value between the Netherlands and Denmark. The same applies to the mean values of *the Bid-Ask* Spread and *Tobin's q*. No significant mutual difference exists for these mean values between the Netherlands and Denmark.

Regarding the *Cost of Capital*, the percentage decreases with 3,14% for the Netherlands, however with no significance. The *Cost of Capital* increases significantly for Denmark from 15,78% before the adoption to 21,81% after the mandatory adoption. This is quite noticeable and opposite to the prior findings. If the liquidity increases, the cost of capital should decrease (Daske et al. 2008). However, in this case the cost of capital increases, which should imply the liquidity to decrease. This is not visible in the findings concerning the Netherlands or Denmark. Li (2009) finds that the cost of capital significantly decreases amongst mandatory adopters after the mandatory IFRS introduction in 2005, mainly caused by the increased disclosure and by the enhanced comparability of the financial statements. An additional condition that counts concerning the significance of the reduction of the cost of equity is that this only occurs in countries with strong enforcement mechanisms (Li, 2009). The latter is difficult to track. In addition, no extraordinary events can be signalled. Concluding, the mean values do not show a significant difference between the Netherlands and Denmark regarding the impact of the mandatory IFRS adoption.

TABLE 6B: ANALYSES OF THE MUTUAL DIFFERENCE IN IMPACT OF IFRS ADOPTION IN COUNTRIES WITH A STRONG ECONOMY

(Netherlands vs.Denmark)

Zero Returns

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Netherlands N = 951	(1)	27,99%	19,92%	-8,07%**
Denmark N = 1.366	(2)	46,92%	30,01%	-16,91%***
(1) - (2)		-18,93%**	-10,09%	8,84%

Price Impact

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Netherlands N = 958	(1)	0,177	0,170	-0,007
Denmark N = 1.377	(2)	0,120	0,198	0,078***
(1) - (2)		0,057**	-0,028	-0,085

Bid-Ask Spread

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Netherlands N = 979	(1)	2,61%	2,85%	0,21%**
Denmark N = 1.378	(2)	3,86%	2,99%	-0,87%**
(1) - (2)		-1,25%**	-0,14%*	1,08%

Tobin's q

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Netherlands N = 933	(1)	-0,238	1,193	1,431
Denmark N = 1.377	(2)	-1,062	-2,629	-1,567
(1) - (2)		0,824	3,822	2,998

Cost of Capital

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Netherlands N = 476	(1)	23,48%	20,34%	-3,14%
Denmark N = 254	(2)	15,78%	21,81%	6,03%**
(1) - (2)		7,70%	-1,47%**	-9,17%*

*, ** and *** stand for significant differences in the mean of the dependent variables, respectively levels 10%, 5% and 1% (two-sided t-test)

Table 6b compares the mutual difference in the impact of the IFRS adoption between the Netherlands and Denmark. As observed before, the Zero Returns in the Netherlands decreases significantly from 27,99% in the preadoption years to 19,92% in the after-adoption years. Concerning For Denmark, the percentage of days with zero returns in addition also decreases significantly from 46,92% in the preadoption years to 30,01% in the after-adoption years. The decrease is larger in favor of Denmark. However, the difference is 8,84% and is statistically not significant. Regarding the Price Impact, no significant impact appears in the mean value of the Netherlands. Concerning For Denmark, a significant difference exists between the pre-adoption and the after-adoption years. In addition, no significant mutual difference exists in the Price Impact mean value between the Netherlands and Denmark. The same applies to the mean values of the Bid-Ask Spread and Tobin's q. No significant mutual difference exists for these mean values between the Netherlands and Denmark.

Regarding the Cost of Capital, the percentage decreases with 3,14% for the Netherlands, however with no significance. The Cost of Capital increases significantly for Denmark from 15,78% before the adoption to 21,81% after the mandatory adoption. This is quite noticeable and opposite to the prior findings. If the liquidity increases, the cost of capital should decrease (Daske et al. 2008). However, in this case the cost of capital increases, which should imply the liquidity to decrease.

This is not visible in the findings concerning for the Netherlands or Denmark. Li (2009) finds that the cost of capital significantly decreases amongst mandatory adopters after the mandatory IFRS introduction in 2005, mainly caused by the increased disclosure and by the enhanced comparability of the financial statements. An additional condition that counts concerning for the significance of the reduction of the cost of equity is that this only occurs in countries with strong enforcement mechanisms (Li, 2009). The latter is difficult to track. In addition, no extraordinary events can be signalled. Concluding, the mean values do not show a significant difference between the Netherlands and Denmark regarding the impact of the mandatory IFRS adoption.

TABLE 6C: ANALYSES OF THE MUTUAL DIFFERENCE IN IMPACT OF IFRS ADOPTION IN COUNTRIES WITH A STRONG ECONOMY

(Germany v.s. Denmark)

Zero Returns

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Germany N = 1.621	(1)	36,71%	30,54%	-6,17%**
Denmark N = 1.366	(2)	46,92%	30,01%	-16,91%***
	(1) - (2)	-10,21%***	0,53%***	10,74%***

Price Impact

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Germany N = 573	(1)	-	0,273	
Denmark N = 1.377	(2)	0,120	0,198	0,078***
	(1) - (2)	-	0,075	-***

Bid-Ask Spread

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Germany N = 1.692	(1)	2,62%	4,49%	1,87%***
Denmark N = 1.378	(2)	3,86%	2,99%	-0,87%**
	(1) - (2)	-1,24%***	1,5%***	2,74%***

Tobin's q

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Germany N = 1.554	(1)	0,795	0,711	-0,084***
Denmark N = 1.377	(2)	-1,062	-2,629	-1,567
	(1) - (2)	1,857***	3,34***	1,483***

Cost of Capital

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Germany N = 255	(1)	17,67%	12,48%	-5,19%**
Denmark N = 254	(2)	15,78%	21,81%	6,03%**
	(1) - (2)	1,89%	-9,33%***	-11,22%***

*, ** and *** stand for significant differences in the mean of the dependent variables, respectively levels 10%, 5% and 1% (two-sided t-test)

Table 6c compares the mutual difference in the impact of the IFRS adoption between Germany and Denmark. The figures concerning Germany and Denmark have been presented in previous tables, consequently concerning this part the focus only will be on the possible mutual differences in the mean values. Regarding *the Zero Returns*, the percentage for Denmark has the largest significant decrease. The mutual difference in the days with zero returns is significant (10,74% at 1% level). The mutual difference in the *Bid-Ask Spread* is significant at the 1% level with a value of 2,74%. *Tobin's q* and the *Cost of Capital* are both significantly different with values of 1,483 at 1% level and -11,22 at 1% level. Summarizing, a mutual difference in the mean values of Germany and Denmark does exist.

Next, the difference-in-differences analyses will focus on the mutual differences in the mean values of the countries with a weak economy. Tables 7a, b and c present the results. Table 7a compares Italy with Portugal, table 7b compares Italy with Spain and table 7c compares Portugal with Spain.

TABLE 7A: ANALYSES OF THE MUTUAL DIFFERENCE IN IMPACT OF IFRS ADOPTION IN COUNTRIES WITH A WEAK ECONOMY

(Italy vs.Portugal)

Zero Returns

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Italy $N = 2.718$	(1)	11,25%	9,86%	-1,39%
Portugal $N = 612$	(2)	36,50%	41,62%	5,12%***
	(1) - (2)	-25,25%***	-31,76%***	-6,51%

Price Impact

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Italy $N = 2.711$	(1)	0,044	0,038	-0,006
Portugal $N = 605$	(2)	0,179	0,126	-0,053
	(1) - (2)	-0,135***	-0,088***	0,047

Bid-Ask Spread

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Italy $N = 2.792$	(1)	0,94%	1,54%	0,60%***
Portugal $N = 613$	(2)	5,37%	10,16%	4,79%***
	(1) - (2)	-4,43%***	-8,62%***	-4,19%

Tobin's q

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Italy $N = 2.620$	(1)	0,975	1,068	0,093
Portugal $N = 601$	(2)	0,760	0,734	-0,026
	(1) - (2)	0,215	0,334	0,119

Cost of Capital

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Italy $N = 537$	(1)	15,48%	16,12%	0,64%*
Portugal $N = 124$	(2)	18,44%	17,32%	-1,12%
	(1) - (2)	-2,96%*	-1,20%	1,76%

*, ** and *** stand for significant differences in the mean of the dependent variables, respectively levels 10%, 5% and 1% (two-sided t-test)

Table 7a investigates the mutual difference in the impact of the IFRS adoption regarding Italy and Portugal. The percentage of days with zero returns in Italy decreases from 11,25% in the preadoption years to 9,86% in the after-adoption years, but the decrease is not significant. Concerning Portugal, the percentage of days with zero returns does not decrease, but instead increases significantly from 36,50% in the preadoption years to 41,62% in the after-adoption years. Like before with Denmark and the cost of capital, the IFRS adoption in Portugal has a negative impact on the liquidity measure *Zero Returns*. The mutual difference in the mean value of the days with zero returns (-6,51%) is not significant. No significant change is visible in the mean values of the *Price Impact* and in addition no mutual difference appears. The *Bid-Ask Spread* does change significantly for both countries regarding the preadoption and after-adoption years, however, the mutual difference of -4,19% is not significant. The mean values of the *Tobin's q* are not significant as well as the mutual difference. The *Cost of Capital* does show a significant difference concerning Italy (0,64 at 10% level), but this is not the case concerning Portugal. Again, the mutual difference (1,76%) is not significant.

Concluding, no significant mutual difference exists in the mean values of *the liquidity*, *the cost of capital* and *the valuation* effects between Italy and Portugal considering the preadoption and the after-adoption years.

TABLE 7B: ANALYSES OF THE MUTUAL DIFFERENCE IN IMPACT OF IFRS ADOPTION IN COUNTRIES WITH A WEAK ECONOMY

(Italy vs. Spain)

Zero Returns		Preadoption years (a)	After adoption years (b)	(b) - (a)	**Price Impact**		Preadoption years (a)	After adoption years (b)	(b) - (a)
Italy N = 2.718	(1)	11,25%	9,86%	-1,39%	Italy N = 2.711	(1)	0,044	0,038	-0,006
Spain N = 1.537	(2)	23,18%	14,38%	-8,80%***	Spain N = 1.336	(2)	0,010	0,034	0,002**
	(1) - (2)	-11,93%***	-4,52%***	7,41%***		(1) - (2)	0,034***	0,004	-0,008

Bid-Ask Spread		Preadoption years (a)	After adoption years (b)	(b) - (a)	**Tobin's q**		Preadoption years (a)	After adoption years (b)	(b) - (a)
Italy N = 2.792	(1)	0,94%	1,54%	0,60%***	Italy N = 2.620	(1)	0,975	1,068	0,093
Spain N = 1.560	(2)	0,89%	2,14%	1,25%***	Spain N = 1.616	(2)	0,572	0,566	-0,006
	(1) - (2)	0,05%	-0,6%***	-0,65%***		(1) - (2)	0,403	0,502	0,099**

Cost of Capital		Preadoption years (a)	After adoption years (b)	(b) - (a)
Italy N = 537	(1)	15,48%	16,12%	0,64%*
Spain N = 426	(2)	22,02%	17,85%	-4,17%***
	(1) - (2)	-6,54%***	-1,73%*	4,81%***

*, ** and *** stand for significant differences in the mean of the dependent variables, respectively levels 10%, 5% and 1% (two-sided t-test)

Table 7b analyses the mutual difference in the impact of the IFRS adoption regarding Italy and Spain. As observed before, *the Zero Returns* in Italy does decrease but not significantly. On the other hand, the days with zero returns do decrease significantly concerning Spain regarding preadoption and the after-adoption years (-8,80% at 1% level). The mutual difference in the *Zero Returns* is significant (7,41% at 1% level). No significant difference exists in the *Price Impact*. The mean values of the *Bid-Ask Spread* do change significantly from preadoption to after-adoption, Italy with 0,60% at 1% level and Spain with 1,25% at 1% level. A significant mutual difference of -0,65% at 1% level appears between Italy and Spain regarding the mean values of the *Bid-Ask Spread* when preadoption years are compared to after-adoption years. No significant change in the countries Italy and Spain exists regarding the *Tobin's q*. However, the mutual difference does exist and is significant with a value of 0,099 at 5% level. In opposite to the comparison of Italy and Portugal, the mutual difference in the *Cost of Capital* between Italy and Spain is significant (4,81% at 1% level). Summarizing for Italy and Spain, a significant mutual difference exists in most of the mean values that have been analyzed.

TABLE 7C: ANALYSES OF THE MUTUAL DIFFERENCE IN IMPACT OF IFRS ADOPTION IN COUNTRIES WITH A WEAK ECONOMY

(Portugal vs. Spain)

Zero Returns

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Portugal $N = 612$	(1)	36,50%	41,62%	5,12%***
Spain $N = 1.537$	(2)	23,18%	14,38%	-8,80%***
	(1) - (2)	13,32%	27,24%***	13,92%***

Price Impact

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Portugal $N = 605$	(1)	0,179	0,126	-0,053
Spain $N = 1.336$	(2)	0,010	0,034	0,002**
	(1) - (2)	0,169***	0,092***	-0,055***

Bid-Ask Spread

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Portugal $N = 613$	(1)	5,37%	10,16%	4,79%***
Spain $N = 1.560$	(2)	0,89%	2,14%	1,25%***
	(1) - (2)	4,48%***	8,02%***	3,54%***

Tobin's q

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Portugal $N = 601$	(1)	0,760	0,734	-0,026
Spain $N = 1.616$	(2)	0,572	0,566	-0,006
	(1) - (2)	0,188**	0,168***	-0,02***

Cost of Capital

		Preadoption years (a)	After adoption years (b)	(b) - (a)
Portugal $N = 124$	(1)	18,44%	17,32%	-1,12%
Spain $N = 426$	(2)	22,02%	17,85%	-4,17%***
	(1) - (2)	-3,58%	-0,53%	3,05%

*, ** and *** stand for significant differences in the mean of the dependent variables, respectively levels 10%, 5% and 1% (two-sided t-test)

Table 7c compares the mutual difference in the impact of the IFRS adoption between Portugal and Spain. The figures concerning Portugal and Spain and have been commented in previous tables, consequently concerning this part the focus only will be on the possible mutual differences in the mean values. Regarding the *Zero Returns*, the mean value is highly significant with a value of 13,92% at 1% level). The mutual difference in the *Price Impact* is significant at the 1% level with a value of -0,055%. The same applies concerning the *Bid-Ask Spread*, *Tobin's q* and the *Cost of Capital* with significant values of resp. 3,54%, -0,02 and -4,17% all at 1% level. Concluding, mutual difference exists in the mean values of the *liquidity*, *cost of capital* and valuation effects between Portugal and Spain considering the preadoption and after-adoption years.

The difference-in-differences analyses present a recognizable picture regarding the change in mean values of the *liquidity*, *cost of capital* and valuation effects due to the mandatory adoption of IFRS. Most of the findings of this analyses regarding the mean values of the dependent variables are consistent with the findings of prior research, namely Daske et al. (2008), Hail and Leuz (2007), Kinsey et al. (2008) and Li (2009). Significant capital market reactions appear in mean values of the liquidity, *cost of capital* and valuation effects due to the mandatory adoption of IFRS.

The research topic of this thesis is if any difference exists in these reactions between countries with a strong and countries with a weak economy and in addition if any mutual difference exists between the countries. The difference-in difference analyses find that a difference in the mean values exists between countries with a strong economy and countries with a weak economy regarding the impact of mandatory IFRS adoption. This supports H1.

TABLE 7D: MUTUAL DIFFERENCE YES/NO

	Strong economy		
	Netherlands	Germany	Denmark
Netherlands	x	Yes	No
Germany	Yes	x	Yes
Denmark	No	Yes	x
	Weak economy		
	Italy	Portugal	Spain
Italy	x	No	Yes
Portugal	No	x	Yes
Spain	Yes	Yes	x

Table 7d summarizes the results regarding the difference-in-differences analyses for the mutual difference between the countries. Scrutinizing on the countries with a strong economy, the mutual difference in the mean values between the Netherlands and Denmark is not significant. This could indicate that the economies are equal in strength. On the other hand, the mutual difference between the Netherlands and Germany is significant. In addition, the mutual difference between Germany and Denmark in addition is significant. Focusing on countries with a weak economy, no significant mutual difference exists between Italy and Portugal. A significant mutual difference does exist between Italy and Spain and in addition between Spain and Portugal. The regression analyses in the next paragraph will examine these findings in more detail.

6.5 RESULTS MULTIPLE REGRESSION

1. Regression analyses models 1 to 5

In the models 1 to 5, the multiple regression is applied for each of the dependent variables (*ZERO*, *PRICEIMP*, *BIDASK*, *TOBQ* and *COC*). These variables represent the liquidity, the cost of capital and the valuation effects. These variables combined are the economic consequences *(EconCon)* of the impact of the mandatory IFRS adoption. The multiple regression is applied on the full sample (models 1a, 2a, 3a, 4a and 5a), the group of countries with a strong economy (models 1b, 2b, 3b, 4b and 5b) and the group of countries with a weak economy (models 1c, 2c, 3c, 4c and 5c). In order to perform the comparison between the groups possible and to determine if a difference exists in the capital-market reaction between firms in countries with a strong economy and firms in countries with a weak economy, this approach has been chosen (H1). The regression results for these models are presented below. The regression model coefficients are presented in Appendix H.

Liquidity effects	Model 1a: Dep. Variable - Zero Returns				Model 1b: Dep. Variable - Zero Returns				Model 1c: Dep. Variable - Zero Returns			
	Full sample				Countries with strong economy				Countries with weak economy			
Predictors	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.
Constant	0,040	0,020	1,970	0,049	0,058	0,034	1,675	0,094	-0,040	0,030	-0,142	0,887
EARLYVOL	-0,640	0,025	-2,564	0,010	-1,020	0,030	-3,428	0,001	-	-	-	-
LATEVOL	0,420	0,110	3,848	0,000	0,024	0,015	1,555	0,120	0,013	0,009	1,445	0,431
EVMAND	-0,140	0,029	-0,473	0,637	-0,008	0,035	-0,245	0,806	-	-	-	-
LVMAND	-0,480	0,120	-3,993	0,000	-0,061	0,016	-3,717	0,000	0,005	0,020	0,259	0,795
FTMAND	-0,004	0,002	-2,016	0,534	-0,030	0,020	-1,510	0,624	0,005	0,019	0,290	0,772
USLIST	-0,070	0,110	-0,583	0,560	0,032	0,020	-1,637	0,102	0,004	0,012	0,309	0,757
MARKVAL	-1,48E-05	0,000	-7,050	0,000	-2,74E-06	0,000	-5,156	0,000	-9,34E-07	0,000	-4,849	0,000
SHARTURN	-2,41E-05	0,000	-12,098	0,000	-3,66E-05	0,000	-8,586	0,000	-1,56E-05	0,000	-8,111	0,000
RETVAR	0,053	0,034	1,544	0,123	0,137	0,068	2,027	0,043	-0,007	0,034	-0,216	0,829
TASSETS	-3,00E-10	0,000	-3,184	0,001	-2,86E-10	0,000	-1,498	0,134	-3,02E-10	0,000	-3,197	0,001
FINLEV	-0,034	0,010	-3,432	0,001	-0,073	0,019	-3,798	0,000	0,005	0,010	0,474	0,636
FCBIAS	0,046	0,025	1,879	0,060	0,255	0,071	3,590	0,000	0,003	0,021	0,144	0,886
ASSETGR	0,000	0,000	-4,612	0,000	0,000	0,000	-4,308	0,000	0,000	0,000	-2,438	0,015
INDUSQ	0,134	0,028	4,816	0,000	0,192	0,048	4,028	0,000	0,123	0,031	3,999	0,000

Model 1: dependent variable = Zero Returns

Predictors: EARLYVOL, LATEVOL., EVMAND, LVMAND, FTMAND, USLIST, MARKVAL, SHARTURN, RETVAR, TASSETS, FINLEV, FCBIAS, ASSETGR, INDUSQ

The multiple regression models 1a, b and c with the dependent variable *Zero Returns*, presented in table 8a, have a highly significant *F* statistic with p=0,000, which implies that strong evidence exists of a relationship between the variables. The correlation between de dependent and independent variables is not strong with the highest R^2 of 0,139 for model 1b. However, this implies that some correlation exists and together with the high significance of the regression, some explanatory power is expected. A few indicators do not have a correlation in these models. Scrutinizing on the two groups that need to be compared, countries with a strong economy and countries with a weak economy, some differences of interest can be signalled. In the countries with a strong economy, is clearly visible that most IFRS indicators are negatively associated with the variable *Zero Returns* and these indicators in addition are mostly significant. This implies that the adoption of IFRS increases the liquidity. For example, firms that adopt IFRS voluntary before the announcement date (*EARLYVOL*, coefficient -1,020, p=0,001) have a larger decrease in days with zero returns than firms that adopt after the announcement date in the year of mandated adoption (*LVMAND*, coefficient -0,061, p=0,000). This is as expected and corresponds with the findings of Daske et al. (2008). Concerning the weak economy countries, *EARLYVOL* and *EVMAND* in this model are not correlated. The other IFRS indicators have a slight positive association with the days of zero returns (not significant). This is quite the opposite in comparison with the strong economy group which indicates a possible difference in the liquidity variable *Zero Returns* between the group countries with a strong economy and the group countries with a weak economy, which indicates an existing difference in the effect of the mandatory adoption of IFRS on the *Zero Returns* between countries with a strong economy and countries with a weak economy. This is in conformity with the findings in the difference-in-differences analyses. The control variables, although some with small coefficients, are mostly high significant for the group strong economy. Concerning the group weak economy, this is less the case. It is striking that the control variable *USLIST* is not significant in this model and not in most of the following models. The findings of Daske et al. (2008) conclude the same regarding *USLIST*.

As commented in chapter five, several researches determine that U.S. cross-listing can significantly affect the market value of a firm in a positive way (e.g., Lee, 2004; Miller, 1999). In addition, it is noted that U.S. cross-listing affects the cost of capital (Doidge et al., 2004; Reese and Weisbach, 2002). Next, the regression results with the dependent variable *Price Impact* in table 8b will be presented.

TABLE 8B: REGRESSION ANALYSES, DEPENDENT VARIABLE PRICE IMPACT

Liquidity effects	Model 2a: Dep. Variable - Price Impact				Model 2b: Dep. Variable - Price Impact				Model 2c: Dep. Variable - Price Impact			
	Full sample				Countries with strong economy				Countries with weak economy			
Predictors	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.
Constant	0,031	0,044	0,708	0,479	0,011	0,103	0,107	0,915	0,002	0,010	0,212	0,832
EARLYVOL	-	-	-	-	-	-	-	-	-	-	-	-
LATEVOL	-0,011	0,037	-0,302	0,763	-0,026	0,076	-0,338	0,735	-0,022	0,056	-0,393	0,723
EVMAND	0,106	0,034	3,127	0,002	0,056	0,054	1,027	0,305	-	-	-	-
LVMAND	0,135	0,038	3,519	0,000	0,172	0,079	2,174	0,030	0,004	0,007	0,629	0,529
FTMAND	-0,032	0,063	-0,508	0,513	-0,040	0,062	-0,646	0,456	0,007	0,007	0,991	0,322
USLIST	-0,003	0,024	-0,127	0,899	-0,036	0,057	-0,620	0,535	0,002	0,004	0,401	0,688
MARKVAL	-1,08E-06	0,000	-2,309	0,021	-3,82E-06	0,000	-2,372	0,018	-9,76E-08	0,000	-1,551	0,121
SHARTURN	-2,23E-05	0,000	-5,150	0,000	-4,98E-05	0,000	-4,082	0,000	-3,83E-06	0,000	-6,280	0,000
RETVAR	-0,156	0,075	-2,081	0,037	-0,655	0,201	-3,254	0,001	0,050	0,011	4,665	0,000
TASSETS	-8,11E-11	0,000	-0,363	0,716	-6,59E-11	0,000	-0,118	0,906	-1,20E-11	0,000	-0,343	0,732
FINLEV	-0,007	0,022	-0,326	0,744	0,033	0,058	0,568	0,570	-0,006	0,003	-1,995	0,046
FCBIAS	0,184	0,052	3,533	0,000	0,146	0,207	0,705	0,481	0,146	0,007	22,170	0,000
ASSETGR	0,000	0,000	-1,552	0,121	0,000	0,000	-1,259	0,208	0,000	0,000	-0,981	0,327
INDUSQ	0,059	0,061	0,961	0,337	0,230	0,142	1,620	0,105	0,000	0,010	0,019	0,985

Model 2: dependent variable = Price Impact

Predictors: EARLYVOL, LATEVOL, EVMAND, LVMAND, FTMAND, USLIST, MARKVAL, SHARTURN, RETVAR, TASSETS, FINLEV, FCBIAS, ASSETGR, INDUSQ

The multiple regression models 2a, b and c with the dependent variable *Price Impact* have a highly significant *F* statistic with p=0,000, which implies that a strong evidence of a relationship exists between the variables. The correlation is not strong with a highest R^2 of 0,178 concerning model 2c. In the countries with a strong economy, *FTMAND* is negatively correlated with *PRICEIMP* (-0,040) however, the correlation is not significant. Negative correlation of the IFRS indicators with the liquidity variables is most common and consistent with the findings of Daske et al. (2008). Concerning countries with a weak economy, FTMAND is positively correlated (0,007) with *PRICIMP*, again not significant. *LVMAND* causes a significant change in the *PRICEIMP* (coefficient 0,172, p=0,030) in countries with a strong economy. It is expected that the sign of *LVMAND* would be negative causing the *PRICIMP* to decrease (i.e. increasing liquidity). Concerning the countries with a weak economy, *LVMAND* in addition has a positive influence on *PRICIMP* however, the impact is not significant. The other IFRS indicators in this model concerning both groups (strong and weak economy) are not significant. Three control variables are significantly correlated with *PRICIMP* for countries with a strong economy against countries with a weak economy. Concluding, some difference exists in the reaction of the *PRICEIMP* between countries with a strong economy and countries with a weak economy.

TABLE 8C: REGRESSION ANALYSES, DEPENDENT VARIABLE BID-ASK SPREAD

Liquidity effects	Model 3a: Dep. Variable - BidAsk Spread				Model 3b: Dep. Variable - BidAsk Spread				Model 3c: Dep. Variable - BidAsk Spread			
	Full sample				Countries with strong economy				Countries with weak economy			
Predictors	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.
Constant	0,018	0,002	10,817	0,000	0,012	0,002	5,096	0,000	0,020	0,003	6,290	0,000
EARLYVOL	-0,030	0,002	-1,524	0,128	-0,005	0,002	-2,302	0,021	-	-	-	-
LATEVOL	0,000	0,001	0,316	0,752	0,001	0,001	0,641	0,522	0,011	0,033	0,336	0,673
EVMAND	-0,002	0,002	-0,985	0,338	-0,001	0,002	-0,587	0,557	-	-	-	-
LVMAND	-0,002	0,001	-1,913	0,056	-0,003	0,001	-3,036	0,002	0,004	0,002	1,717	0,086
FTMAND	-0,081	0,021	-3,871	0,032	0,001	0,002	0,483	0,375	0,004	0,002	2,033	0,042
USLIST	-0,001	0,001	-0,995	0,320	-0,002	0,001	-1,800	0,072	0,001	0,001	0,716	0,474
MARKVAL	-1,47E-07	0,000	-8,458	0,000	-2,16E-07	0,000	-6,125	0,000	-1,29E-07	0,000	-6,261	0,000
SHARTURN	-2,87E-06	0,000	-17,283	0,000	-4,13E-06	0,000	-14,607	0,000	-2,27E-06	0,000	-10,949	0,000
RETVAR	0,038	0,003	13,221	0,000	0,048	0,005	10,436	0,000	0,034	0,004	9,195	0,000
TASSETS	-2,46E-11	0,000	-3,186	0,001	-1,65E-11	0,000	-1,328	0,184	-2,97E-11	0,000	-2,934	0,003
FINLEV	0,001	0,001	1,589	0,112	0,000	0,001	0,049	0,961	0,002	0,001	1,830	0,067
FCBIAS	0,001	0,002	0,303	0,762	0,012	0,005	2,471	0,014	-0,002	0,002	-0,928	0,354
ASSETGR	-3,854E-05	0,000	-7,837	0,000	-4,081E-05	0,000	-5,777	0,000	-3,656E-05	0,000	-5,427	0,000
INDUSQ	-0,014	0,002	-5,866	0,000	-0,003	0,003	-1,024	0,306	-0,023	0,003	-7,172	0,000

Model 3: dependent variable = Bid-Ask Spread

Predictors: EARLYVOL, LATEVOL, EVMAND, LVMAND, FTMAND, USLIST, MARKVAL, SHARTURN, RETVAR, TASSETS, FINLEV, FCBIAS, ASSETGR, INDUSQ

TABLE 8D: REGRESSION ANALYSES, DEPENDENT VARIABLE TOBIN'S Q

CoC and Valuation effects	Model 4a: Dep. Variable - Tobin's q				Model 4b: Dep. Variable - Tobin's q				Model 4c: Dep. Variable - Tobin's q			
	Full sample				Countries with strong economy				Countries with weak economy			
Predictors	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.
Constant	-0,133	0,155	-0,860	0,39	-0,282	0,215	-1,313	0,189	-0,060	0,302	-0,199	0,842
EARLYVOL	0,128	0,197	0,648	0,517	0,064	0,190	0,338	0,735	-	-	-	-
LATEVOL	0,095	0,087	1,090	0,276	0,035	0,096	0,364	0,716	0,043	0,130	0,331	0,695
EVMAND	-0,021	0,225	-0,093	0,926	0,017	0,215	0,077	0,939	-	-	-	-
LVMAND	0,035	0,095	0,364	0,716	0,056	0,104	0,540	0,589	0,004	0,206	0,020	0,984
FTMAND	-0,092	0,034	-2,716	0,647	0,007	0,003	2,367	0,713	-0,112	0,192	-0,580	0,562
USLIST	0,123	0,086	1,418	0,156	0,141	0,120	1,177	0,239	0,062	0,124	0,496	0,620
MARKVAL	4,73E-07	0,000	0,296	0,767	1,25E-06	0,000	0,386	0,700	2,83E-07	0,000	0,148	0,882
SHARTURN	-3,22E-05	0,000	-2,083	0,037	9,11E-06	0,000	0,347	0,729	-4,26E-05	0,000	-2,185	0,029
RETVAR	-0,822	0,283	-2,907	0,004	0,101	0,423	0,239	0,811	-1,525	0,381	-4,003	0,000
TASSETS	5,49E-10	0,000	0,771	0,441	-1,25E-10	0,000	-0,109	0,913	1,06E-09	0,000	1,130	0,259
FINLEV	1,188	0,077	15,437	0,000	1,459	0,120	12,158	0,000	1,097	0,101	10,847	0
FCBIAS	1,135	0,467	2,431	0,015	1,265	0,452	2,800	0,005	-2,069	3,325	-0,622	0,534
ASSETGR	5,619E-05	0,000	0,123	0,902	0,00	0,001	0,451	0,652	0,00	0,001	-0,347	0,729
INDUSQ	0,129	0,214	0,605	0,545	0,056	0,299	0,187	0,851	0,314	0,305	1,030	0,303

Model 4: dependent variable = Tobin's q

Predictors: EARLYVOL, LATEVOL, EVMAND, LVMAND, FTMAND, USLIST, MARKVAL, SHARTURN, RETVAR, TASSETS, FINLEV, FCBIAS, ASSETGR, INDUSQ

TABLE 8E: REGRESSION ANALYSES, DEPENDENT VARIABLE COST OF CAPITAL

CoC and Valuation effects	Model 5a: Dep. Variable - Cost of Capital				Model 5b: Dep. Variable - Cost of Capital				Model 5c: Dep. Variable - Cost of Capital			
	Full sample				Countries with strong economy				Countries with weak economy			
Predictors	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.
Constant	0,160	0,035	4,591	0,000	0,105	0,044	2,397	0,017	0,167	0,081	2,051	0,041
EARLYVOL	-0,021	0,060	-0,354	0,723	-0,033	0,057	-0,573	0,567	-	-	-	-
LATEVOL	0,014	0,020	0,734	0,463	-0,020	0,021	-0,968	0,333	0,023	0,017	1,353	0,524
EVMAND	-0,021	0,068	-0,312	0,755	-0,021	0,065	-0,323	0,747	-	-	-	-
LVMAND	-0,016	0,022	-0,726	0,468	-0,005	0,024	-0,230	0,818	0,034	0,058	0,590	0,555
FTMAND	-0,031	0,113	-0,274	0,794	0,004	0,043	0,096	0,483	-0,002	0,055	-0,040	0,968
USLIST	-0,026	0,019	-1,375	0,169	-0,026	0,025	-1,054	0,292	-0,028	0,029	-0,965	0,335
MARKVAL	-2,40E-06	0,000	-6,273	0,000	-4,24E-06	0,000	-4,755	0,000	-1,85E-06	0,000	-4,218	0,000
SHARTURN	2,58E-05	0,000	7,668	0,000	3,19E-05	0,000	6,684	0,000	2,23E-05	0,000	4,851	0,000
RETVAR	0,866	0,066	13,207	0,000	0,804	0,091	8,819	0,000	0,778	0,094	8,301	0,000
TASSETS	7,50E-10	0,000	4,457	0,000	1,27E-09	0,000	4,448	0,000	5,32E-10	0,000	2,531	0,012
FINLEV	0,042	0,017	2,431	0,015	-0,011	0,026	-0,419	0,675	0,083	0,023	3,617	0,000
FCBIAS	-0,06	0,043	-1,411	0,158	-0,454	0,076	-6,005	0,000	0,087	0,051	1,701	0,089
ASSETGR	0,000	0,000	-4,816	0,000	0,000	0,000	-2,546	0,011	-0,001	0,000	-5,324	0,000
INDUSQ	-0,149	0,048	-3,084	0,002	0,000	0,061	0,007	0,995	-0,188	0,077	-2,439	0,015

Model 5: dependent variable = Cost of Capital

Predictors: EARLYVOL, LATEVOL, EVMAND, LVMAND, FTMAND, USLIST, MARKVAL, SHARTURN, RETVAR, TASSETS, FINLEV, FCBIAS, ASSETGR, INDUSQ

Tables 8c, d and e present the results of the regressions concerning the models 3 to 5 resp. *BIDASK*, *TOBQ* and *COC*. All three models have a highly significant *F* statistic with p=0,000 with a highest R^2 of 0,293 for model 5b. Scrutinizing on the IFRS indicators, it is striking that almost none of these indicators is significant concerning *BIDASK*, *TOBQ* and *COC*. *EARLYVOL* and *LVMAND* are significant in model 3b regarding the *BIDASK* (resp. p=0,021 and p=0,002). Hail and Leuz (2007) document that around the introduction of the mandatory IFRS reporting, many EU countries have taken extra efforts to tighten their enforcement regimes. Consequently, it is possible that these concurrent changes in the enforcement cause the improvements in the financial reporting and not the adoption of IFRS. Christensen et al (2012, p.171) in addition concludes the same, "countries made enforcement (and possibly other) changes to support the introduction of IFRS and it is this bundle that drove the capital-market effects. Daske et al. (2008) and Hail and Leuz (2007) in addition found mixed results concerning the IFRS indicators, dependent on which model has been chosen. For example, Daske et al. (2008) run the regression for the sample with the IFRS adoption countries only and they found no significant values concerning *FTMAND*, *LVMAND* and *EARLVOL*. This is almost similar to the models 3, 4 and 5 which do not contain firms from countries that did not adapt IFRS. From that point of view the results of this regression is in conformity with the findings of the signalled prior research. However, the main purpose of this thesis is to determine any possible difference in the liquidity variables, in the cost of capital and in Tobin's q comparing countries with a strong economy with and countries with a weak economy. Even if the IFRS indicators are not significant, a difference in sign and value is visible. Especially the negative coefficient signs concerning the IFRS indicators in countries with a strong economy versus the positive coefficient signs in countries with a weak economy. This effects the dependent variables in a different way concerning the two examined groups. In addition, the magnitude of the coefficients differs.

As the results before conclude, a visible difference exists between countries with a strong economy and countries with a weak economy. Analysing possible causes for this difference besides the economic state of the countries, the legal systems which in addition influence accounting standards can be excluded. The distinction exists between common-law and code-law regulation in the world (Christensen et al., 2007). Kinsey et al. (2008) expects that the benefits of the adoption of IFRS and the impact on the capital markets would be higher in the code-law countries than in the common-law countries. However, all countries in the sample of this thesis have code-law regulation which implicates no difference in the legal system that can cause the different effects in the regression analyses.

Together with the findings of the univariate analyses, the conclusion is that H1 is supported, a difference exists in the capital-market reaction between firms in countries with a strong economy and firms in countries with a weak economy.

2. Regression analyses models 6 to 10

In the models 6 to 10, the multiple regression is applied for the same dependent variables (*ZERO*, *PRICEIMP*, *BIDASK*, *TOBQ* and *COC*) but concerning a different sample. In order to determine whether a mutual difference in the capital-market reaction exists between firms concerning countries with a strong economy, the multiple regression is applied on the firm sample of the Netherlands (models 6a, 7a, 8a, 9a and 10a), the firm sample of Germany (models 6b, 7b, 8b, 9b and 10b) and the firm sample of Denmark (models 6c, 7c, 8c, 9c and 10c) (H2). The regression results for these models are presented below in tables 9a to 9e. The regression model coefficients in addition are presented in Appendix H.

TABLE 9A: REGRESSION ANALYSES, DEPENDENT VARIABLE ZERO RETURNS

Liquidity effects	Model 6a: Dep. Variable - Zero Returns				Model 6b: Dep. Variable - Zero Returns				Model 6c: Dep. Variable - Zero Returns			
	Netherlands				Germany				Denmark			
Predictors	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.
Constant	0,828	0,303	2,735	0,006	0,171	0,080	2,148	0,032	0,005	0,066	0,079	0,937
EARLYVOL	-	-	-	-	-0,085	0,031	-2,715	0,007	-	-	-	-
LATEVOL	0,484	0,059	8,213	0,000	0,015	0,024	0,624	0,041	0,013	0,020	0,650	0,032
EVMAND	-	-	-	-	-0,030	0,032	-0,935	0,350	-	-	-	-
LVMAND	-0,744	0,304	-2,443	0,015	-0,067	0,020	-3,417	0,001	-0,031	0,033	-0,963	0,336
FTMAND	-0,759	0,304	-2,500	0,013	-0,040	0,020	-2,005	0,045	-0,030	0,030	-1,021	0,308
USLIST	-0,009	0,023	-0,403	0,687	-0,011	0,041	-0,275	0,784	0,098	0,066	1,471	0,142
MARKVAL	-4,02E-06	0,000	-3,149	0,002	-1,80E-06	0,000	-2,856	0,004	-8,47E-06	0,000	-3,834	0,000
SHARTURN	-3,73E-05	0,000	-7,191	0,000	-	-	-	-	-6,78E-05	0,000	-8,133	0,000
RETVAR	0,188	0,104	1,799	0,073	-0,325	0,135	-2,404	0,016	0,061	0,106	0,578	0,564
TASSETS	9,86E-10	0,000	1,675	0,095	-2,31E-10	0,000	-1,166	0,244	-2,33E-09	0,000	-2,025	0,043
FINLEV	-0,003	0,029	-0,104	0,917	-0,020	0,041	-0,492	0,623	0,018	0,035	0,508	0,612
FCBIAS	0,618	0,245	2,518	0,012	7,562	1,703	4,440	0	0,658	0,144	4,559	0,000
ASSETGR	0,000	0,000	-2,265	0,024	0,000	0,000	-1,096	0,273	0,000	0,000	-3,063	0,002
INDUSQ	0,068	0,068	1,072	0,284	0,034	0,102	0,337	0,736	0,358	0,084	4,286	0,000

Model 6: dependent variable = Zero Returns

Predictors: EARLYVOL, LATEVOL, EVMAND, LVMAND, FTMAND, USLIST, MARKVAL, SHARTURN, RETVAR, TASSETS, FINLEV, FCBIAS, ASSETGR, INDUSQ

TABLE 9B: REGRESSION ANALYSES, DEPENDENT VARIABLE PRICE IMPACT

Liquidity effects	Model 7a: Dep. Variable - Price Impact				Model 7b: Dep. Variable - Price Impact				Model 7c: Dep. Variable - Price Impact			
	Netherlands				Germany				Denmark			
Predictors	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.
Constant	0,001	0,084	0,012	0,991	0,157	0,439	0,358	0,72	-0,254	0,162	-1,562	0,119
EARLYVOL	-	-	-	-	-	-	-	-	-	-	-	-
LATEVOL	1,335	0,572	2,333	0,020	0,030	0,012	2,521	0,558	0,035	0,013	2,693	0,796
EVMAND	-	-	-	-	-0,129	0,088	-1,458	0,146	-	-	-	-
LVMAND	-1,348	0,574	-2,350	0,019	0,155	0,067	2,314	0,027	0,195	0,079	2,454	0,014
FTMAND	-0,055	0,037	-1,486	0,608	-0,053	0,071	-0,742	0,459	-0,005	0,074	-0,062	0,951
USLIST	-0,011	0,041	-0,276	0,782	-0,202	0,219	-0,922	0,357	-0,104	0,164	-0,635	0,526
MARKVAL	-4,51E-06	0,000	-2,005	0,045	-7,30E-06	0,000	-2,215	0,027	-2,26E-06	0,000	-0,416	0,678
SHARTURN	-2,53E-05	0,000	-2,719	0,007	-	-	-	-	-6,36E-05	0,000	-3,092	0,002
RETVAR	-0,331	0,194	-1,710	0,088	-2,472	0,766	-3,225	0,001	-0,382	0,260	-1,468	0,143
TASSETS	1,12E-09	0,000	1,126	0,261	2,33E-10	0,000	0,245	0,807	-1,83E-09	0,000	-0,645	0,519
FINLEV	-0,042	0,053	-0,791	0,429	-0,500	0,220	-2,271	0,024	0,235	0,085	2,751	0,006
FCBIAS	1,085	0,462	2,347	0,019	84,638	13,381	6,325	0,000	0,461	0,356	1,296	0,195
ASSETGR	0,000	0,000	-0,904	0,367	0,000	0,001	0,168	0,867	-7,73E-05	0,000	-0,215	0,830
INDUSQ	0,213	0,118	1,808	0,071	0,950	0,658	1,443	0,150	0,402	0,206	1,953	0,051

Model 7: dependent variable = Price Impact

Predictors: EARLYVOL, LATEVOL, EVMAND, LVMAND, FTMAND, USLIST, MARKVAL, SHARTURN, RETVAR, TASSETS, FINLEV, FCBIAS, ASSETGR, INDUSQ

TABLE 9C: REGRESSION ANALYSES, DEPENDENT VARIABLE BID-ASK SPREAD

Liquidity effects	Model 8a: Dep. Variable - BidAsk Spread				Model 8b: Dep. Variable - BidAsk Spread				Model 8c: Dep. Variable - BidAsk Spread			
	Netherlands				Germany				Denmark			
Predictors	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.
Constant	0,012	0,040	3,147	0,000	0,014	0,004	3,391	0,001	0,008	0,005	1,624	0,105
EARLYVOL	-	-	-	-	-0,004	0,002	-2,022	0,044	-	-	-	-
LATEVOL	0,092	0,026	3,517	0,000	0,001	0,024	0,042	0,633	0,026	0,013	2,045	0,759
EVMAND	-	-	-	-	-0,002	0,002	-1,318	0,188	-	-	-	-
LVMAND	-0,092	0,026	-3,507	0,000	-0,003	0,001	-2,942	0,003	-0,002	0,002	-0,749	0,454
FTMAND	0,002	0,037	0,056	0,000	0,000	0,001	0,444	0,657	0,000	0,002	-0,055	0,956
USLIST	0,000	0,002	-0,247	0,805	-0,005	0,002	-2,329	0,02	0,009	0,005	1,864	0,063
MARKVAL	-3,77E-07	0,000	-3,556	0,000	-1,97E-07	0,000	-5,830	0,000	-6,10E-07	0,000	-3,792	0,000
SHARTURN	-3,89E-06	0,000	-9,143	0,000	-	-	-	-	-4,68E-06	0,000	-7,673	0,000
RETVAR	0,057	0,009	6,460	0,000	1,90E-02	0,007	2,684	0,007	0,045	0,008	5,883	0,000
TASSETS	9,38E-11	0,000	2,049	0,041	-2,68E-11	0,000	-2,513	0,012	-1,16E-10	0,000	-1,382	0,167
FINLEV	-0,004	0,002	-1,709	0,088	0,002	0,002	0,888	0,375	0,007	0,003	2,938	0,003
FCBIAS	0,081	0,021	3,830	0,000	0,644	0,094	6,856	0,000	0,014	0,011	1,296	0,195
ASSETGR	-4,90E-05	0,000	-3,541	0,000	-3,68E-05	0,000	-2,641	0,008	-2,96E-05	0,000	-2,774	0,006
INDUSQ	-0,003	0,005	-0,610	0,542	-0,006	0,005	-1,041	0,298	0,000	0,006	-0,060	0,952

Model 8: dependent variable = Bid-Ask Spread

Predictors: EARLYVOL, LATEVOL, EVMAND, LVMAND, FTMAND, USLIST, MARKVAL, SHARTURN, RETVAR, TASSETS, FINLEV, FCBIAS, ASSETGR, INDUSQ

TABLE 9D: REGRESSION ANALYSES, DEPENDENT VARIABLE TOBIN'S Q

CoC and Valuation effects	Model 9a: Dep. Variable - Tobin's q				Model 9b: Dep. Variable - Tobin's q				Model 9c: Dep. Variable - Tobin's q			
	Netherlands				Germany				Denmark			
Predictors	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.
Constant	-0,521	0,586	-0,890	0,374	0,018	0,079	0,226	0,821	0,107	0,089	1,196	0,232
EARLYVOL	-	-	-	-	0,033	0,033	1,008	0,314	-	-	-	-
LATEVOL	-21,912	3,974	-5,514	0,000	0,026	0,086	0,303	0,437	0,047	0,007	6,713	0,505
EVMAND	-	-	-	-	-0,029	0,033	-0,866	0,387	-	-	-	-
LVMAND	22,495	3,983	5,647	0,000	0,007	0,020	0,353	0,724	-0,074	0,044	-1,684	0,093
FTMAND	-0,063	0,027	-2,334	0,603	0,003	0,021	0,122	0,903	-0,016	0,040	-0,406	0,685
USLIST	0,023	0,286	0,079	0,937	0,283	0,040	7,161	0,000	0,494	0,090	5,489	0,000
MARKVAL	4,16E-06	0,000	0,266	0,790	-1,97E-06	0,000	-3,130	0,002	-3,34E-06	0,000	-1,120	0,263
SHARTURN	-7,87E-05	0,000	-1,217	0,224	-	-	-	-	-2,70E-05	0,000	-2,389	0,017
RETVAR	1,256	1,345	0,934	0,351	-0,085	0,135	-0,629	0,529	-0,132	0,143	-0,924	0,356
TASSETS	5,12E-10	0,000	0,074	0,941	6,53E-10	0,000	3,289	0,001	6,07E-09	0,000	3,896	0,000
FINLEV	3,117	0,368	8,466	0,000	0,501	0,041	12,334	0,000	0,792	0,047	16,885	0,000
FCBIAS	-15,053	3,211	-4,688	0,000	-2,978	1,747	-1,704	0,089	0,473	0,196	2,415	0,016
ASSETGR	-0,003	0,002	-1,598	0,111	0,001	0,000	3,299	0,001	0,001	0,000	3,522	0,000
INDUSQ	-1,102	0,820	-1,344	0,179	0,563	0,101	5,562	0,000	0,255	0,113	2,256	0,024

Model 9: dependent variable = Tobin's q

Predictors: EARLYVOL, LATEVOL, EVMAND, LVMAND, FTMAND, USLIST, MARKVAL, SHARTURN, RETVAR, TASSETS, FINLEV, FCBIAS, ASSETGR, INDUSQ

TABLE 9E: REGRESSION ANALYSES, DEPENDENT VARIABLE COST OF CAPITAL

CoC and Valuation effects	Model 10a: Dep. Variable - Cost of Capital				Model 10b: Dep. Variable - Cost of Capital				Model 10c: Dep. Variable - Cost of Capital			
	Netherlands				Germany				Denmark			
Predictors	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.
Constant	0,030	0,055	0,549	0,584	0,141	0,111	1,267	0,207	0,266	0,106	2,515	0,013
EARLYVOL	-	-	-	-	-0,025	0,046	-0,550	0,583	-	-	-	-
LATEVOL	0,541	0,325	1,664	0,097	0,067	0,032	2,094	0,075	0,451	0,064	7,047	0,064
EVMAND	-	-	-	-	-0,012	0,048	-0,254	0,800	-	-	-	-
LVMAND	-0,529	0,326	-1,625	0,105	-0,033	0,025	-1,360	0,176	0,005	0,051	0,090	0,928
FTMAND	-0,054	0,102	-0,529	0,708	-0,007	0,025	-0,268	0,789	0,005	0,044	0,118	0,906
USLIST	-0,025	0,028	-0,885	0,377	-0,053	0,068	-0,775	0,44	0,183	0,117	1,565	0,119
MARKVAL	-4,36E-06	0,000	-2,865	0,004	-5,67E-06	0,000	-2,939	0,004	-3,37E-05	0,000	-4,614	0,000
SHARTURN	3,02E-05	0,000	5,225	0,000	-	-	-	-	1,74E-05	0,000	1,318	0,189
RETVAR	0,866	0,122	7,112	0,000	0,361	0,186	1,938	0,055	0,695	0,193	3,605	0,000
TASSETS	1,34E-09	0,000	2,081	0,038	1,51E-09	0,000	5,305	0,000	8,16E-09	0,000	2,739	0,007
FINLEV	-0,023	0,035	-0,659	0,511	0,091	0,058	1,555	0,122	0,033	0,062	0,532	0,595
FCBIAS	-0,032	0,263	-0,121	0,904	-8,696	2,783	-3,125	0,002	-0,214	0,433	-0,493	0,623
ASSETGR	-0,001	0,000	-2,503	0,013	-0,001	0,000	-3,068	0,003	-5,36E-05	0,000	-0,305	0,761
INDUSQ	0,126	0,076	1,659	0,098	-0,09	0,148	-0,611	0,542	-0,227	0,136	-1,672	0,096

Model 10: dependent variable = Cost of Capital

Predictors: EARLYVOL, LATEVOL, EVMAND, LVMAND, FTMAND, USLIST, MARKVAL, SHARTURN, RETVAR, TASSETS, FINLEV, FCBIAS, ASSETGR, INDUSQ

All models have a highly significant *F* statistic with p=0,000 with a highest R^2 of 0,426 for model 9c. A few indicators do not have a correlation in these models. Almost all the IFRS indicators in model 6 are statistically significant. From left to right in table 9a for *ZERO*, the Netherlands and Germany have significant coefficients for *FTMAND*, *LVMAND* and *LATEVOL*. Concerning Denmark, this counts only for *LATEVOL*. The signs of the IFRS indicators are the same concerning the Netherlands, Germany and for Denmark. However, the magnitude and the significance of the coefficients decrease from left to right. This implies that the coefficients of the IFRS indicators concerning the Dutch sample have the highest magnitude and significance. Germany follows and Denmark ends. Hence, in the effects on Zero Returns a mutual difference is visible. This could be caused by a difference in economic strength within the sample of countries with a strong economy. Less significance in the results regarding the IFRS indicators for PRICEIMP in table 9b can be determined. Again, most significance is concerning the Netherlands, followed by Germany and Denmark. The same picture appears in table 9c and 9d concerning the models 7 and 8 with the *BIDASK* and *TOBQ*. The results for the *BIDASK* show highly significant coefficients concerning the IFRS indicators regarding the Dutch firms (p=0,000).

The significance of the coefficients regarding the IFRS indicators is less concerning the German sample and no significance is visible concerning the Danish companies. Consequently, a mutual difference exists in the effects on the *BIDASK*. Focussing on *TOBQ*, the IFRS indicators are most significant concerning the Netherlands. No significance appears in the coefficients concerning the IFRS indicators in the regression concerning Germany. Slight significance in *LVMAND* concerning Denmark. In addition, the magnitude of the coefficients differs largely. The values of LATEVOL and LVMAND in the regression concerning the Dutch sample, seem to be extreme but to prevent omitting values that can impact the regression analyses, the samples have been tested concerning outliers with the methods "Leverage" and "Cook's". Inherent with the other dependent variables, the effects of the mandatory adoption of IFRS on TOBQ are mutual different concerning the three countries with a strong economy. Table 9e summarizes the results of model 10 regarding the effect on *COC*. Only the coefficient concerning indicator *LATEVOL* is significant concerning the three selected countries (p=0,097, p=0,075 and p=0,064). In this model, the difference between the Netherlands and Germany in the magnitude of the coefficients is most visible. The difference between Denmark and the other two countries lies more in the sign of the IFRS indicators. The coefficients concerning Germany and the Netherlands mainly have negative signs and the coefficients concerning Denmark have positive signs which indicates a difference in the effect of the indicators regarding the *COC*. Concluding, the findings of the regression analyses support H2, a mutual difference in the capital-market reaction exists between firms concerning countries with a strong economy. This is in conformity with the findings of the difference-in-differences analyses in the previous paragraph.

2. Regression analyses models 11 to 15

In the models 11 to 15, the multiple regression is applied for the same dependent variables (*ZERO*, *PRICEIMP*, *BIDASK*, *TOBQ* and *COC*) but again for a different sample. In order to determine whether a mutual difference in the capital-market reaction exists between firms concerning countries with a weak economy, the multiple regression is applied on the firm sample of Italy (models 11a, 12a, 13a, 14a and 15a), the firm sample of Portugal (models 11b, 12b, 13b, 14b and 15b) and the firm sample of Spain (models 11c, 12c, 13c, 14c and 15c) (H3). The regression results for these models are presented below in the tables 10a-e. The regression model coefficients in addition are presented in Appendix H.

TABLE 10A: REGRESSION ANALYSES, DEPENDENT VARIABLE ZERO RETURNS

Liquidity effects	Model 11a: Dep. Variable - Zero Returns				Model 11b: Dep. Variable - Zero Returns				Model 11c: Dep. Variable - Zero Returns			
	Italy				Portugal				Spain			
Predictors	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.
Constant	0,008	0,024	0,326	0,744	-0,206	0,146	-1,414	0,158	0,055	0,058	0,963	0,336
EARLYVOL	-	-	-	-	-	-	-	-	-	-	-	-
LATEVOL	0,010	0,015	0,667	0,000	0,003	0,006	0,513	0,021	0,002	0,005	0,417	0,017
EVMAND	-	-	-	-	-	-	-	-	-	-	-	-
LVMAND	-0,001	0,017	-0,081	0,935	0,054	0,055	0,980	0,328	0,016	0,048	0,333	0,740
FTMAND	-0,004	0,015	-0,280	0,780	0,146	0,050	2,935	0,004	0,013	0,046	0,288	0,773
USLIST	0,004	0,007	0,591	0,554	-	-	-	-	-0,039	0,033	-1,203	0,229
MARKVAL	-5,82E-07	0,000	-4,895	0,000	-1,64E-05	0,000	-3,215	0,001	-2,38E-06	0,000	-4,482	0,000
SHARTURN	-9,71E-06	0,000	-7,046	0,000	-6,59E-05	0,000	-4,106	0,000	-4,72E-06	0,000	-1,519	0,129
RETVAR	-0,073	0,023	-3,159	0,002	0,370	0,178	2,084	0,038	-0,093	0,066	-1,409	0,159
TASSETS	-1,06E-10	0,000	-1,566	0,118	-1,86E-09	0,000	-0,849	0,396	-1,93E-11	0,000	-0,112	0,911
FINLEV	-7,00E-03	0,009	-0,765	0,444	-2,80E-02	0,065	-0,436	0,664	-5,50E-02	0,014	-3,974	0,000
FCBIAS	0,012	0,012	1,037	0,300	1,467	1,014	1,447	0,149	4,272	0,764	5,588	0,000
ASSETGR	-2,92E-05	0,000	-0,657	0,512	0,000	0,000	-0,997	0,320	0,000	0,000	-1,146	0,252
INDUSQ	0,094	0,024	3,912	0,000	0,424	0,171	2,477	0,014	0,076	0,045	1,679	0,094

Model 11: dependent variable = Zero Returns

Predictors: EARLYVOL, LATEVOL, EVMAND, LVMAND, FTMAND, USLIST, MARKVAL, SHARTURN, RETVAR, TASSETS, FINLEV, FCBIAS, ASSETGR, INDUSQ

TABLE 10B: REGRESSION ANALYSES, DEPENDENT VARIABLE PRICE IMPACT

Liquidity effects	Model 12a: Dep. Variable - Price Impact				Model 12b: Dep. Variable - Price Impact				Model 12c: Dep. Variable - Price Impact			
	Italy				Portugal				Spain			
Predictors	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.
Constant	0,019	0,010	1,892	0,059	-0,087	0,059	-1,471	0,142	0,016	0,015	1,067	0,286
EARLYVOL	-	-	-	-	-	-	-	-	-	-	-	-
LATEVOL	0,267	0,143	1,856	0,010	0,006	0,001	6,057	0,279	0,007	0,003	2,332	0,398
EVMAND	-	-	-	-	-	-	-	-	-	-	-	-
LVMAND	0,003	0,008	0,408	0,683	0,014	0,022	0,630	0,529	0,001	0,013	0,059	0,953
FTMAND	0,002	0,008	0,191	0,849	0,029	0,020	1,413	0,159	0,001	0,012	0,043	0,966
USLIST	0,001	0,003	0,442	0,658	-	-	-	-	-0,003	0,009	-0,309	0,758
MARKVAL	-7,64E-08	0,000	-1,734	0,083	-5,70E-07	0,000	-0,275	0,784	-2,74E-07	0,000	-2,079	0,038
SHARTURN	-2,08E-06	0,000	-4,196	0,000	-2,16E-05	0,000	-3,308	0,001	-2,64E-06	0,000	-3,170	0,002
RETVAR	0,030	0,008	3,572	0,000	0,406	0,072	5,620	0,000	-0,050	0,017	-2,919	0,004
TASSETS	2,46E-12	0,000	0,095	0,924	-1,68E-10	0,000	-0,188	0,851	-5,60E-12	0,000	-0,095	0,925
FINLEV	-4,00E-03	0,003	-1,328	0,185	-2,40E-02	0,026	-0,922	0,357	-9,00E-03	0,004	-2,404	0,016
FCBIAS	0,146	0,004	34,952	0,000	0,195	0,413	0,474	0,636	0,637	0,203	3,142	0,002
ASSETGR	-6,34E-06	0,000	-0,406	0,685	3,21E-06	0,000	0,024	0,981	-2,69E-05	0,000	-0,895	0,371
INDUSQ	-0,021	0,009	-2,438	0,015	0,089	0,069	1,290	0,198	0,003	0,012	0,257	0,797

Model 12: dependent variable = Price Impact

Predictors: EARLYVOL, LATEVOL, EVMAND, LVMAND, FTMAND, USLIST, MARKVAL, SHARTURN, RETVAR, TASSETS, FINLEV, FCBIAS, ASSETGR, INDUSQ

TABLE 10C: REGRESSION ANALYSES, DEPENDENT VARIABLE BID-ASK SPREAD

Liquidity effects	Model 13a: Dep. Variable - BidAsk Spread				Model 13b: Dep. Variable - BidAsk Spread				Model 13c: Dep. Variable - BidAsk Spread			
	Italy				Portugal				Spain			
Predictors	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.
Constant	0,030	0,004	8,025	0,000	-0,016	0,017	-0,971	0,333	0,018	0,006	3,249	0,001
EARLYVOL	-	-	-	-	-	-	-	-	-	-	-	-
LATEVOL	0,003	0,004	0,756	0,321	0,049	0,006	8,167	0,317	0,005	0,003	1,674	0,380
EVMAND	-	-	-	-	-	-	-	-	-	-	-	-
LVMAND	0,001	0,003	0,559	0,576	0,009	0,006	1,435	0,152	0,005	0,005	1,145	0,252
FTMAND	0,001	0,002	0,587	0,557	0,014	0,006	2,342	0,020	0,005	0,005	1,078	0,281
USLIST	0,001	0,001	0,757	0,449	-	-	-	-	-0,002	0,003	-0,713	0,476
MARKVAL	-1,31E-07	0,000	-7,063	0,000	-1,05E-06	0,000	-1,783	0,076	-1,81E-07	0,000	-3,967	0,000
SHARTURN	-1,88E-06	0,000	-8,744	0,000	-8,09E-06	0,000	-4,350	0,000	-1,68E-06	0,000	-5,515	0,000
RETVAR	0,017	0,004	4,775	0,000	0,151	0,021	7,357	0,000	0,024	0,006	3,775	0,000
TASSETS	-1,97E-11	0,000	-1,887	0,059	-6,98E-11	0,000	-0,274	0,784	-2,03E-11	0,000	-1,284	0,200
FINLEV	1,00E-03	0,001	0,558	0,577	-1,00E-03	0,008	-0,176	0,860	1,00E-03	0,001	0,783	0,434
FCBIAS	-0,001	0,002	-0,650	0,516	0,102	0,118	0,870	0,385	0,194	0,076	2,564	0,010
ASSETGR	-1,87E-05	0,000	-2,727	0,006	-2,82E-05	0,000	-0,729	0,467	-5,96E-05	0,000	-5,461	0,000
INDUSQ	-0,031	0,004	-8,300	0,000	0,012	0,020	0,628	0,53	-0,020	0,004	-4,772	0,000

Model 13: dependent variable = Bid-Ask Spread

Predictors: EARLYVOL, LATEVOL, EVMAND, LVMAND, FTMAND, USLIST, MARKVAL, SHARTURN, RETVAR, TASSETS, FINLEV, FCBIAS, ASSETGR, INDUSQ

TABLE 10D: REGRESSION ANALYSES, DEPENDENT VARIABLE TOBIN'S Q

CoC and Valuation effects	Model 14a: Dep. Variable - Tobin's q				Model 14b: Dep. Variable - Tobin's q				Model 14c: Dep. Variable - Tobin's q			
	Italy				Portugal				Spain			
Predictors	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.
Constant	0,236	0,159	1,482	0,138	-0,398	0,247	-1,615	0,107	-0,247	0,969	-0,255	0,799
EARLYVOL	-	-	-	-	-	-	-	-	-	-	-	-
LATEVOL	4,382	0,994	4,419	0,000	0,005	0,022	0,235	0,219	0,009	0,002	4,537	0,253
EVMAND	-	-	-	-	-	-	-	-	-	-	-	-
LVMAND	0,036	0,109	0,328	0,743	-0,034	0,094	-0,362	0,718	0,071	0,827	0,086	0,931
FTMAND	-0,034	0,103	-0,333	0,739	-0,127	0,085	-1,491	0,137	-0,188	0,789	-0,238	0,812
USLIST	0,074	0,049	1,523	0,128	-	-	-	-	0,555	0,566	0,982	0,326
MARKVAL	-1,25E-06	0,000	-1,617	0,106	5,35E-06	0,000	0,616	0,538	6,96E-06	0,000	0,892	0,373
SHARTURN	-1,96E-05	0,000	-2,143	0,032	-3,69E-05	0,000	-1,348	0,179	-8,53E-05	0,000	-1,623	0,105
RETVAR	-0,170	0,185	-0,916	0,360	-0,121	0,303	-0,398	0,691	-4,493	1,061	-4,233	0,000
TASSETS	8,38E-10	0,000	1,938	0,053	5,80E-10	0,000	0,155	0,877	1,55E-09	0,000	0,569	0,570
FINLEV	0,733	0,057	12,905	0,000	1,298	0,111	11,731	0,000	1,362	0,233	5,857	0,000
FCBIAS	-3,141	1,679	-1,871	0,062	-8,334	1,730	-4,816	0,000	9,442	13,130	0,719	0,472
ASSETGR	0,000	0,000	1,567	0,117	0,001	0,001	1,212	0,227	-0,002	0,002	-0,984	0,325
INDUSQ	0,002	0,160	0,014	0,989	0,500	0,290	1,728	0,085	0,699	0,737	0,949	0,343

Model 14: dependent variable = Tobin's q

Predictors: EARLYVOL, LATEVOL, EVMAND, LVMAND, FTMAND, USLIST, MARKVAL, SHARTURN, RETVAR, TASSETS, FINLEV, FCBIAS, ASSETGR, INDUSQ

TABLE 10E: REGRESSION ANALYSES, DEPENDENT VARIABLE COST OF CAPITAL

CoC and Valuation effects	Model 15a: Dep. Variable - Cost of Capital				Model 15b: Dep. Variable - Cost of Capital				Model 15c: Dep. Variable - Cost of Capital			
	Italy				Portugal				Spain			
Predictors	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.
Constant	0,263	0,071	3,691	0,000	0,414	0,205	2,015	0,047	0,111	0,102	1,094	0,275
EARLYVOL	-	-	-	-	-	-	-	-	-	-	-	-
LATEVOL	0,031	0,079	0,389	0,698	0,013	0,012	1,083	0,038	0,090	0,078	1,154	0,032
EVMAND	-	-	-	-	-	-	-	-	-	-	-	-
LVMAND	-0,002	0,082	-0,021	0,983	-0,011	0,081	-0,141	0,888	0,001	0,013	0,077	0,464
FTMAND	-0,011	0,034	-0,322	0,354	-0,009	0,073	-0,124	0,902	-0,074	0,049	-1,523	0,129
USLIST	-0,041	0,025	-1,602	0,110	-	-	-	-	-0,100	0,154	-0,653	0,514
MARKVAL	-1,72E-06	0,000	-3,931	0,000	-1,04E-05	0,000	-1,096	0,276	-3,36E-06	0,000	-3,092	0,002
SHARTURN	2,84E-05	0,000	4,892	0,000	-4,23E-06	0,000	-0,105	0,916	1,94E-05	0,000	2,597	0,010
RETVAR	0,486	0,122	4,002	0,000	0,383	0,231	1,656	0,101	1,090	0,173	6,309	0,000
TASSETS	8,79E-10	0,000	3,425	0,001	2,56E-09	0,000	0,753	0,454	6,10E-10	0,000	1,633	0,104
FINLEV	0,025	0,034	0,719	0,473	0,110	0,101	1,097	0,276	0,088	0,036	2,476	0,014
FCBIAS	0,104	0,043	2,416	0,016	-31,645	23,530	-1,345	0,182	-0,510	3,237	-0,158	0,875
ASSETGR	-0,001	0,000	-2,797	0,005	-0,003	0,001	-3,107	0,003	-0,001	0,000	-3,705	0,000
INDUSQ	-0,274	0,100	-2,733	0,007	-0,457	0,233	-1,959	0,053	-0,025	0,130	-0,195	0,846

Model 15: dependent variable = Cost of Capital

Predictors: EARLYVOL, LATEVOL, EVMAND, LVMAND, FTMAND, USLIST, MARKVAL, SHARTURN, RETVAR, TASSETS, FINLEV, FCBIAS, ASSETGR, INDUSQ

All models have a highly significant F statistic with p=0,000 with a highest R^2 of 0,485 concerning model 12a. A few indicators do not have correlation in these models. The IFRS indicator *LATEVOL* is significant concerning Italy, Portugal and Spain (p=0,000, p=0,021, p=0,017). In addition, concerning Portugal the indicator FTMAND is significant with p=0,004. The other IFRS indicators are not significant however, a clear difference in magnitude and sign appears. For example, Italy has negative signs concerning *LVMAND* and *FTMAND* which implies that the liquidity increases due to the mandatory adoption of IFRS. On the other hand, these indicators have positive signs concerning Portugal and Spain which indicates a decrease of the liquidity due to the mandatory adoption of IFRS. This implicates regarding the independent variable ZERO a mutual difference in reaction between Italy on the one hand, and Portugal and Spain on the other hand. The difference between Portugal and Spain is less clear and mainly lies in the magnitudes of *LVMAND* and *FTMAND*. The coefficients of the IFRS indicator regarding *PRICEIMP* and BIDASK do not show differences in significance and sign. The coefficients are all insignificant and have a positive sign. However, a difference in magnitude is visible. The magnitude of the IFRS indicators concerning Italy and Spain are almost the same, but the magnitude of these indicator concerning Portugal is higher both in the model for *PRICEIMP* and *BIDASK*. But the evidence is not strong enough to conclude that a mutual difference exists between all three countries with a weak economy. The univariate analyses concerning *PRICEIMP* and *BIDASK* find no mutual difference between Italy and Portugal while the regression analyses show differently. The same applies for the IFRS indicators in the models 14 and 15 regarding the analyses for *TOBQ* and *COC*. The coefficients show no significance, the signs and magnitudes do not differ strongly enough to conclude a mutual difference between Italy, Portugal and Spain. The univariate analyses do find some mutual difference, but this is not supported by the regression analyses. Consequently, H3 is not supported and rejected. No mutual difference in the capital-market reaction exists between firms concerning countries with a weak economy.

6.6 SUMMARY

This chapter started in paragraph 6.2 with the check on the presuppositions regarding performing multiple regression analyses. Paragraph 6.3 examined the multiple regression for normality, homoscedasticity and linearity. Next, paragraph 6.4 presented the results of the difference-in-differences analyses (univariate analyses) to support the regression analyses. Paragraph 6.5 outlined the regression results. H1 is supported, a difference exists in the capital-market reaction between firms in countries with a strong economy and firms in countries with a weak economy. H2 is supported, a mutual difference in the capital-market reaction exists between firms concerning countries with a strong economy. H3 is rejected, a mutual difference in the capital-market reaction does not exist between firms concerning countries with a weak economy.

The next chapter describes the conclusion, limitations and possible future research.

7 CONCLUSION

7.1 INTRODUCTION

This chapter is the final chapter. This chapter will answer the last sub-question 9. Paragraph 7.2 presents the summary of the findings of this thesis together with the overall conclusion. Paragraph 7.3 describes the limitations and 7.4 presents possible future research.

7.2 CONCLUSION

Motivation

The adoption of IFRS is a worldwide phenomenon and spreading over countries since 2005. On behalf of this occurrence, the investigation of the impact of the IFRS adoption is relevant. The development of IFRS is an evolving process with continuous new insights; consequently, it is a dynamic topic concerning future research and findings. The motivation performing this thesis is the fact that if the outcome is a difference in the capital-market reaction due to the application of IFRS concerning countries with a strong economy and countries with a weak economy investigating listed companies, then the conclusions of prior scientific researches should be supplemented with a note that the capital-market reaction is not generalizable and in addition depends on the economic status of the country. On the impact of IFRS with the distinction in countries with strong or weak economies in the past little or no prior research has been performed.

Case

As signalled before, much research has already been performed concerning the impact of the IFRS adoption in the world. These researches amongst others concern the impact on the capital-markets, the improvement of the information quality, the financial reporting, the audit fees, and the use of earnings management. These researches show that a link exists between the financial reporting quality and the capital-market reaction. For example, Baiman and Verrecchia (1996), Leuz and Verrecchia (2000), and Barth et al. (2009). Much researches in addition explored the capital-market reaction due to IFRS adoption, for example Daske et al. (2008), Hail and Leuz (2007) and Kinsey et al. (2008). However, what would the capital-market reaction be if the samples were divided in companies within countries that have a strong economy and countries that have a weak economy? The samples used in prior studies always concern listed companies in a country or continent. No distinction is used concerning the state of the economy of those countries. As signalled before this was the trigger to scrutinize the difference or the similarity in the capital-market reaction of the IFRS adoption concerning countries with strong and countries with weak economic status.

Approach

To determine a possible link between the economic state of a country and the difference in capital market reaction due to IFRS adoption amongst those countries, the following research question is formulated:

"*Do listed firms in strong economic European Union countries experience systematically different capital-market reactions concerning the mandatory IFRS adoption than the listed firms in weak economic European Union countries?*"

The following hypotheses have been developed to answer the research question:

H1:

A difference exists in the capital-market reaction between firms in countries with a strong economy and firms in countries with a weak economy.

H2:

A mutual difference in the capital-market reaction exists between firms concerning countries with a strong economy.

H3:

A mutual difference in the capital-market reaction exists between firms concerning countries with a weak economy.

Results

The regression analyses support H1. A difference exists in the capital-market reaction between firms in countries with a strong economy and firms in countries with a weak economy. Differences in mean values of the dependent variables, differences in significance in the coefficients of the IFRS indicators, differences in the signs of the coefficients and differences in the magnitude of the coefficients have been found. This implicates that the economic state should be considered as influence of the capital-market reaction due to adoption of IFRS, when samples from certain countries are examined in the light of IFRS. In addition, the regression analyses support H2. A mutual difference in the capital-market reaction exists between firms concerning countries with a strong economy. The same as with the results for H1, much differences in mean values of the dependent variables, differences in significance in the coefficients of the IFRS indicators, differences in the signs of the coefficients and differences in the magnitude of the coefficients have been found. The same implications as for H1 apply. Much prior research focusses on European countries without taking the economic state into account. The results should be interpreted with caution with the results of this thesis in mind. A mutual difference exists in countries with a strong economy.

The last hypotheses (H3) is not supported by the regression analyses. Consequently, H3 is rejected. However, some differences have been found, these were not strong enough to observe a mutual difference between countries with a weak economy.

The concluding advice of this thesis is when performing research about IFRS impact, because differences can appear in the capital-market reaction, the economic state of a country within the European Union should be considered. The reaction within one country consequently is not generalizable for the other countries within the European Union.

7.3 LIMITATIONS

1. In order to examine the impact of the mandatory IFRS adoption (reporting changes), studying capital-market benefits alone, is not enough. All costs and benefits to all stakeholders and the economy have to be weighed carefully (Hail and Leuz, 2007, p.2). This analysis is not in scope of this thesis. This thesis only focusses on the capital market effects caused by the mandatory adoption of IFRS.

2. The crisis played an important role within the EU. To weaken the effects of the economic crisis, the firms that belong to the industry that is affected the most, i.e. the Financial and the Real estate industry (SIC 60-69) are omitted from the sample. However, the financial crisis had impact on the whole economy and firms from other industries, i.e. the capital-market reaction is overall influenced by the financial crisis. This thesis followed prior research by taking out the biggest bad apple of the sample by excluding the Financial and the Real estate industry.

3. Differences in capital-market reaction due to a different legal system is not the case in the sample of this thesis. All examined countries have code-law legal systems. However, some difference can be caused by the degree of enforcement in the countries. One could imagine that in the countries with a weak economy, i.e. countries from Southern Europe, a low enforcement exists. However, the degree of enforcement is difficult to measure. This would make the scope of this thesis too wide. Consequently, in the scope of this thesis this has not been examined, but could be part of future research.

4. In paragraph 6.3, the continuous variables have been tested for linearity. The outcome was the assumption that all variables are linear. However, the IFRS indicators are categorical binary variables which makes testing concerning linearity difficult. This could have caused some distortion in the results of the multiple regression.

5. More countries exist than the chosen ones with strong or weak economy as main characteristic, it is questionable whether the results are generalizable under different circumstances.

6. Concerning the calculating of the Cost of Capital limited data was available. This is visible in the lower *N* during the research. This in addition was the trend in prior researches like Daske et al. (2008) and Hail and Leuz (2007). In order to make the effect of the limited cost of capital data as small as possible, this has been addressed by implementing four other variables which measure the capital-market reaction.

7. Besides the financial crisis, some other external factors could exist of which this research is not aware of. These factors can be overseen. The regression analyses tried to weaken the effects of these possible external factors by controlling for firm- and industry characteristics and excludes Financial and Real estate firms.

7.4 POSSIBLE FUTURE RESEARCH

Research of the impact of the adoption of IFRS has been extensive. But still some point of views can be explored in the light of this thesis. For example, other countries could be examined to determine if the relation between the capital-market reaction due to the adoption of IFRS and the economic state holds for more countries and consequently would be generalizable. In addition, to determine if any influence of enforcement is the base for differences in the capital-market reaction, the relation between enforcement and strong or weak economy can be examined. Finally, any other events which can cause different capital market reaction due to the adoption of IFRS in the period after the crisis can be examined in relation to the economic state.

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Year	Objective of study	Author(s)	Sample	Methodology	Outcome
2007	Determine the effects of the mandatory adoption of IFRS on the cost of capital and the market liquidity and a review of prior relevant research	Hail and Leuz	5,683 unique firms from the EU, fiscal years ending on or after January 1, 2001, until December 31, 2005 with a total of 21,656 firm-year observations	Multiple regression analyses	Mixed picture in the results. Some proof for lower cost of capital, but effects are small. Relative strong effects in the effect on liquidity
2012	Investigate the possible intended and unintended economic consequences of the mandatory IFRS adoption	Brüggemann et al.	29 prior relevant researches between 2008 and 2012 are reviewed	Literature review and suggestions for future research	No increase in transparency and comparability of financial statements. Positive effects on the capital markets and the macro economy. Little evidence found for unintended consequences
2010	Examine the European stock market reaction to 16 events associated with the adoption of IFRS	Armstrong et al.	3,265 unique European firms with a total of 52,240 firm-year observations. For cross-sectional analyses a sample of 1,956 firms is used. The events are identified between 2002 and 2005	Cross-sectional Multiple regression analyses	Positive effects for firms with lower information quality and higher information asymmetry before adoption. Investors also expect more convergence benefits
2008	Study the impact of the mandatory IFRS adoption on the worldwide economy	Daske et al.	8,726 unique firms with a total of 34,673 firm-year observations between 2001 and 2005	Multiple regression analyses	Positive effects for firms in countries with strong legal enforcement and for firms in institutional environments with strong reporting incentives
2007	Study the economic consequences due to the mandatory adoption of IFRS focussing on the United Kingdom (UK) listed firms	Christensen et al.	469 unique firms for the UK sample. Periods 1996 – 1998 and 2001 - 2004	Multiple regression analyses with a counter-factual proxy	Stock price reaction around announcement regarding IFRS, is related to the willingness to adopt IFRS by the UK firms. The effect of mandatory IFRS adoption regarding the cost of equity depends on the firm characteristics
2008	Examine the capital market reaction associated with the mandatory adoption of IFRS	Prather-Kinsey et al.	157 firm year observations in 2004 and 157 firm year observations in 2006 from firms in the European countries	Ohlison, Juettner-Nauroth (2005) value-relevance model	Investors perceive net benefits from IFRS adoption. Market consequences are larger for firms domiciled in code law countries than for firms domiciled in common law countries
2009	Determine whether the cost of capital is reduced due to the mandatory IFRS adoption in the European Union in 2005	Li, S.	1,084 unique firms from the EU, with fiscal years between 1995 to 2006 resulting in 6,456 firm-year observations	Multiple regression analyses	Cost of equity capital significantly decreases amongst mandatory adopters after the mandatory IFRS introduction in 2005, this only occurs in countries with strong legal enforcement. This effect is not visible for the voluntary adopters
2006	Investigate the common presumptions that the cost of capital decreases form firms that adopt international recognised financial reporting standards such as U.S. GAAP or IAS/IFRS	Daske, H.	735 unique firms from Germany with fiscal years from 1993 until 2002, and 24,359 firm-month observations	Residual Income Valuation model and the Abnormal Earnings Growth model plus multiple regression analyses	No supporting evidence for the presumption that the application of international reporting standards decreases cost of capital. The overall results suggest higher cost of capital for firms reporting under international standards

APPENDIX B: CAMPBELL (1996) INDUSTRY CLASSIFICATION

Campbell (1996) industry classification:

	Description	U.S. SIC groups	Dummy
1	Petroleum industry	13, 29	PETR1
2	Finance/real estate industry	60-69	Excluded
3	Consumer durables industry	25, 30, 36, 37, 50, 55, 57	CDUR3
4	Basic industry	10, 12, 14, 24, 26, 28, 33	BASIC4
5	Food/tobacco industry	1, 20, 21, 54	FTOB5
6	Construction industry	15-17, 32, 52	CONS6
7	Capital goods industry	34, 35, 38	CAPG7
8	Transportation industry	40-42, 44, 45, 47	TRAN8
9	Utilities industry	46, 48, 49	UTIL9
10	Textiles/trade industry	22-23, 31, 51, 53, 56, 59	TEXT10
11	Services industry	72, 73, 75, 80, 82, 89	SVSI11
12	Leisure industry	27, 58, 70, 78, 79	LSRI12

In order to weaken the effect of the financial crisis and because of the specific regulation concerning these industries, the Finance and the Real estate industry is left out of the sample. Dummy variables are created for enhancing the calculation of the industry q.

APPENDIX C: SUMMARY OF VARIABLES USED

Independent variables	
First-time Mandatory	Firms that adopt IFRS not until it becomes mandatory. Captures the capital market effect around the time of mandatory IFRS adoption
Early Voluntary	Adoption of IFRS 'before' the country proclaims to report based on IFRS
Late Voluntary	Adoption of IFRS 'after' the notification that the country will report based on IFRS, but before IFRS is mandated
Interaction terms	
*Early Voluntary*Mandatory*	Captures any capital market effects once IFRS is mandated for all firms that end precisely on or after the mandatory adoption date
*Late Voluntary*Mandatory*	Captures any capital market effects once IFRS is mandated for all firms that end precisely on or after the mandatory adoption date
Dependent variables	
Zero Returns	Ratio that captures the trading days with zero return during a year
Price impact	Captures the price impact of the trades, measured by the yearly median of the Amihud (2002) illiquidity measure
Bid-Ask Spread	The difference between the bid and ask price divided by the centre point
Cost of Capital	The return that investors require for their investment in a firm
Tobin's Q	Proxy for the equity valuations of the firms
Control Variables	
U.S. Listing	Non-U.S. firms of which the shares are traded over-the-counter or listed on a U.S. exchange
Market Value	Is calculated by multiplying the stock price with the number of shares outstanding (in US$ millions)
Share Turnover	Is calculated by dividing the annual US$ trading volume by the market value of outstanding equity
Return Variability	Is calculated by computing the annual standard deviation of monthly stock returns
Total Assets (Firm Size)	Represents the total assets of a firm in US$ millions
Financial Leverage	Financial leverage is the extent to which a firm relies on debt as a source of financing
Forecast Bias	Represents the bias when last year forecast is compared with this year's actual earnings
Asset Growth	Asset Growth represents the one-year percentage change in total assets
Industry q	Industry q is the yearly median Tobin's q in a given Campbell [1996] industry

APPENDIX D: FORMULAS USED FOR THE DEPENDENT VARIABLES

Zero Returns

The equation used to compute the proportion of zero returns is:

$$z = Zeros = \frac{ZRD}{TD}$$

Source: Lesmond et al. (1999)

z = proportion of zero returns

ZRD = the number of days with zero returns

TD = the number of trading days in a given year

Price Impact

The equation used to compute the Amihud liquidity measure is:

$$A_{iy} = \frac{1}{D_{iy}} \sum_{t=1}^{Diy} \frac{|r_{it}|}{Dvol_{it}}$$

Source: Lou and Shu (2014), p.2

A_{iy} = the Amihud measure of firm i calculated for year y

r_{it} = the stock return for stock i on day t

$Dvol_{it}$ = the traded Euro volume for stock i on day t

D_{iy} = the number of days with available ratio in year y

Bid-Ask Spread

This is calculated by the following equation:

$$\% Spread = 100 * \frac{(Ask\ Price - Bid\ Price)}{Ask\ Price}$$

Spread = Bid-Ask Spread (%)

Ask Price = closing Ask Price

Bid Price = closing Bid Price

Cost of Capital

The equation used to compute the Cost of Capital is:

- *Modified price-earnings growth valuation model developed by Easton (2004)*

$$P_t = (\hat{x}_{t+2} + r_{PEG} \cdot \hat{d}_{t+1} - \hat{x}_{t+1}) \big/ r_{PEG}^2$$

Source: Daske et al. (2008)

P_t = market price of a firm's stock at date t

$\hat{x}_{t+\tau}$ = expected future earnings per share for period (t+τ–1, t+τ) using either explicit analyst forecasts or future earnings derived from the growth forecasts g, g_{st}, and g_{lt}, respectively

$\hat{d}_{t+\tau}$ = expected future net dividends per share for period (t+τ–1, t+τ), derived from the dividend pay-out ratio times the earnings per share forecast $\hat{x}_{t+\tau}$

r_{PEG} = implied cost of capital estimate calculated as the internal rate of return solving the above valuation equations, respectively

Model-specific assumptions:

This is a special case of the abnormal earnings growth valuation model developed by Ohlson and Juettner-Nauroth (2005). It uses one-year-ahead and two-year-ahead earnings per share forecasts as well as expected dividends per share in period $t+1$ to derive a measure of abnormal earnings growth. The model embeds the assumption that growth in abnormal earnings persists in perpetuity after the initial period. Note that it requires positive changes in forecasted earnings (including reinvested dividends) to yield a numerical solution (Daske et al. 2008, p.1137).

Tobin's q

The equation used to compute the Tobin's q is:

$$Tobin's\ q\ = \frac{total\ assets\ -\ book\ value\ of\ equity\ +\ market\ value\ of\ equity}{total\ assets}$$

Source: Daske et al. (2008) p.1139

APPENDIX E: NORMALITY

ZERO RETURNS

Histogram
Dependent Variable: Zero returns

Mean = 1,63E-16
Std. Dev. = 0,999
N = 4.515

BID-ASK SPREAD

Histogram
Dependent Variable: Bid-Ask Spread

Mean = -3,72E-16
Std. Dev. = 0,999
N = 4.702

TOBIN'S Q

Histogram
Dependent Variable: Tobins Q

Mean = 2,82E-16
Std. Dev. = 0,999
N = 4.726

PRICE IMPACT

Histogram
Dependent Variable: Price Impact

Mean = 1,40E-16
Std. Dev. = 0,999
N = 4.339

COST OF CAPITAL

Histogram
Dependent Variable: Cost of Capital

Mean = -8,15E-16
Std. Dev. = 0,997
N = 1.601

SHARE TURNOVER

Histogram
Dependent Variable: Share Turnover

Mean = -2,17E-16
Std. Dev. = 0,999
N = 4.732

RETURN VARIABILITY

Histogram
Dependent Variable: Return Variability

Mean = -1,53E-16
Std. Dev. = 0,999
N = 4.732

TOTAL ASSETS

Histogram
Dependent Variable: Total Assets

Mean = -2,08E-16
Std. Dev. = 0,999
N = 4.732

FINANCIAL LEVERAGE

Histogram
Dependent Variable: Financial Leverage

Mean = 1,29E-15
Std. Dev. = 0,999
N = 4.732

FORECAST BIAS

Histogram
Dependent Variable: Forecast Bias

Mean = -5,11E-17
Std. Dev. = 0,999
N = 4.732

ASSET GROWTH

Histogram
Dependent Variable: Asset Growth

Mean = -6,49E-17
Std. Dev. = 0,999
N = 4.732

INDUSTRY Q

Histogram
Dependent Variable: Industry Q

Mean = -3,11E-15
Std. Dev. = 0,999
N = 4.732

APPENDIX F: HOMOSCEDASTICITY

ZERO RETURNS
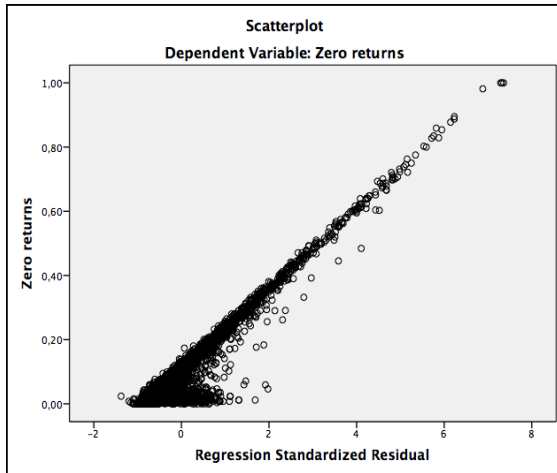
BID-ASK SPREAD
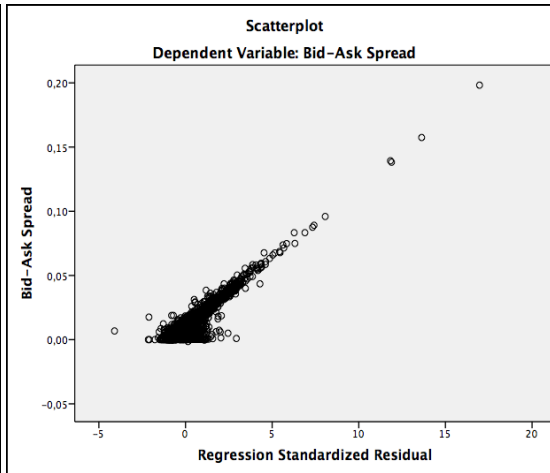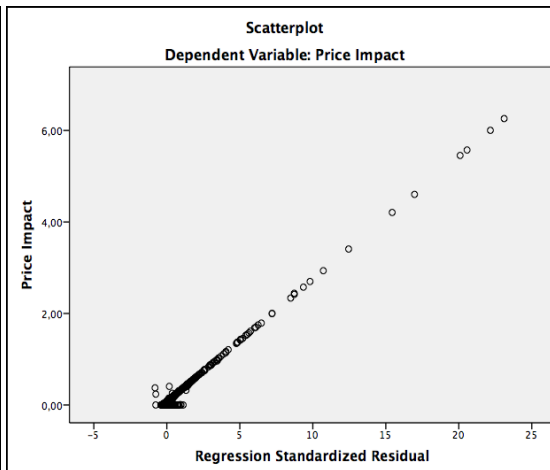
TOBIN'S Q

PRICE IMPACT

COST OF CAPITAL
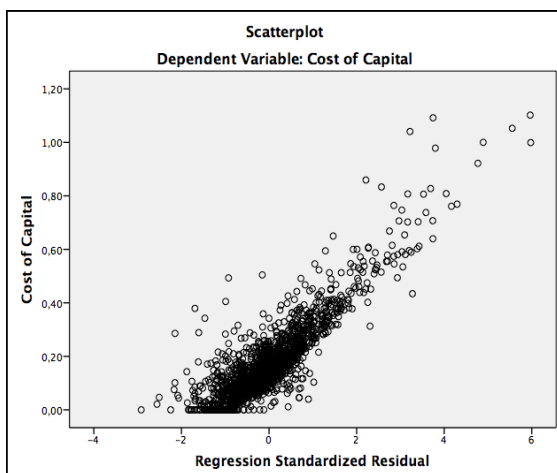
SHARE TURNOVER
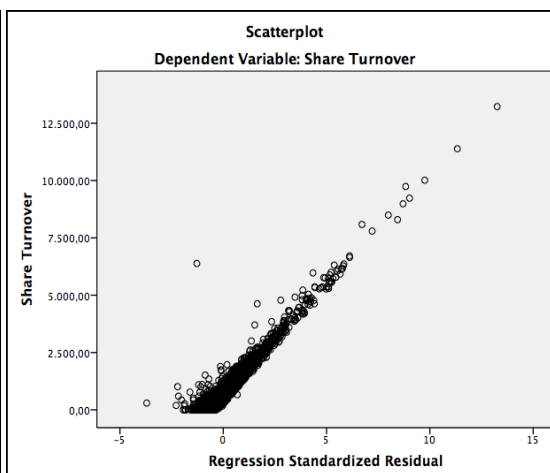
RETURN VARIABILITY
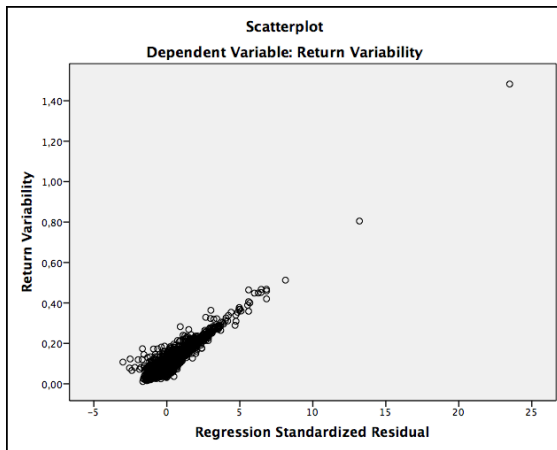
TOTAL ASSETS
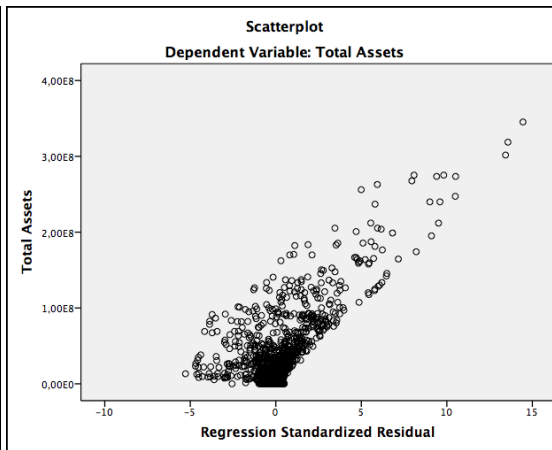
FINANCIAL LEVERAGE
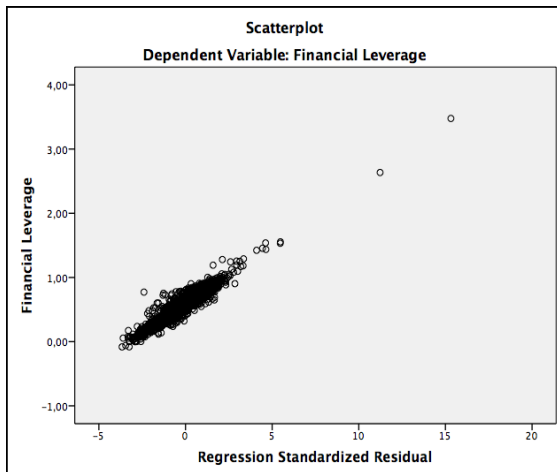
FORECAST BIAS
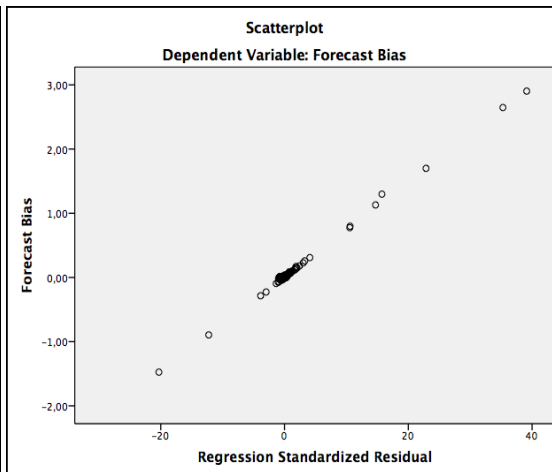
ASSET GROWTH
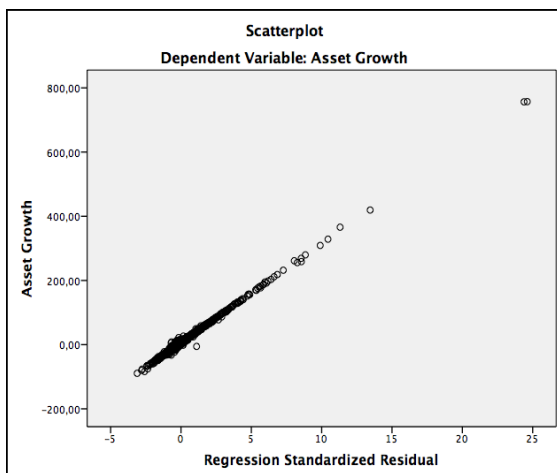
INDUSTRY Q
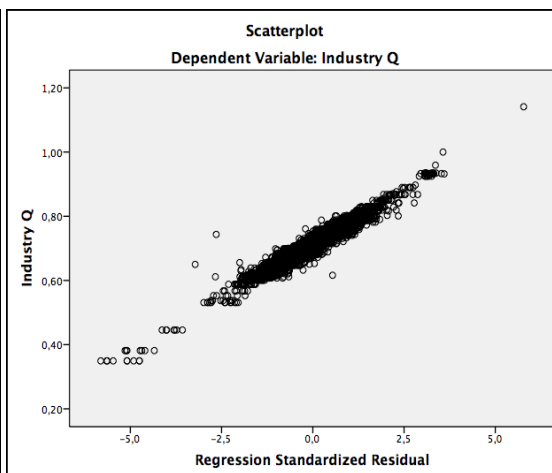
APPENDIX H: REGRESSION MODEL COEFFICIENTS

Models 1 to 5

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
1a	0,316	0,100	0,097	0,12243

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
1a	Regression	7,375	14	0,527	35,102	0,000
	Residual	66,699	4500	0,015		
	Total	74,074	4514			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
1b	0,373	0,139	0,133	0,14436

ANOVA

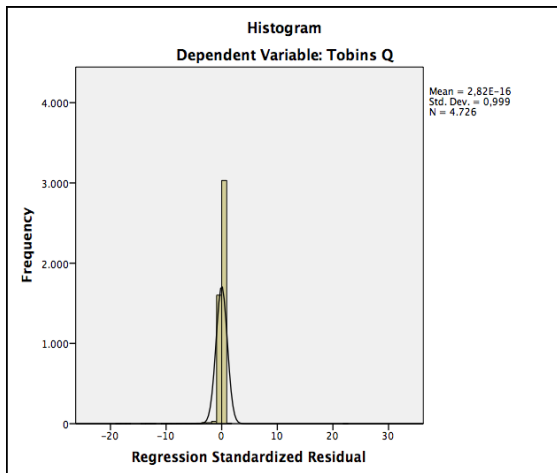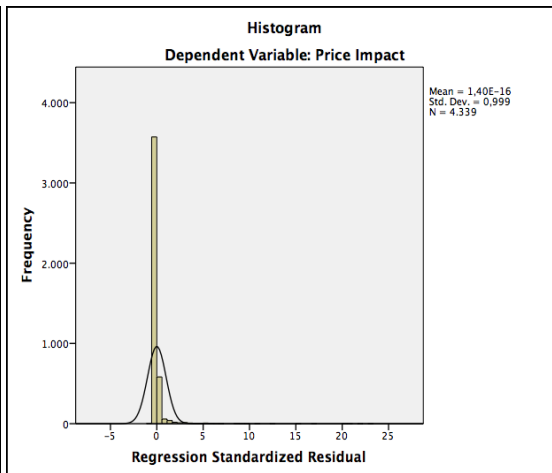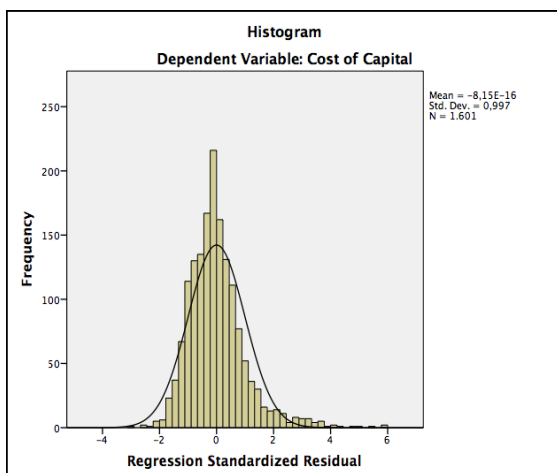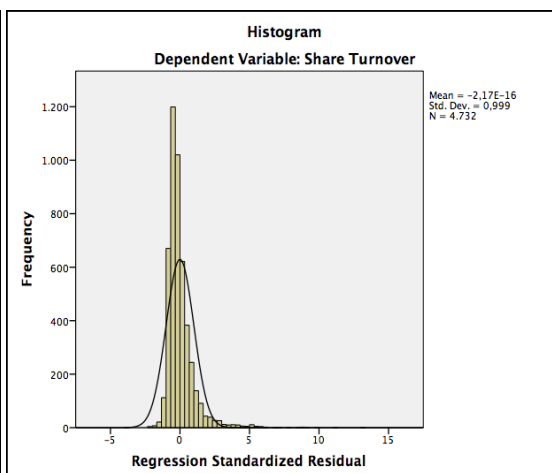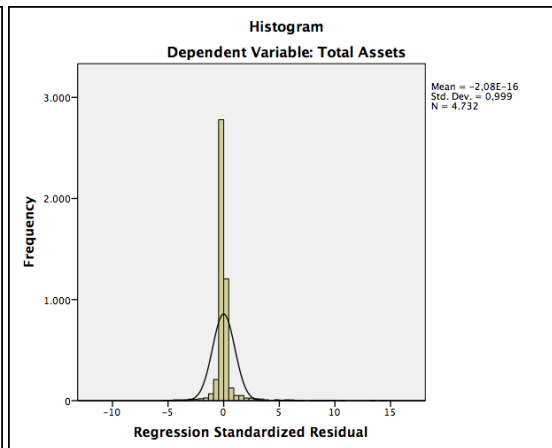| Model		Sum of Squares	df	Mean Square	F	Sig
1b	Regression	6,234	14	0,445	21,183	0,000
	Residual	38,557	1863	0,021		
	Total	44,790	1877			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
1c	0,282	0,080	0,076	0,09437

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
1c	Regression	2,112	12	0,177	19,875	0,000
	Residual	24,420	2624	0,009		
	Total	26,532	2636			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
2a	0,202	0,041	0,038	0,26429

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
2a	Regression	12,815	13	0,986	14,116	0,000
	Residual	302,609	4325	0,070		
	Total	315,423	4338			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
2b	0,234	0,055	0,048	0,41302

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
2b	Regression	16,532	13	1,272	7,457	0,000
	Residual	285,696	1673	0,171		
	Total	302,228	1686			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
2c	0,422	0,178	0,174	0,03162

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
2c	Regression	0,532	12	0,044	44,008	0,000
	Residual	2,450	2639	0,001		
	Total	2,982	2651			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
3a	0,399	0,159	0,156	0,01035

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
3a	Regression	0,095	14	0,007	65,357	0,000
	Residual	0,502	4687	0,000		
	Total	0,597	4701			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
3b	0,451	0,203	0,197	0,00981

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
3b	Regression	0,048	14	0,003	31,146	0,000
	Residual	0,188	1952	0,000		
	Total	0,236	1966			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
3c	0,389	0,151	0,147	0,01059

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
3c	Regression	0,054	12	0,005	44,623	0,000
	Residual	0,305	2722	0,000		
	Total	0,359	2734			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
4a	0,243	0,059	0,056	0,96147

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
4a	Regression	273,467	14	19,533	21,130	0,000
	Residual	4354,416	4711	0,924		
	Total	4627,883	4725			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
4b	0,288	0,083	0,076	0,91460

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
4b	Regression	148,234	14	10,588	12,658	0,000
	Residual	1635,540	1957	0,836		
	Total	1783,774	1971			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
4c	0,231	0,053	0,049	0,98997

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
4c	Regression	151,465	12	12,622	12,750	0,000
	Residual	2686,755	2741	0,980		
	Total	2838,22	2753			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
5a	0,481	0,231	0,224	0,13413

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
5a	Regression	8,512	14	0,608	33,795	0,000
	Residual	28,266	1586	0,018		
	Total	36,778	1600			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
5b	0,541	0,293	0,280	0,12599

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
5b	Regression	5,114	14	0,365	22,994	0,000
	Residual	12,350	760	0,016		
	Total	17,464	774			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
5c	0,486	0,237	0,226	0,13398

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
5c	Regression	4,502	12	0,375	20,891	0,000
	Residual	14,524	813	0,018		
	Total	19,026	825			

Models 6 to 10

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
6a	0,400	0,160	0,142	0,11841

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
6a	Regression	1,495	12	0,125	8,915	0,000
	Residual	7,84	569	0,014		
	Total	9,335	581			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
6b	0,360	0,130	0,112	0,13126

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
6b	Regression	1,648	13	0,128	7,429	0,000
	Residual	11,040	633	0,017		
	Total	12,688	646			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
6c	0,485	0,235	0,221	0,15182

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
6c	Regression	4,503	12	0,375	16,269	0,000
	Residual	14,619	636	0,023		
	Total	19,122	648			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
7a	0,252	0,063	0,044	0,22100

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
7a	Regression	1,971	12	0,164	3,358	0,000
	Residual	29,139	595	0,049		
	Total	31,111	607			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
7b	0,382	0,146	0,121	0,59211

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
7b	Regression	24,389	12	2,032	5,796	0,000
	Residual	142,941	407	0,351		
	Total	167,329	419			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
7c	0,266	0,071	0,054	0,37419

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
7c	Regression	6,876	12	0,573	4,092	0,000
	Residual	90,469	646	0,140		
	Total	97,346	658			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
8a	0,504	0,254	0,239	0,01008

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
8a	Regression	0,021	12	0,002	19,684	0,000
	Residual	0,060	591	0,000		
	Total	0,081	603			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
8b	0,535	0,286	0,274	0,00739

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
8b	Regression	0,015	12	0,001	18,311	0,000
	Residual	0,038	692	0,000		
	Total	0,053	704			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
8c	0,453	0,206	0,191	0,01102

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
8c	Regression	0,021	12	0,002	16,469	0,000
	Residual	0,079	645	0,000		
	Total	0,100	657			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
9a	0,414	0,171	0,154	1,53672

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
9a	Regression	290,861	12	24,238	10,264	0,000
	Residual	1405,322	595	2,362		
	Total	1696,183	607			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
9b	0,599	0,359	0,347	0,13780

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
9b	Regression	7,309	13	0,562	29,596	0,000
	Residual	13,056	691	0,019		
	Total	20,364	704			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
9c	0,653	0,426	0,415	0,20493

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
9c	Regression	20,327	12	1,694	40,337	0,000
	Residual	27,354	646	0,042		
	Total	47,68	658			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
10a	0,624	0,390	0,371	0,12238

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
10a	Regression	3,712	12	0,309	20,632	0,000
	Residual	5,81	391	0,015		
	Total	9,522	403			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
10b	0,563	0,317	0,255	0,09478

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
10b	Regression	0,571	13	0,044	4,898	0,000
	Residual	1,230	144	0,009		
	Total	1,801	157			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
10c	0,472	0,223	0,176	0,14494

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
10c	Regression	1,227	12	0,102	4,855	0,000
	Residual	4,276	200	0,021		
	Total	5,503	212			

Models 11 to 15

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
11a	0,334	0,112	0,104	0,05469

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
11a	Regression	0,498	12	0,042	14,042	0,000
	Residual	3,96	1409	0,003		
	Total	4,458	1421			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
11b	0,492	0,242	0,213	0,15821

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
11b	Regression	2,322	11	0,211	8,430	0,000
	Residual	7,275	286	0,025		
	Total	9,597	297			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
11c	0,345	0,119	0,107	0,08957

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
11c	Regression	1,001	12	0,083	10,346	0,000
	Residual	7,432	904	0,008		
	Total	8,433	916			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
12a	0,696	0,485	0,481	0,01913

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
12a	Regression	0,487	12	0,041	112,035	0,000
	Residual	0,517	1418	0,000		
	Total	1,004	1430			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
12b	0,368	0,135	0,102	0,06329

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
12b	Regression	0,190	11	0,017	4,244	0,000
	Residual	1,216	288	0,004		
	Total	1,406	299			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
12c	0,237	0,056	0,044	0,03165

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
12c	Regression	0,031	12	0,003	2,995	0,000
	Residual	0,526	908	0,001		
	Total	0,557	920			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
13a	0,455	0,207	0,200	0,00842

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
13a	Regression	0,026	12	0,002	28,210	0,000
	Residual	0,101	1438	0,000		
	Total	0,128	1450			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
13b	0,500	0,250	0,221	0,01848

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
13b	Regression	0,033	11	0,003	8,785	0,000
	Residual	0,099	288	0,000		
	Total	0,132	299			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
13c	0,414	0,172	0,162	0,00901

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
13c	Regression	0,016	12	0,001	12,318	0,000
	Residual	0,079	971	0,000		
	Total	0,095	983			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
14a	0,364	0,133	0,126	0,35496

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
14a	Regression	27,759	12	2,313	18,357	0,000
	Residual	181,408	1445	0,126		
	Total	209,167	1457			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
14b	0,643	0,413	0,391	0,27231

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
14b	Regression	15,043	11	1,368	18,448	0,000
	Residual	21,357	288	0,074		
	Total	36,400	299			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
14c	0,247	0,061	0,050	1,56466

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
14c	Regression	155,841	12	12,990	5,306	0,000
	Residual	2406,843	983	2,448		
	Total	2562,684	995			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
15a	0,488	0,238	0,215	0,10963

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
15a	Regression	1,465	12	0,122	10,151	0,000
	Residual	4,69	390	0,012		
	Total	6,155	402			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
15b	0,480	0,230	0,135	0,13774

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
15b	Regression	0,506	11	0,046	2,425	0,006
	Residual	1,693	89	0,019		
	Total	2,199	100			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
15c	0,557	0,310	0,283	0,15157

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
15c	Regression	3,252	12	0,271	11,796	0,000
	Residual	7,246	309	0,023		
	Total	10,498	321			