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STOCK VALUATION EFFECTS OF STRAIGHT BOND ISSUES: EVIDENCE FROM EUROPE

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ABSTRACT

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This study examines the short-term stock valuation effects of straight bond issues in Europe in 2010–2016. The theories of capital structure propose differing valuation reactions and therefore it is valuable to study the effects also empirically. This study provides insight into the European markets, whereas the previous empirical research has focused on the U.S. markets.

The valuation reactions were measured with an event study procedure both in the sample as a whole and in categories divided by company growth and economic growth, because these characteristics have been suggested to be related with the valuation effect in previous studies.

The study revealed no robust significant overall reaction. The high and low company growth firms had a negative and a positive stock valuation reaction, respectively. The finding supports the free cash flow theory's argument that a straight bond issue reduces the agency problems of the low growth companies, but creates more of them for the high growth companies. The issues on times of high and low level of economic growth had a negative and a non-significant reaction, respectively. A few individual countries are represented heavily in the sample and the country level heterogeneity seems to play a significant role in creating the results.

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Tässä tutkimuksessa tarkastellaan joukkovelkakirjojen liikkeellelaskun lyhytaikaisia vaikutuksia liikkeellelaskijan osakkeen arvonmääritykseen Euroopassa vuosina 2010–2016. Pääomarakenteen teoriat ennustavat erilaisia vaikutuksia valuaatioon, joten ilmiön tutkiminen käytännössä on arvokasta. Tämä tutkimus tarjoaa tietoa Euroopan markkinoista, kun taas aiempi empiirinen tutkimus on keskittynyt Yhdysvaltojen markkinoihin.

Valuaatioreaktiot mitattiin tapahtumatutkimusmenetelmällä koko otoksessa ja osajoukoissa. Osajoukot muodostettiin yritysten kasvun ja talouskasvun tason perusteella, sillä näiden tekijöiden on aiemmissa tutkimuksissa ehdotettu selittävän vaikutusta valuaatioon.

Tutkimuksessa ei paljastunut vakaata merkittävää yleisreaktiota. Korkean kasvun yrityksillä reaktio oli negatiivinen, ja matalan kasvun yrityksillä positiivinen. Tulos tukee vapaan kassavirran teorian näkemystä, jonka mukaan joukkolainan liikkeellelasku vähentää matalan kasvun yritysten agenttiongelmia, mutta lisää niitä korkean kasvun yrityksillä. Korkean talouskasvun yrityksillä reaktio oli negatiivinen, ja matalan talouskasvun yrityksillä tutkimuksessa ei havaittu merkittävää reaktiota. Muutama yksittäinen maa on tutkimusotoksessa yliedustettuna, mikä näyttää vaikuttavan tuloksiin merkittävästi.

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This Master's Thesis concludes my path in the Master's programme of strategic finance and business analytics. The journey has been interesting, exciting and educational. I thank all who have given their support in this process.

Espoo, 21 May 2018
Heini Nieminen

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LIST OF ABBREVIATIONS

AAR	Average abnormal return
AR	Abnormal return
CAAR	Cumulative average abnormal return
CAR	Cumulative abnormal return
GDP	Gross domestic product
GNP	Gross national product
IPO	Initial public offering
OLS	Ordinary least squares
R^2	Coefficient of determination
$[\tau_1, \tau_2]$	Event window from time τ_1 to time τ_2

1 INTRODUCTION

This master's thesis study examines the stock valuation effect of straight bond issues in Europe. The effect is studied both in the sample as a whole and in categories divided by issuer and economic characteristics. Previous research in this field has focused on the U.S. markets, where the general reaction has shown to be nonsignificant. Company growth and economic growth have been suggested to be related with the valuation effect, but their importance in explaining the effect requires further research. Motives for this study arise from the previous research and the research gap.

The focus of this study is Europe, where the stock market reaction of straight bond issues during years 2010–2016 is tested. European companies' bond issues have not previously been widely studied. The chosen time period is interesting, because the interest rates were at a low level after the financial crisis of 2008. This could have increased incentives for companies to lever up more than before, but at the same time the bondholders required tougher scrutiny and security to invest. To have deeper knowledge about the stock valuation effect of straight bond issues, the reaction is further studied comparing different companies and under different economic conditions.

1.1 Previous studies and research gap

Based on the theories of capital structure, there is no universal assumption of the stock valuation reaction to a straight bond issue. Overall, the previous empirical research has concluded a solid resolution that issuing a straight bond does not result in a significant stock price reaction, when no other factors are taken into account besides the issue itself and the security type. Most studies have revealed no significant reaction (e.g. Eckbo 1986, Mikkelsson & Partch 1986, Shyam-sunder 1991, Best 1994, Madura & Akhigbe 1995, Johnson 1995, Christensen et al. 1996). Only a minority of the papers have concluded a significant positive reaction (e.g. Masulis 1980, Deshpande & Philippatos 1988 for Eurobonds by U.S. firms, Miller & Puthenpurackal 2005 for global bonds, and Fungáčová et al. 2015 for European straight and convertible bonds together), or a significant negative reaction (e.g. Howton et al. 1998 for straight bonds, and Ammann et al. 2005, Mikkelson &

Partch 1986, Eckbo 1986, Davidson et al. 1995 in USA, and Cheng et al. 2005 in Japan for convertible bonds.).

Because the previous studies have not been able to reveal a significant stock valuation reaction based on purely the issue, the researchers have turned into looking for explanations in the issue details, firm factors and economic characteristics. The explanatory factors have been studied with categorical comparison and cross-sectional regression techniques. The researchers have looked for relations between the reaction and the different factors, but no clear consensus has yet been found. However, some conclusions can be drawn from the previous research. The information asymmetries and agency problems seem to be in an explanatory role. Studies reasoning with theories of agency problems have found some significant results when applying different proxies for the information asymmetry (e.g. Best 1994, Johnson 1995, Howton et al. 1998). Especially significant in explaining the stock valuation reaction seems to be the issue's ability to reduce the agency problems. It has been suggested that differences in the company growth can explain the change that a straight bond issue has on the agency problems. This research line has been promising, but further investigation is required to confirm the reaction. In addition, the issuer market's economic growth has been suggested to have some explanatory power in determining the effect (Madura & Akhigbe 1995).

The previous research on the straight bond issues' stock valuation effects has not much studied European companies, but has focused on the U.S. markets and a few other specific countries, including several western well-developed markets and some emerging economies. An analysis of the whole European market is therefore valuable in the general discussion. Besides the general reaction, also the explanatory factors have mainly been studied in the U.S. markets. Therefore, there is a need to study European companies to inspect whether the results persist.

This study's basis lies in the argument that there is an empirical gap in the literature concerning this issue. Research analysing the straight bond issuance effects on the firm valuation for listed companies in Europe is required and valuable in the general discussion. Specifically, there is a need to analyse the stock market reactions within different categories of firms and under different economic conditions.

1.2 Research questions and objectives of the research

To address to the above-mentioned research gap, this study investigates the following research questions:

1. What is the short-term effect of a straight bond issue on the firm valuation?
2. What is the short-term effect of a straight bond issue on the firm valuation of firms that have high and low levels of company growth?
3. What is the short-term effect of a straight bond issue on the firm valuation of firms that are exposed to high and low levels of economic growth?

The research objective of this study is to measure the stock valuation effect that issuing a straight bond has on short term, and further, to measure the valuation effect in subsamples divided by the level of the company growth and economic growth.

This research focuses on straight bond issues in Europe. There is no known previous research that has studied the stock market reactions following straight bond issues in whole Europe. Thus, it is not possible to offer former studies to refer to when tackling this question.

The research examines the stock market reaction following the straight bond issue because it captures the change in the firm valuation. Based on the theories of capital structure, the expected reactions for increases in the financial leverage can be presumed. The different theories propose different reactions, and therefore it is interesting and important to study empirically whether there really are significant reactions. The pecking order theory suggests that an increase in the leverage level should increase the firm value, whereas the signalling and trade-off theories suggest that an increase in the leverage level should decrease the firm value given that companies are already maintaining the optimal leverage level.

This study examines company growth and economic growth as determinants of difference in the reactions. The free cash flow theory and the issue's ability to reduce the agency problems can play a major role in explaining the stock valuation reaction. They are linked with the company growth. Moreover, economic growth affects the firms' future cash flows and debt-paying abilities, and therefore it can be suggested that the stock valuation reaction is different during different economic growth. Thus, in addition to analysing the valuation

reactions in the whole sample, the reactions are evaluated in groups divided by the level of the company growth and economic growth. This research wants to test if there are significant positive or negative stock valuation reactions in these groups. In the previous research, these growth characteristics have been tentatively shown to have an effect. There is still need for further research, and this study aims to answer to that need. Company growth is measured as the sales growth of the issuer company. Economic growth is measured as the GDP growth in the issuer market.

To investigate the stock valuation reaction of the bond issues, this study applies an event study methodology that measures the abnormal returns in the event window. The reaction is determined using data from the years 2010–2016. This period was chosen to be clearly after the beginning of the financial crisis. After conducting the event study for the whole sample, the reaction is further examined in groups of the firms with high and low levels of company growth and the firms exposed to high and low levels of economic growth in the issuer market. The event study procedure is run for the categories one at a time. The differences between the categories are further tested with the difference-in-mean testing.

The report is structured as follows. After this introduction chapter, the following chapter provides an overall literature review of the underlying theories and the previous empirical evidence. The hypotheses are formed in the end of the chapter. Chapter three discusses the data and the research design. The results and their analysis are presented in chapter four. Finally, chapter five concludes the study, discusses its limitations, and suggests some possible future research ideas.

2 THEORETICAL BACKGROUND

This section begins by discussing the European bond markets in general. Then an overall picture of the underlying theories is provided. After that, the previous research is discussed, first focusing on empirical evidence of the issuance effects and then on the possible explanatory factors. The section ends with a conclusion of the theoretical background and the formation of the hypotheses based on it.

2.1 European bond markets

Debt financing is in a major role for companies in Europe. The companies seek debt finance from bank loans or bond markets. Bank loans have historically dominated in corporate financing in Europe, but the significance of bonds as a corporate funding source is increasing. The 2008 finance crisis was a significant push for this recent development. As a response to the crisis, the bank loan margins widened and the regulatory rules increased. The companies were pushed to search financing from the bond markets. The bond market volumes increased and the bond margins decreased as a response (Tendulkar & Hancock 2014; Kaya & Meyer 2013). High investor demand has helped in the bond market growth. The investors moved to the bond markets in search of better margins. Because sovereign bonds were not providing much return for the investors, corporate bonds became a good investment alternative in the new market conditions. (Kaya & Meyer 2013)

Bank loans have dominated in the European debt market for a long time, but this study concentrates only on bonds. There are some differences between bank loans and bonds. Firms evaluate their advantages and disadvantages when making the financing choice. A bond is principally a loan that has several creditors. This creates one great benefit, as with multiple investors the financing amount can be larger and a single investor is not carrying the risk alone. Bonds are a widespread way to get larger debt amounts than bank loans. Bank loans are usually private, whereas the bond markets are public and transparent to at least some degree. Because the bank loans are usually controlled by one creditor, they tend to have more restrictive covenants, but are also usually more carefully monitored. The bank monitoring seems to be the key differentiating factor for the stock market investors

(Fungáčova et al. 2015), and they react more positively to new bank loans than for bond issues. The bank loans are already negotiated when they are publicly announced. The bonds are announced before the issue, but there is no full certainty that the issue will be completed. With these differences, the information content of a new bank loan is different than a bond issuance. This study concentrates on the bond issues' stock valuation effects.

The European bond market is younger and less developed than the U.S. market, where bonds have been a major source of external funding for corporates for decades. Figure 1 illustrates the differences for bank loans and bonds among EU, U.S. and China. The European bond market is growing, but still smaller both in terms of the absolute volume and the relative size compared to the economy. For non-financial companies, bonds represent 4.3 % of the total liabilities in Europe, whereas in the U.S. the proportion is 11 %. While the absolute volume has increased during the past ten years, there has also recently been an increase in the relative amount in the debt financing market. This indicates of a development towards the bonds overtaking some traditional bank loans in some European countries. (European Commission 2017, 11; Krylova 2016; Fungáčová et al. 2015; Kaya & Meyer 2013)

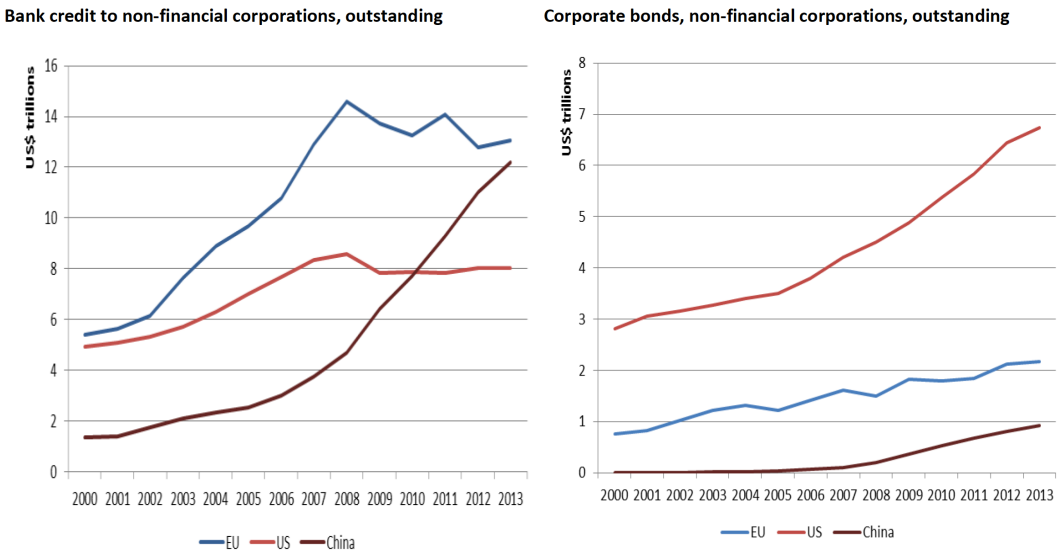

Figure 1. The outstanding corporate bank loans and bonds in EU, US and China in the years 2000–2013 (Tendulkar & Hancock 2014).

Figure 2 shows the outstanding corporate bond volumes in European countries in the years 2005–2016. The volume has nearly doubled during the period. In 2016, the amount of the outstanding corporate bonds was 7,000 billion euro. The European bond market is not a unanimous market, but there are large differences between the countries. A few countries represent a large proportion of the European bond markets. The amount of bond funding in corporate financing varies among the countries. The biggest proportions are in France, where bonds represent 11 % of the companies' total liabilities, and Portugal and United Kingdom (8 %), while in many countries bonds represent less than 1 % of the total liabilities. The European market is not integrated, but fragmented into separate national markets. Many firms only commit domestic issues, and those going for international markets are usually larger and more leveraged companies. (European Commission 2017, 12-15).

Bonds are typically concentrated on certain companies, as many issuers have multiple outstanding bonds. A great majority of the bonds issued by European non-financial corporations are investment grade bonds, accounting for 64 % of the total outstanding amount, whereas high yield bonds account for 14.5 % and non-rated bonds for 13.4 %. (European Commission 2017, 15)

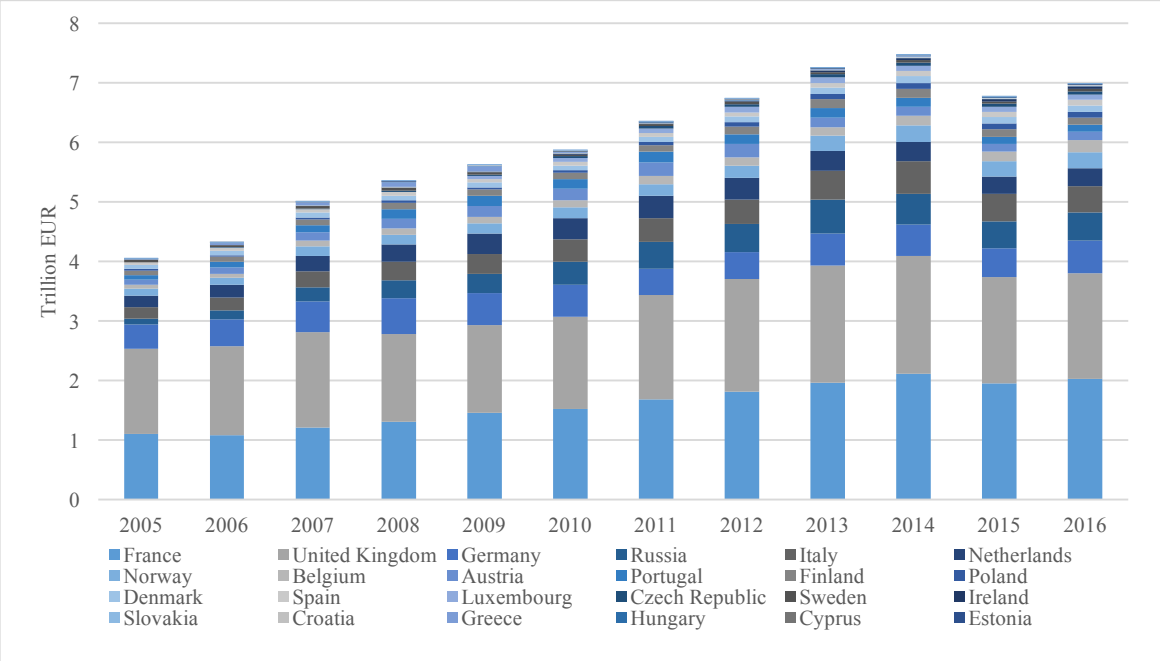

Figure 2. Outstanding corporate bonds in Europe 2005–2016 (Data: BIS Statistics Warehouse).

Out of the European markets' outstanding bonds, about one third are convertible bonds. A convertible bond is debt that can be converted into the issuer's shares on predetermined conditions, and it is classified as a hybrid bond. The convertible bonds typically require lower interest rates than similar straight bonds because of the added value of the option to convert. For a company in need of debt finance, issuing convertible bonds provides hedge against stock price movements. Downward moves in stock prices are disliked, but in that case the debt will not be converted to shares. The firm has benefited from issuing convertible debt, because the bond was set on a lower interest rate than a straight bond. Upward moves in stock prices are preferred, but in this case the converting option is executed. The firm is obliged to sell shares at lower price than the market price. However, this might be useful for a company that has not cash flows to match with the interest payments in the beginning of the bond duration, but is expecting to grow. Another benefit of convertible bonds is that they can mitigate agency costs. (Ross, Westerfield & Jaffe 2003, 680, 684, 687; Belgroune & Windfuhr 2016, 15) The principal nature of a convertible bond is this way fundamentally different from a straight bond. Convertible bonds are excluded from this research.

2.2 Information asymmetries

Before discussing the capital structure theories, the concept of asymmetric information is introduced. Information asymmetries exist in nearly all economic transactions. When one party knows more than the other, asymmetric information is present. Often the more knowledgeable party is the seller of a good or service. In many cases in corporate finance, the managers possess better information about the company than the investors and other stakeholders.

In corporate finance, the presence of asymmetric information is notable. One party always knows more than the other. In case of firm valuation on the stock markets, the managers know more than the investors about the company's earnings prospects, assets in place, and investment opportunities. The managers are involved in the companies' everyday practicalities, whereas the investors can only have the information that is available to them from the company news and other information sources. In some cases, this can include insider information. The situation leads to the assumption that the managers possess better

information about the intrinsic value of the company than the investors do. (Eckbo 1986, 4–5)

Asymmetric information involves the concept of signalling. The information asymmetries can be decreased by signalling the information from the managers to the investors. The signalling theory suggests that the managers' actions can act as signals of their information to the investors. Based on the information that the managers possess, they decide about the firm's financial structure. Consequently, the financial structure can act as a signal to pass the managers' information to the investors. (Ross 1977) The announcement of a bond issue signals information about the choice of the capital structure made by the managers. There are two ways in which a bond announcement can affect the stock value. First, the announcement can reveal new information about the present and actual firm value. Second, the choice of the capital structure itself affects the firm value. Thus, the announcement of a capital structure change would result in the stock price to adjust to the new value of the firm. (Ross et al. 2003, 438)

The information asymmetries can affect the behaviour of the parties, and create problems such as adverse selection and moral hazard. Adverse selection is present, when decisions are made based on incomplete information. This is the case when the investors make investment decisions in situations where information asymmetries are present. Moral hazard appears when the information asymmetry changes the behaviour of some party, because the risk of facing consequences is low. Because the managers know more about the firm, they may issue equity when the stock price is higher than if the investors knew all about the company's situation. The investors would be made to buy at an overvalued price. Moral hazard can lead into a situation where managers hide or downplay the company's bad debt-serving abilities. In a later section of this paper, the agency problems are further discussed with the previous empirical research regarding the free cash flow theory.

2.3 Efficient market hypothesis

The efficient market hypothesis is closely linked to the information asymmetry and the signalling theory. The hypothesis was introduced by Fama (1970), and it states that an

efficient market's prices incorporate all available information. The market efficiency can further be classified into weak, semistrong, and strong-form efficiency. Weak-form efficiency is present when the market prices incorporate the information of the past prices. Semistrong-form efficiency is present when the market prices incorporate all publicly available information. Strong-form efficient market's prices reflect all information, even private. (Ross et al. 2003, 342-347)

When discussing the straight bond issue and its effect on the market prices, semistrong-form efficiency is assumed. This means that the stock market adjusts to the new information. Otherwise, there would be no distinguishable stock valuation reaction to the issue. For an event study methodology to show valid results, semistrong-form efficiency is assumed. The methodology requires that the stock prices adjust to the new information. The lack of semistrong-form efficiency could cause problems for the study. If there is strong-form efficiency present and the bond issue is already anticipated and reflected in the stock market prices, the announcement should not cause any reaction in the stock valuation. Moreover, if there is no semistrong-form efficiency present, it cannot be expected that the information provided by the announcement will be reflected in the prices.

In addition, it is possible that the market might react to the announcement, but needs time to incorporate the information. In this situation, it would be challenging to distinguish the bond issue's stock valuation effect from other news that begin to overlap over time.

2.4 Theories of capital structure

As mentioned, the bond issue can reveal new information about the firm value, or be a change in the capital structure itself. Therefore, the bond announcement would make the stock price to adjust to the information. Equally important is the semi-strong form efficiency for the adjustment to be seen. Additionally, the investors need to evaluate what is the importance of the financing choice and the capital structure. This is where the theories of capital structure can provide explanation.

When considering the effect that a straight bond issue can create on the stock market, the influence of the issue for the firm needs to be considered. Principally, bonds are used to gain

funds from the markets. They are a major form of long-term debt for companies. When making the decision of the financing source, companies consider the sources' advantages and disadvantages. The costs of debt come from certain predetermined liabilities. The payment schedule is set in advance and the external investors bring demands. On the other hand, debt requires less return than equity.

The financing choices have an effect on the firm value, because they affect the firms' future cash flows. As the changes in the financial leverage can this way change the firm value, the announcement of the capital structure decisions can affect the firm valuation. The announcement of the financing choice transfers information from the company to the markets. The bond announcement effect is this way linked with the signalling theory. When an announcement of the capital structure decision is made, the managers' information is passed to the investors. In semi-strong form efficient markets, the stock price adjusts according to this information.

One possible explanation for the change in the stock price arises due to the *pecking-order theory*, which principally rests on asymmetric information. The basic idea of the pecking order theory is that the cost of financing increases with asymmetric information, and therefore the companies prefer internal funding over debt, and debt over equity. There are less asymmetrically informed stakeholders when the firm uses only internal funding than when there are bond holders, yet alone when there are outsider shareholders. External financing can bring more external investors into the company, and therefore the managers prefer internal financing over debt, and debt over equity.

This suggests that the issue of a straight bond is in a way negative news, because of the costs that the external financing brings. However, when external financing is required, the pecking-order theory suggests that it is better to issue debt than equity. The Myers and Majluf (1984) model predicts that an external debt announcement would generate positive stock price reactions, because the investors understand the signals correctly. The bond issue announcement would thus generate a positive stock price reaction. (Myers & Majluf 1984; Ross et al. 2003, 450)

Another principal capital structure theory is the *trade-off theory*. It says that a company's capital structure decision is a trade-off between the tax benefits and the costs of financial distress. Reaching an optimal level of leverage would maximize the firm value. This optimal level is therefore something that the managers should try to achieve. (Ross et al. 2003, 422-423, 452-455) Changes in the capital structure towards the optimal level would have a positive effect on the firm value, and changes away from it would cause a negative reaction in the firm value. Therefore, issuing a straight bond would generate a negative stock price reaction if the leverage is at a higher than optimal level, and a positive reaction if it is at a lower than optimal level.

The firm's optimal leverage level depends on its industry and the economic conditions, among other things. If the managers know that it is reasonable to increase debt when the probability of a bankruptcy has decreased, the theory suggests that it would be beneficial for the firm value to do so. If the probability of the bankruptcy has increased, the managers should decrease the financial leverage. In this case, any increase of debt would increase the company's debt burden and raise the likelihood of the bankruptcy. This in turn, may lead to underinvestment at the expense of the shareholders. Therefore, a straight bond issue would result in a negative reaction in the stock market. (Myers 1977)

Another perspective to the straight bond issue announcement effect comes from the *signalling theory*. It is possible that the stock price levels are not reflecting the real value of the company. Because the managers have more information than the investors, they are more likely to convert debt into equity if they believe that equity is overvalued. This information is signalled to the investors via the bond issuance, and it results in a decline in the stock market price. Similarly, a debt issue would signal to the investors that the managers think that equity is undervalued, and this would result in a positive stock market reaction. An increase of debt would increase the stock prices, and a decrease of debt would have a negative price effect. (Ross et al. 2003, 450) This reasoning assumes that information asymmetries are present and that the bond issue signals the managers' information to the investors. On the contrary, the information asymmetries can be at a very low level. In this case, the bond issue would be expected, and there would not be any reaction in the stock price.

To conclude, these theories suggest different stock valuation reactions following a straight bond issuance. The theories and their expected reactions are summarised in Table 1. The reaction depends on the financing needs and the leverage level of the company, as well as the information asymmetries about these financial conditions. An increase of debt would cause a positive reaction if the bond issue signals that the firm is doing better than the prevailing market price reflects, and a negative reaction when the issue gives information that the company is not in as good financial condition as assumed. As the reaction is not universal, more information is needed to determine the reaction. Besides the pure issue, there are other factors that affect the stock valuation reaction.

Table 1. Expected stock valuation reactions for a straight bond issue based on the theories of capital structure.

Theoretical Framework	**Expected Reaction**	
Pecking-order theory	+	
Trade-off theory	+	If leverage level lower than optimal
	–	If leverage level higher than optimal
Signalling theory	+	With significant asymmetries
	0	Without asymmetries

2.5 Previous empirical evidence of security type

The reactions following a bond issue have been commonly studied empirically with event studies, mainly focusing in the U.S. markets. The studies have investigated the issuer's stock valuation reactions around the bond issue announcement. The pioneer studies focused on finding evidence for hypotheses based on the capital structure theories. The emphasis was to investigate whether there are significant valuation effects present. The studies focused on the differences in the reactions of different types of issues, such as equity and bond issues. Later the research has shifted its focus into the search for explanatory factors that are related with the different valuation reactions.

The previous empirical studies have been able to reveal a general picture about the bond issues' stock valuation reactions. It can relatively confidently be said that issuing convertible debt results in a significant negative stock price reaction and that the issue of a straight bond has no significant effect on the stock market price. These results have been found in the U.S. market.

Most of the studies have found nonsignificant reactions following the announcement of a straight bond issue. Among others, Eckbo (1986), Mikkelsson and Partch (1986), Shyam-sunder (1991), Best (1994), Madura and Akhigbe (1995), and Johnson (1995) studied the bond issues by domestic firms in the U.S. markets. They all found that straight debt offerings had nonsignificant stock price effects.

There have not been many studies that have found reactions that are statistically different from zero. Masulis (1980) found that the straight bond offers have positive reactions on the stock market. However, the number of the straight debt issues was small in the research. An opposite reaction was supported in the study of Howton et al. (1998), who found significant negative effects.

While most of the studies have focused on the domestic firms' bond issues in the U.S. market, there are also some studies that have extended the understanding into other specific, more global security types. Deshpande and Philippatos (1988) studied Eurobonds issued by U.S. firms, and found a significant positive reaction in the stock valuation. They suggested that this could be resulting from the fact that the firms issuing Eurobonds are generally more successful, but the researchers did not test this theoretical assumption. Miller and Puthenpurackal (2005) studied global bonds, which are traded in multiple markets. The research was able to find positive and significant valuation effects for global bonds, while the valuation reactions of the domestic bonds and Eurobonds were insignificant.

Besides U.S. firms, there has also been some research focusing on other markets. Christensen et al. (1996) studied Japanese markets, but found no significant reactions following the straight bond issues. This is in line with the majority of the previous research. Chin and Abdullah (2013) studied bond issues by Malaysian companies. The study did not separate

convertible and straight bonds, but revealed mostly insignificant reactions following the issues in the whole sample.

For convertible bond issues, the previous studies have revealed negative stock valuation reactions (e.g. Ammann et al. 2005, Mikkelson & Partch 1986, Eckbo 1986, Davidson et al. 1995 in USA, and Cheng et al. 2005 in Japan). The results show that the issues of convertible bonds are followed by significantly negative abnormal returns. The nature of convertible bonds makes the findings reasonable. This is due to the possibility to convert the debt instrument into equity. One exception to this finding is the study by Christensen et al. (1996), who found no significant reaction in Japan for the convertible bond issues.

The stock valuation reactions of the straight bond issues by European companies have been studied only little. Fungáčová et al. (2015) studied if bonds and loans have different effects in western European markets. However, their study lacks the separation between straight and convertible bonds. Their main result was that all debt issues have positive stock market reaction, which is different from the results of the previous U.S. focused research. The loan announcements resulted in more positive reactions than the bond issues. This supports the presumption that the investors prefer loan issues over bonds because of their positive characteristics such as the bank monitoring.

2.6 Framework of explaining factors

When it comes to the determinants of the effects of the straight bond issues, there are a number of different theories suggesting different reactions. Some of the theoretical argumentations have gained empirical support. Categorical and cross-sectional analyses have been able to reveal some issuer characteristics that could explain the effects. Nevertheless, understanding of the determinants of the valuation effects is still quite limited.

Researchers have tried to find the explanations with different theoretical viewpoints, and the studied factors are from a wide range of firm-specific, issue-specific and economic characteristics. Some research lines have been promising, but there is still a need for a better understanding of the relations. The early studies focused on simple factors such as the issue characteristics. Later, some significant results were retrieved after the studies shifted to more

careful theoretical reasoning. To test the effects, the researchers have used both categorical comparison methods and cross-sectional regression techniques.

Table 2 summarises the main lines of the research of the explaining factors. The topics are discussed in detail in the following sections. The most straightforward approaches based on the issue characteristics were not revealing, but it seems that the stock valuation reaction of the straight bond issues is a more complex phenomenon. Concluding from the previous research, explanations based on the information asymmetries, economic conditions, and issue motivations seem to be the most significant.

The information asymmetries are suggested to have an effect on the valuation reaction. The prevailing information asymmetry level seems to have some explanatory power, and also the change in the asymmetry is suggested to be related with the reaction (Best 1994, Johnson 1995, Howton et al. 1998). There is no single measure for information asymmetry, but the studies have used different approaches. Information asymmetry is present in straight bond issues in two ways. First, it can represent the amount of how much the issue was anticipated or if it was a surprise to the markets. This can be measured with the analysts' forecast errors as a proxy, and it is understood as the prevailing level of the information asymmetry. Second, it is possible that the bond issue changes the level of the information asymmetry. Because the asymmetry is not favourable for the investors, they would react positively if the issue reduces the asymmetry problems. The free cash flow theory relies on this reasoning, and economic growth and dividend payout level have been applied as measures.

In addition, economic conditions have been revealed to have an influence on the valuation effect (Madura & Akhigbe 1995). Economic growth has been suggested to affect the stock valuation reaction in two ways. First, it represents the pure economic conditions, which are related to the success potential of the companies and to their debt-serving abilities. Second, economic growth is suggested to be linked with the information asymmetries.

Moreover, the motivation for the issue and the purpose of the bond can help to explain the stock price effect. (Mikkelson & Partch 1986) This result seems well justifiable, as the analysis of the motivation takes into account more explicit information about the issuer firm's financial condition.

Table 2. Framework of the explaining factors.

Topic	Explaining Factor	Significant Findings	Studies
Issue characteristics	Rating	0	Eckbo 1986, Mikkelson & Partch 1986, Shyam-Sunder 1991, Madura & Akhigbe 1995, Johnson 1995, Howton et al. 1998
	Relative issue size	0	Eckbo 1986, Mikkelson & Partch 1986, Madura & Akhigbe 1995, Johnson 1995, Howton et al. 1998
Leverage and bond IPOs	Prevailing leverage level	0	Johnson 1995, Howton et al. 1998
	Change in leverage	0	Madura & Akhigbe 1995
	Bond IPO	0	Cai and Lee 2013
Information asymmetry and agency problems	Financial analysts' forecast errors	Low error 0 High error -	Best 1994
	Dividend payout level	Low dividend + High dividend 0	Johnson 1995
	Company growth	Among low dividend payout Low growth + High growth - Among high dividend payout 0	Johnson 1995
	Prevailing cash level	Low cash + High cash -	Howton et al. 1998
	Investment opportunities	Low investment opportunities - High investment opportunities +	Howton et al. 1998
	State ownership	+	Klein & Weill 2015
Economic conditions	Interest rate level	0	Madura & Akhigbe 1995
	Stock market level	0	Madura & Akhigbe 1995
	Economic growth	High growth + Low growth -	Madura & Akhigbe 1995
Motivation and purpose	Purpose of the bond	0	Mikkelson & Partch 1986, Johnson 1995
	Motivation for the issue	Unexpected cash flow shortfalls - Others 0	Akhigbe et al. 1997

After providing an overall picture of the previous empirical research concerning the explanatory factors, the following sections present the research in the field in more detail along with their theoretical argumentations. Not only the significant findings are presented,

but also the factors that were not confirmed to be associated with the stock price effects are explained.

2.6.1 Issue characteristics

The quality rating of the issue was in focus in the early studies. The interest for this arises from the fact that the bond rating could capture the risk not only related to the payments of the bond, but also the firms' bankruptcy risk in general. If the rating is low, the risk of the bankruptcy would be higher. Thus, a lower rating could result in a larger stock price decrease. Nevertheless, this hypothesis has not gained support. Eckbo (1986), Mikkelson and Partch (1986), and Shyam-Sunder (1991) found no significant results in cross-sectional regressions trying to explain the stock market reactions by the rating of the straight bond. In many later studies, the bond rating has been included as a control variable, and it has still had no significant influence (e.g. Madura & Akhigbe 1995, Johnson 1995, Howton et al. 1998). It seems that in general the quality rating of the issue is not a surprising piece of news. The information is most likely already reflected in the stock price. Hence, there is no need for a stock valuation adjustment caused by the rating when the bond issue is announced, but the possible reaction is caused by some other aspect.

The economic significance of the issue for the company has been suggested to be related with the stock price effects. The bigger the amount of new capital relative to the company size, the more significant the new debt could be to the company. Therefore, the reaction could be stronger when the relative issue size is bigger. This hypothesis has been tested in the previous research, but no significant relation has been revealed. Eckbo (1986) and Mikkelson and Partch (1986) had this relation in focus. Their studies found no significant effect of the relative offering size, or the relative net amount of the financing provided by the offering. Even later, no significant relation has been revealed in the studies that have included the relative issue size as a control variable in their models (e.g. Madura & Akhigbe 1995, Johnson 1995, Howton et al. 1998).

Besides the bond rating and the relative issue size, Eckbo (1986) studied the effect of a few of other issue characteristics. The study was unable to reveal any significant relations in the

cross-sectional regressions between the stock market reaction and the post-offer changes in the abnormal earnings, the debt-related tax shields, or the offering method.

2.6.2 Financial leverage and bond IPOs

The financial leverage level and the change in the leverage have been under study. Johnson (1995) and Howton et al. (1998) suggested that firms with low leverage may have more positive stock market reactions than high leverage firms. This is because the low leverage firms' prevailing capital structure is more equity-based, and therefore they might have lower agency costs of debt. Thus, the issue of the new debt is more favourable news than when the leverage is at a high level. In addition, it is possible that the leverage level of the low leverage firms is lower than optimal. The trade-off theory suggests that a change towards the optimal leverage level would cause a positive stock price reaction. Thus, the bond issues of the low leverage firms would result in positive stock valuation reactions. However, the study did not provide any significant relations. Madura and Akhigbe (1995) reasoned that the change in the financial leverage would capture the effect more precisely than just the prevailing level of leverage could, but found no significant results.

Some issuers have no outstanding bonds at the time of the new bond issue. This means that the companies are announcing straight bond initial public offerings (IPOs) and going to the bond market for the first time. Cai and Lee (2013) had these announcements on a closer look. The full sample had nonsignificant stock price reactions. Interestingly, within this sample of companies announcing initial straight bond issues, the bond rating had a significant effect. The study found that the low-risk investment grade issues had insignificant stock valuation reactions, but the high-risk high-yield bonds had significant negative reactions. Cai and Lee (2013) also noticed that the economic conditions affected the valuation effect. They found that the straight bond IPOs had positive reactions during times of recession, despite the bond ratings. They suggest that this is because the IPOs give the companies valuable access to wider capital markets, and show to the investors that the firms are not doing bad even though the economy might. (Cai & Lee 2013)

2.6.3 Information asymmetries and agency problems

The signalling theory and agency issues seem to have some power in explaining the valuation effects of straight bond issues. Best (1994) focused on the relative information asymmetry as a determinant of the valuation effects. As described before, the stock valuation reaction is expected to be positive to unanticipated debt financing announcements based on the trade-off theory (Myers & Majluf 1984). However, if there are no information asymmetries, there should not be any reaction in the market price. Without information asymmetries, investors would already know that the debt issuance is coming, and thus the market price would already involve the information about the debt issue. Therefore, the announcement would not result in any reaction on the market price. Further, this progresses into a hypothesis that the bigger the information asymmetry, the less anticipated the issue and the bigger the stock market reaction.

Best (1994) contributed to the question if signalling theory and agency problems can explain the stock valuation reactions. To measure information asymmetry, the study applied financial analysts' forecast errors as a proxy. This is according to the reasoning that companies possess relatively large information asymmetries when analysts cannot provide reliable predictions of their future performance. The study found some significant differences in reactions between the two groups categorised by the level of the information asymmetry. In case of straight bond issues, low prediction error was related to an insignificant reaction, but high prediction error was related to a significantly negative stock valuation reaction. The difference between the groups was also significant, high-prediction error firms had significantly lower reactions than low-prediction error firms. The study suggests that information asymmetries are negatively related to the stock valuation reaction following the straight bond issue. (Best 1994)

Agency problems and free cash flow theory provide another reasoning to the link between the information asymmetries and the bond issue effects. Agency problems are related to information asymmetries and especially power asymmetries. Managers may have incentives to act against maximising shareholder wealth. Agency problems may arise if managers have control of excess cash flows in addition to those needed for profitable investments. If the managers do not use the excess cash optimally, this creates agency costs and does not

maximise shareholder wealth. Thus, reducing the free cash flows that are in control of managers can help to reduce agency costs. This can be done with binding payments such as dividends or debt payments. Therefore, increasing leverage is considered as a good way to decrease agency problems. (Jensen 1986; Howton et al. 1998)

Agency theory argues that leverage increasing actions would increase the firm value. However, the theory also suggests that issuing a straight bond may decrease the firm value. This is the case when the whole debt is not used for refinancing or investments, and therefore increases the amount of cash under management control. Excess cash would not benefit investors but would result in unfavourable agency issues. Therefore, if the firm does not have profitable investment opportunities, the agency problems are likely to increase. (Eckbo 1986; Jensen 1986; Howton et al. 1998)

Johnson (1995) argues that according to the free cash flow theory, agency problems can be mitigated by keeping less cash under management control. This can be done with scheduled dividend and debt payments. Furthermore, fulfilling the payments gives incentive to managers to avoid unprofitable projects. Based on the free cash flow theory, Johnson (1995) argues that bond issues would cause more favourable stock valuation reactions for low-dividend payout firms. This is because a bond issue can reduce the information asymmetry problems more effectively when the dividend payments are at a low level. The argument gained supporting evidence in the study. Low dividend payout firms had significantly positive stock valuation reactions, and high dividend payout firms had insignificant reactions. The difference was also significant. In cross-sectional analysis, the dividend payout was significantly negatively related with the valuation reaction. This supports the argument that the lower the dividend payout level, the more positive the stock valuation reaction, and vice versa. The results were statistically robust, as control variables were insignificant. (Johnson 1995)

Johnson (1995) continued the study by dividing the sample by the growth of the issuing companies. Company growth is linked with investment opportunities, and investment opportunities are linked with free cash problems (Titman & Wessels 1988). When the firms have profitable investment opportunities, the problems of free cash are not present as much as when there is a lack of profitable investment opportunities. Thus, the benefits that new

debt has in decreasing agency problems would be bigger for firms with no or few investment opportunities. Johnson (1995) argues that high growth firms should generate less favourable stock market reactions than low growth firms. Additionally, high growth firms cannot expand fully with profitable actions and would therefore have more free cash flow problems when they gain more funds. Low growth firms have more severe agency problems and could reduce them with a bond issue. The results of the study partially supported the hypothesis. Within the group of low dividend payout firms, there were significant differences, as low growth firms had higher stock valuation reaction than high growth firms. Among the high-dividend payout firms, the difference was insignificant.

Howton et al. (1998) continued testing the free cash flow theory. The researchers argued that dividend payout does not measure the agency problem well enough, because there is no guarantee that high dividend payout companies have agency problems. The researchers aimed to apply more direct proxies for firm characteristics that play an important role in composing the free cash flow problem. First, they suggested that firms with high levels of existing cash face more agency problems. Thus, a straight bond issue would be more negative news for these companies than for those with less existing cash. Their study found supporting significant results. Second, they suggested that firms with many investment opportunities would face less agency problems. Therefore, a straight bond issue would be more positive news for these kinds of companies than for those with less investment opportunities. The investment opportunity set of an issuer was measured as its market value of assets divided by its book value of assets. However, their study found an opposite result. Thus, the study provided a mixed answer for the free cash flow theory. (Howton et al. 1998)

Klein and Weill (2015) extended the study of the agency problems into the Chinese market, where both state and local government ownership are common. They suggested that because of the lack of commercial managerial incentives, the valuation effect would be more negative in the case of state-owned companies than for private firms, because state management would increase agency costs. However, the state ownership also gives special advantages, but the researchers did not assume that these would have any remarkable influence. Nevertheless, the study found that state-owned companies' straight bond issues generated significantly positive stock valuation effects. The other ownership categories had

insignificant effects. Thus, the agency costs of state-ownership did not seem to have principal explanatory power. (Klein & Weill 2015)

2.6.4 Economic conditions

The influence of macroeconomic factors has not been a primary concern in the previous research, although economic conditions can have a major role in firms' financing decisions. Economic conditions can often define the investment opportunities and conditions, as well the as costs of financing. Thus, investors assessing and valuing the issuing firms also consider economic conditions and not only the firm-specific financial characteristics. If the economic conditions do not look promising, the issue could increase the likelihood of the issuing firm's bankruptcy. With the economic conditions considered, the investors may make a different financing choice than based on only the company-specific information. Madura and Akhigbe (1995) contributed to this area, as they studied the relations between the bond issues' stock valuation reactions and several economic factors, including interest rate level, stock market level, and economic growth.

Stock market reactions following straight bond issues are hypothesised to be inversely related to the interest rates. This is because the bonds' coupon rates can be locked. If the firm issues a bond when interest rates are at a low level, the funding costs will stay low until the bond maturity. Any changes in interest rates would not affect the firm. If the company issues a bond when interest rates are at a high level, there is a larger risk that the interest rates would decrease and the firm would get disadvantages. Thus, investors should respond more positively to bond issues when interest rates are at a lower level, and more negatively when interest rates are at a higher level. Madura and Akhigbe (1995) therefore postulated that there is an inverse relation between interest rates and the stock valuation effect of a bond issue. However, the hypothesis was not supported by the research, but the results for the whole sample including both straight and convertible bonds were insignificant. For convertible bonds, the study results showed that the effect was significant. Nevertheless, no significant reactions were found in the group of straight bonds. Thus, not much was revealed about the explanatory factors for stock valuation reactions of straight bond issues.

Prevailing stock market levels may be related to the valuation effects based on two matters. As Madura and Akhigbe (1995) describe, theoretical reasoning about the effect of prevailing stock market level considers two aspects: the firm's choice of funding source between equity and debt, and timing. The prevailing stock price is assessed when firms make decisions about financing via stock issuance. When the company's stock price is at a relatively high level compared to the rest of the market, this can push companies to issue equity. When the price is not at an ideally high level, but the firm still requires immediate financing, it can decide to issue either equity or debt. It may be more tempting to issue debt than equity if the stock price is relatively low compared to the rest of the market. The bond issue effects on stock price can be very different in these different situations. If debt is issued and the investors see that the stock price was at a level that would suggest that issuing debt is not the best choice, this would make the price reaction more negative. That is, the lower the relative stock price, the more positive is the reaction to a bond issue, and the higher the relative stock price, the more negative is the reaction. However, this hypothesis was not supported by the study results by Madura and Akhigbe (1995).

Economic growth affects companies' future cash flows and therefore also their abilities to fulfil the obligations of bond contracts. Investors consider the economic growth conditions when they assess the information content of a bond issue. A more positive stock price effect is expected during strong economic growth, because the debt-paying abilities are supposedly better in good economic times. Madura and Akhigbe (1995) also suggest that information asymmetry is linked to economic growth. During financial distress, the information asymmetries are more common. The researchers point out that periods of high economic growth have low information asymmetries and are common ground for equity issues. Previously (Myers & Majluf 1984; Best 1994), it was reasoned that high information asymmetries would cause stronger reactions. The hypothesis of more positive effect in high growth periods got supporting evidence in the study by Madura and Akhigbe (1995). For straight bonds, economic growth measured as the forecasted gross national product (GNP) growth at the time of offering had a significant positive effect on the market reaction, as suggested. High growth was linked with a positive stock price reaction after a straight bond offering.

2.6.5 Purpose of the bond and motivation for the issue

Several studies have investigated whether the motivation for the bond issue can explain the stock valuation reactions. However, the importance of the issue motivation and stated purpose of the funds is not yet confirmed, although some significant results have been found. Issue motivation is a wide concept, and categorizing the bond issues can be difficult.

Mikkelson and Partch (1986) studied the effect of the stated reason of the bond issue on the stock valuation reaction. The researchers divided the issues into categories where the purpose of the issue was either refinancing, financing capital expenditures, financing corporate growth, general corporate purposes, or miscellaneous other reasons. The researchers assumed that refinancing bonds would have no price effect, but found no significant effects nor significant differences between the categories. Further, they studied if the proportion of new financing could have explanatory power, but this categorization did not result in any significant effects or differences for straight debt issues. Moreover, Johnson (1995) had some concerns for the usage of money raised via bonds. The purpose was not on the focus of the study, but was added in the multiple regression as dummy variables. The issues were divided into categories where purpose was either capital expenditure, unspecified or completed acquisitions, to retire other debt, or general corporate purpose. Nonetheless, the study found no significant results.

Akhigbe et al. (1997) studied further the relation between the bond issue motivation and the stock price response. The researchers reasoned that any unexpected motivation for the issue would be related to the stock price effect, because the issue purpose captures the financial situation in which the firm operates. For example, a negative reaction would be probable for a firm that uses the bond to cover lower than expected level of operational cash flows. Similarly, a positive reaction would be possible for a firm that issues debt to finance better than expected investment opportunities. The researchers divided bond issues into four different categories. They found out that when motivation was unexpected cash flow shortfalls, the valuation effect was significantly negative. Other motivations under study were unexpected capital expenditure, increase in financial leverage, and refinancing, but they did not reveal any significant results. (Akhigbe et al. 1997)

2.7 Hypotheses

Based on the theoretical background and previous empirical research, three hypotheses for this study have been formed. The hypotheses give insight into the research questions.

It is principally simple to determine the expected stock valuation effect following a straight bond issue. If the issue is considered as good news, the market reaction should be positive and the valuation of the company should increase. If it is bad news, the reaction should be negative. If the issue is no news, there should not be any significant effect differing from the normal market behaviour.

However, determining whether the issue is good, bad or no news is complex. Theories of capital structure suggest that the information content varies depending on different things such as the leverage level and capital needs of the company. Overall, previous studies have found supporting evidence for the idea that straight bond issues are generally neither considered as good nor bad news. The consensual finding is that the stock valuation reaction following a straight bond issue is insignificant when no other factors besides the issue are considered.

Based on the theoretical reasoning and previous research, it is expected that the stock market reaction following a straight bond issue in Europe is insignificant because the issue itself is neither good nor bad news. Thus, the following hypothesis is formed:

Hypothesis 1: A straight bond issue results in no significant stock valuation reaction.

Although the general reaction is expected to be nonsignificant, the valuation reaction is proposed to depend on other factors besides merely the straight bond issue. Hence, it is required to further determine when the issue is good, bad, or no news. The most enlightening piece of information would be the designed purpose of the funds gained with the issue and the motivation for the issue. This would reveal information about the company's financial state and valuation. On semistrong-form efficient markets, the share price would adjust according to this information, in case it is unexpected. However, the purpose is often difficult to identify and the possibilities for purposes are numerous. The analysis of the purpose linked

with the stock price effect would perhaps even require a qualitative study, which is not intended to conduct in the scope of this research.

Based on previous research and argumentation, it seems to be essential to assess whether the issue is new or anticipated information in recognising the information content of the issue announcement. Thus, information asymmetries are in a key role in determining the stock market reaction. The greater the information asymmetry, the less anticipated the issue and the greater the stock market reaction. As a measure of information asymmetry, previous studies have successfully used financial analysts' forecast errors (Best 1994), dividend-payout level (Johnson 1995), company growth (Johnson 1995), existing cash level (Howton et al. 1998), and economic growth (Madura & Akhigbe 1995), and found significant differences between the groups.

Further, changes in information asymmetry levels can be remarkable for the firm operations. This study does not concentrate on the prevailing level of information asymmetry, but on the bond issue's effect in reducing the asymmetries and agency problems. The issue's ability to reduce agency problems can be in a major explanatory role in the stock valuation reaction. One group of companies that has been suggested to benefit of the issue to a great extent is those that have only few investment opportunities. The benefits that new debt has in decreasing agency problems can be more valuable for firms with few investment opportunities. These companies are low growth firms, as argued by Johnson (1995).

Based on this reasoning, company growth is applied as a category divisor. The stock valuation reactions are studied in two groups of high and low company growth. The second hypothesis is:

> **Hypothesis 2**: A straight bond issue results in a negative stock valuation reaction for high growth firms, and a positive reaction for low growth firms.

The previous research suggests that another feature explaining the stock valuation reaction could be found in the economic conditions. They can have a major role in firms' financing decisions and define the investment opportunities and conditions, as well as the costs of financing. If the economic conditions do not look promising, the issue could possibly increase the likelihood that the issuing firm will go bankrupt. With the economic conditions

considered, the stock price reaction can be different and investors may make a different financing choice than by looking merely at the company-specific information.

Economic growth affects the firms' future cash flows and therefore also its abilities to fulfil the obligations of the bond contracts. Hence, the stock valuation reaction is expected to be different during different economic growth. In periods of strong economic growth, the stock price effect is expected to be more positive, because the companies have better debt-serving capabilities. This leads to the third hypothesis:

> **Hypothesis 3:** A straight bond issue results in a positive stock valuation reaction in times of high economic growth in the issuer's country, and a negative reaction in times of low economic growth.

Table 3 summarises the hypotheses. They provide insight into all three research questions. The first hypothesis proposes an expected stock valuation reaction of a straight bond issue in general. The second hypothesis is based on the change in information asymmetry. It suggests an expected valuation reaction for issues with different levels of company growth. The third hypothesis is based on the issuers' debt-serving abilities and provides insight into the expected reactions for issues with different levels of economic growth.

Table 3. Summary of the hypotheses.

Hypothesis framework	**Expected Reaction**	
H1: Pure issue	0	Overall
H2: Change of information asymmetry: Company growth	+	For low growth
	–	For high growth
H3: Debt-serving abilities: Economic growth	+	For high economic growth
	–	For low economic growth

3 DATA AND METHODOLOGY

The planning and implementation of the empirical research are described in this chapter. First, the data and its collection process are presented. Then the research methods used in the study are described as well as the justification how the chosen methods help in meeting the objectives set for the study. Finally, the event study approach and the categorical comparison analysis methods are explained.

3.1 Event data

In this research, the event is defined to be the first announcement of the straight bond issue. Announcement date is the first date on which the announcement appears in the information provider's database. It is possible that the issue will be cancelled between announcement date and the issue date, but the issue announcement will regardless of this capture the valuation effect related to the announced bond issue. The source of the date of the announcement is Thomson One database. The use of the database guarantees that the event date is consistently identified.

The database has a news category for *debt financing and related*, from where the announcements were retrieved. The database does not provide pre-set filters for retrieving bond issue data, but it includes varying sorts of debt financing related announcements. Each piece of news data is in form of short descriptions. The data consists of the issuing company, country, publishing time of the information, headline, and the text description. The text descriptions are not in any standardized form and can include versatile additional information such as the issue size, maturity, purpose of the bond, interest rate, and the target investors. As keys for filtering the issues from the database, words and phrases that usually describe bond offers were used. The phrases were selected and found with preliminary analysis of the data by hand. It is possible that this approach identifies some events falsely positive as straight bond announcements. In addition, if a straight bond announcement uses some rarely used wordings, the method may exclude some real issues as falsely negative and not being straight bond announcements. However, the approach is adequate for this study and the filtered events sufficiently match the criteria. Reviewing the statements individually

would require a substantial amount of resources and is assessed to provide in practice only limited gains.

The selection criteria for this study is determined as follows. This study's sample consists of straight bond issue announcements by public listed companies in Europe during 2010–2016. These years were chosen to begin clearly after the beginning of the finance crisis. In accordance with previous studies (e.g. Madura & Akhigbe 1995, Best 1994, Chin & Abdullah 2013), there are some exclusions of issuer companies. Non-public listed companies were excluded from the sample, because the exchange of their shares differs greatly from that of public listed companies and the market reactions would not be comparable. Financial institutions and insurance companies were excluded as well, because they have very different capital structure and usage of bonds than non-financial companies.

The only type of bonds examined in this study are straight bonds. Only domestic issues in local currency are included, and Eurobonds are excluded. Convertible and other hybrid bonds are excluded, because they differ greatly from straight bonds. Previous research has found that their reactions are different from straight bond issues and more similar to equity issuances. In addition, companies without sufficient stock data need to be ignored. The applied event study methodology requires stock data from 260 days before the event until 10 days after the event. Furthermore, three markets with very few issues are excluded from the sample. Markets that have less than 10 issues in the whole study period are excluded. After the exclusions, this study's sample consist of 1546 issues in the years 2010–2016 of 424 different companies from 15 different countries.

The distribution of the events by years is presented in Figure 3, and Table 4 displays the distribution of the issues by country. Year 2012 has the most issues, 299 (18.0 %) of the total 1546 issues. Year 2016 has the least issues, 161 issues (10.4 %).

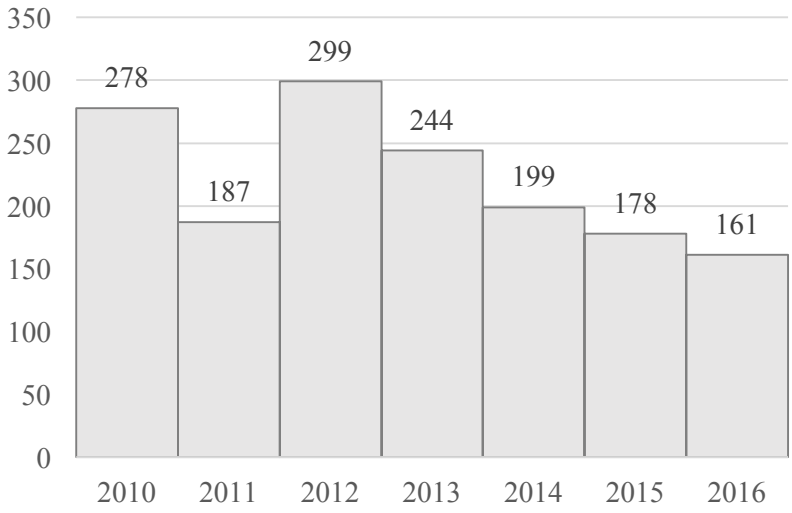

Figure 3. Distribution of the years of the issues.

Table 4. Distribution of the years and countries of the issues.

Country	2010	2011	2012	2013	2014	2015	2016	Total
Poland	140	96	125	116	86	75	83	721
France	49	29	59	64	56	36	26	319
Norway	11	14	27	22	16	19	16	125
Italy	12	13	20	12	15	13	9	94
Finland	9	5	11	9	2	9	1	46
Portugal	4	4	9	6	8	5	7	43
Sweden	5	6	4	5	2	4	13	39
Germany	23	2	5		2	2		34
Serbia	2	5	24					31
United Kingdom	10	6	3	1	2	1		23
Belgium	3	2	3	4	2	5	3	22
Austria	6	1			2	3	1	13
Greece	2	3	3	3		2		13
Netherlands	2	1	5	2	1	1		12
Switzerland			1		5	3	2	11
	278	187	299	244	199	178	161	1546

There are 15 different markets in the sample. There are notable differences in the distribution of events over the countries. Poland has a clear majority of the issues, as 721 (46.6 %) of the issues are Polish. When looking closer at the data, it turns out that many Polish companies issue bonds regularly. The issue sizes appear to be smaller and maturities shorter than in the other countries. After Poland, the numbers of issues decrease quickly. The next largest markets are France with 319 issues (20.6 %), Norway with 125 issues (8.1 %), and Italy with 94 issues (6.1 %). The four largest countries (27 % of number of markets) cover 80 % of the number of issues.

3.2 Issuer and macroeconomic data

Data for issuer characteristics was collected from the Amadeus database. This study measures company growth as sales growth. For each issuer, sales value in local currency was collected from years 2008–2015 for categorical comparisons. The sales data was transformed into sales growth to represent company growth. Sales growth for a single year is simply the sales value of that year divided by the previous year's sales value. The data for sales growth linked with the issue is from the previous year as the issue announcement. For example, a bond issue announcement in the year 2010 is linked with the company's growth from the year 2009, which uses sales data from 2009 and 2008. The information of previous year's sales growth is publicly available for the investors at the time of the bond issue announcement. Current year's sales would not be available until the end of the year. There are some inadequacies in the data, as some companies have no sales data available at all or for some years. After matching the sales growth data to the issue announcements, 1384 events have sales growth data. The categorical analysis for testing the hypothesis 2 was run for this subsample.

Economic growth is measured as gross domestic product (GDP) growth rate. Data for GDP growth was collected from World Bank DataBank database from the years 2009–2015 for the 15 countries. Every issue is linked with data for GDP growth in the issuer's market from the previous year as the announcement to best represent the economic growth. The previous year's growth data is publicly available on the issue day.

3.3 Event study methodology

This study follows an event study approach to determine the effect of the issuances on the firm's valuation on the stock market. The methodology's main idea is to check if the event creates any abnormal effects in the stock market behaviour. Main calculations were conducted in Matlab software after the data was preliminarily refined in a spreadsheet program.

The event under investigation is the straight bond issue announcement. The stock valuation reactions of the event are studied in the event window time period. The event window begins ten trading days before the event and ends ten trading days after it. This event window was chosen because this study focuses on the short-run effects. For example, Chin and Abdullah (2013) used 60 days because of the specific characteristics of the undeveloped Malaysian bond markets. Ten days is sufficient in Europe's developed, although not unanimous, market. Ten days is also more suitable for studying the short-run effect. Already the event day and the following day would capture the price effects that occur after the stock market closes on the issuance day. The periods prior to and after the issuance are also of interest in this study, because the market may acquire information already before the actual event, and may also require some time to adjust after the event. (MacKinlay 1997, 15) The time required to adjust is also a test for semi-strong form efficiency in the markets.

The frequency of the stock market data is daily, as in most studies in the literature. Abnormal performance is better detected in daily than less frequent data (MacKinlay 1997, 34). On the other hand, intra-daily data could bring nuisance microstructure effects as well as data collection problems (Brooks 2012, 635).

To be able to detect any abnormal behaviour in the event window, normal performance needs to be defined. This was done in an estimation window with a suitable model. The estimation window for normal performance model in this study is 250 days, which is approximately one year. The estimation window begins 260 days before the event and ends 11 days before the event, to prevent overlapping with the event window. A long estimation window will in general increase the precision of the parameter estimation, although it also increases the likelihood of a structural break (Brooks 2014, 636). The event period is not included in the

estimation period so that the event itself would not influence the normal performance parameter estimates (MacKinlay 1997, 15).

In this study, the normal returns were modelled with the market model. The market model assumes a stable linear relation between the market return and the security return. (Brooks 2014, 637; MacKinlay 1997, 15) Hence, the expected return was constructed using a linear regression of the stock *i* on a constant and the return of the market portfolio:

$$R_{it} = \alpha_i + \beta_i R_{mt} + u_{it} \quad (1)$$

where R_{it} and R_{mt} are the returns at time *t* on company *i* and the market portfolio, respectively, and u_{it} is the zero mean disturbance term (MacKinlay 1997, 18; Brooks 2014, 637).

Generally, using the market model leads to increased ability to detect event effects compared to using a constant-mean-return model. The benefit from using the market model depends on the coefficient of determination R^2 of the regression. A higher R^2 implicates a greater variance reduction of the abnormal return, and thus a higher gain of the use of the model. (MacKinlay 1997, 18) The normal returns could also be calculated using another statistical model. One alternative could be the factor model, which would however provide in practice only limited gains. Another option would be to use economic models such as the capital asset pricing model, which is though not convincing in validity, or the arbitrage pricing theory, which has only little practical advantage relative to the unrestricted market model. (MacKinlay 1997, 18-20). Alternatives for the market model could also be the constant mean model or the market-adjusted returns model. Brown and Warner (1985) confirmed that event studies based on the market model and the market-adjusted returns model are similarly powerful in detecting abnormal returns. In addition, the results obtained using the market-adjusted returns model, the market model, and the mean adjusted returns model do not exhibit many differences (MacKinlay 1997, Chin & Abdullah 2013). Thus, the market model was chosen for this study. Ordinary least squares (OLS) was applied as the estimation procedure, because it is efficient and consistent for the market-model parameters under general conditions (MacKinlay 1997, 21).

To assess the market portfolio, STOXX Europe 600 index was employed as a proxy. This index was chosen, because it provides a broad view of the market return in Europe. The stock price quotations were retrieved in local currencies from the Yahoo Finance database with the exception of Warsaw stock exchange data from the Google Finance database and one Serbia-based company's data from the Belgrade Stock Exchange database. Index quotations were retrieved from the Wall Street Journal database. With the stock and index data available, the alpha and beta estimates were retrieved with OLS.

Next, the focus was shifted to the event window. Normal return was estimated as the expected return without the event taking place. The expected return for company *i* at time *t* during the event window was calculated as the alpha estimate plus the beta estimate multiplied by the actual market return on time *t* (Brooks 2014, 637).

The abnormal returns are required to evaluate the impact of the event. They were measured as the actual ex post return of the security over the event window minus the previously calculated normal return. For each event *i* and event date *t*, abnormal returns AR_{it} were calculated by subtracting the expected return from the actual return.

$$AR_{it} = R_{it} - E(R_{it}) \tag{2}$$

where AR_{it}, R_{it} and $E(R_{it})$ are the abnormal, actual and normal returns, respectively, for time *t* (MacKinlay 1997, 15; Brooks 2014, 636).

Next, cumulative abnormal returns (CAR) were calculated as

$$CAR_i(\tau_1, \tau_2) = \sum_{t=\tau_1}^{\tau_2} AR_{it} \tag{3}$$

where τ_1 is the beginning day of the window and τ_2 is the end day of it. CARs were computed over several selected windows from ten days before the event to ten days after.

Next, cumulative average abnormal returns (CAAR) were calculated across companies for all the windows:

$$CAAR(\tau_1, \tau_2) = \frac{1}{N}\sum_{i=1}^{N} CAR_i(\tau_1, \tau_2) \quad (4)$$

It is expected that CAAR is zero in the absence of abnormal performance. Therefore, a significance test was performed on the estimates of the CAAR over different event windows surrounding the event period to test the significance of abnormal returns. First, the total variance over the estimation periods was computed. Then, the variance of abnormal returns over each event period was obtained:

$$\sigma_i^2(\tau_1, \tau_2) = (\tau_2 - \tau_1 + 1)\sigma_{i,AR^e}^2 \quad (5)$$

The CAAR for each event window was divided by its cross-sectional standard deviation over the observation period, which provided the test statistics (according to the procedure of MacKinlay 1997, 24):

$$J_1 = \frac{CAAR(\tau_1, \tau_2)}{\sqrt{\sigma_i^2(\tau_1, \tau_2)}} \quad (6)$$

In this study, three symmetric windows ([0,0], [1,1], [-1,1]) and five asymmetric windows ([-10,-1], [-5,-1], [1,10], [1,5] and [0,1]) are used. If event window [0,0] or [0,1] is significant, this would indicate that the stock market reacts to the bond announcements immediately on the event date. This would suggest that the market is semi-strong form efficient and adjusts quickly to new information. The symmetric time periods and the last asymmetric time periods measure the effect over the event day. The two first asymmetric windows analyse the leakage effects, and the two second ones analyse the lagged effects. The results from [-10,-1] and [-5,-1] windows would show if there is any leakage of the issue information before the event day. The results from windows [+1,+10]] and [+1,+5] would show if the market needs time to adjust to the information.

In addition, the proportion of firms with positive CAR was checked in each event window. This is to guard against any single-firm outliers that could potentially bias the effects (Deshpande & Philippatos 1988; Best 1994).

Event study methodology includes some known possible biases. Nonsynchronous trading caused by the use of closing prices induces biases in the market-model beta, but the adjustments needed to overcome the bias are generally small and unimportant. In addition, normal distribution of the returns is usually required to provide non-biased results. However, this is generally not a problem in event studies, since the test statistics converge to their asymptotic distributions rather quickly. (MacKinlay 1997, 35)

3.4 Categorical analysis

In addition to the whole sample analysis, the event study procedure was run to the groups divided by economic growth and company growth. For categorical analysis, the sample was divided into two categories for high and low levels of the named characteristic. The event studies were run separately for each group. The reactions were compared in absolute value in univariate analysis, and also tested with difference in means test in bivariate analysis. The t-test was applied with two categories at a time. (Hair et al. 1998, 331).

To remind, the second hypothesis predicts that a straight bond issue announcement has a negative stock valuation reaction for high growth firms, and a positive reaction for low growth firms. The issue's ability to reduce agency problems can be in a major role in explaining the reaction. This study concentrates on the effect that the bond issue has in reducing the asymmetries and agency problems. Companies with few investment opportunities are supposed to benefit the most of a straight bond issue. The benefits that new debt has in decreasing agency problems can be more valuable for firms with few investment opportunities, which are low growth companies.

To assess company growth, sales growth is used. It is a measure of the operations of the company. Other possibilities for growth measures would be the growth of accounts or personnel, as they are common measures for company size. However, sales growth value measures the operational growth best.

Altogether 1384 issues have sales growth data available. Events were divided into two groups based on the company's sales growth rate of one year before the announcement. The division was done on the median value to create two same-sized groups. The median value

for sales growth is 4.67 %. After the division, the high company growth group has all the announcements linked with a sales growth rate higher than 4.67 %, and the low company growth group has the announcements with a sales growth rate maximum 4.67 %. High sales growth group has 691 events and low sales growth group has 693 events.

Figure 4 presents the distribution of the events in time within the different company growth categories. The figure shows that high growth companies issued more debt during the recession 2011–2013, whereas low growth companies issued more debt during the booming markets 2014–2016. This implies that there are clear patterns in debt issuance activities in Europe.

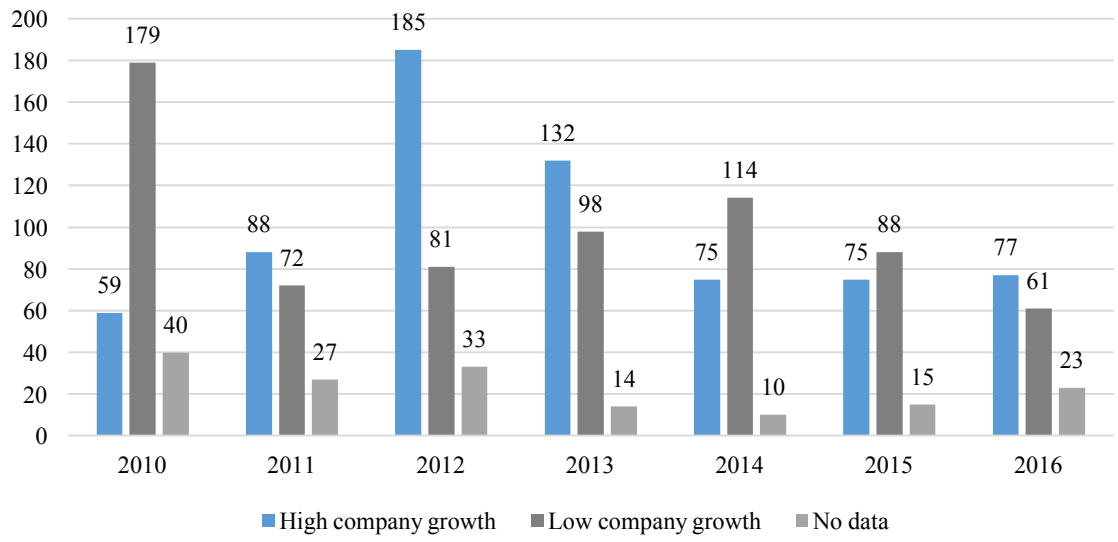

Figure 4. Distribution of the issues by the issue years in the company growth groups.

To test the third hypothesis, a measure for economic growth is needed. GDP growth is used to assess economic growth. It is an aggregate measure of a country's total economic production growth. To be more specific, it would be possible to use industry-specific measures for economic growth. However, this study's purpose is to see how the general economic conditions are reflected in the bond announcement valuation effects, and therefore industry growth can be misleading. Another possibility would be to use a European-wide

measure for GDP growth. This would not be the best choice, because Europe is not a unanimous or united market, but the companies' and investors' working environments are still separated. Some of the studied companies operate internationally, but this is not an overall practice.

Events were divided into two groups based on the GDP growth rate in the issuer's country in the year before the announcement. The division was done on the median value, and the object is to create two same-sized groups. The median value for GDP growth is 1.61 %, and those events with the median value are put in the smaller group, which is the group of low GDP growth. After the division, the high GDP growth group has all the events linked with a GDP growth rate higher than 1.61 %, totalling 769 events, and the low GDP growth group has the events linked with a GDP growth rate maximum 1.61 %, totalling 777 events.

As suggested by Madura & Akhigbe (1995), good economic times can create more issues in general. Thus, the whole sample could include more events during times of high economic growth than low economic growth. This would result in the high GDP growth group having only very high values. In addition, the low GDP growth group would include issues from both bad times but also some good times. Median GDP growth of the events is 1.61 %. This is a weighted median, because there are different number of events in different countries and years. When looking at all the countries (15) and years (7) without any weights based on the events' distribution, the median of GDP growth is 1.40 %. This is lower than the median of all the events, but does not seem to be remarkably lower. It could be possible to make the division differently based on practical sense or make more groups than two, but in this study the focus is on half-division for simplicity.

Figure 5 presents the distribution of the events in time within the different GDP growth categories. The figure clearly shows that the division is not even in time, but the three first years provide the most of the high GDP growth events. The two following years provide much more low GDP growth events. The last two years of the study sample are more evenly distributed into high and low GDP growth categories.

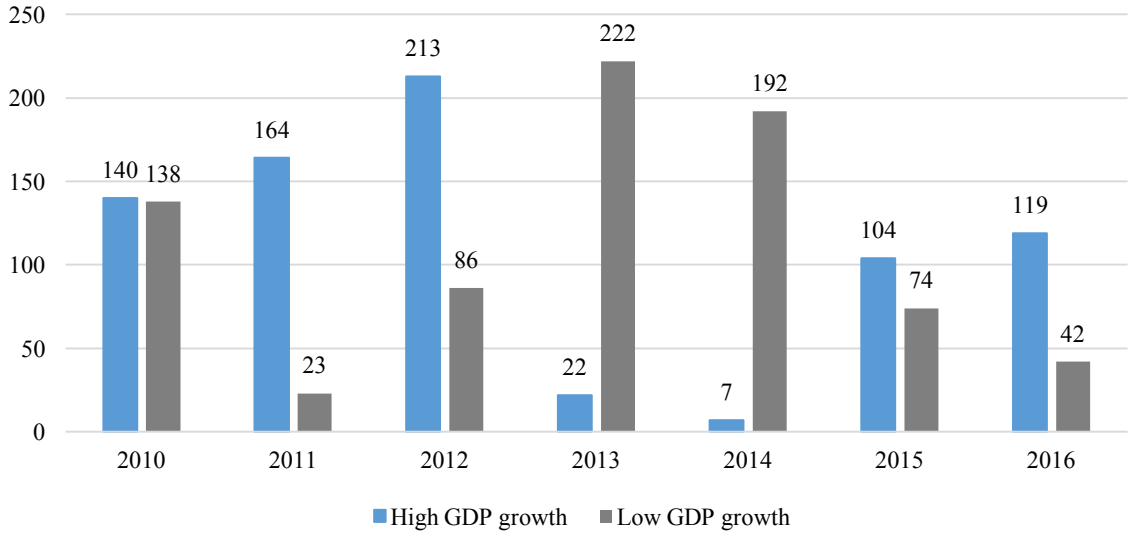

Figure 5. Distribution of the issues by the issue years in the GDP growth groups.

In the final part of this research, four groups were created based on the previous divisions: high GDP growth and high company growth, high GDP growth and low company growth, low GDP growth and high company growth, and low GDP growth and low company growth. The event study procedure was run for all of these groups separately. The reactions in these groups have not been hypothesised. The groups do not have exactly the same number of events, because the previous group memberships are sustained and no new points for division are searched. That is, there are 373 high GDP growth and high company growth issues, 309 high GDP growth and low company growth, 318 low GDP growth and high company growth, and 384 low GDP growth and low company growth events in the groups. The two largest groups are the group where the events are linked with high growth in both dimensions, and the group of low growth in both dimensions. This suggests that there is a link between the company and economic growth. Nevertheless, the two other groups are not greatly smaller. This implies that companies and economies are also growing independently.

Table 5 presents the main descriptive statistics for the issues. Sales data used to calculate sales growth is always in local currency in this study. In the table, sales are reported in euros for comparability. The exchange rates are the latest available ones from the sales database at the time of data collection. For the whole sample, the sales growth values vary a lot. There

are extreme differences in sales growth among the issuer companies. Some announcements have happened at times when the companies have grown enormously, and others have had no sales at all in the year of the announcement. GDP growth differences are more moderate.

Table 5. Descriptive statistics of the issues.

		N	Mean	Median	Standard deviation	Minimum	Maximum	Skewness	Kurtosis
Whole sample	Sales	1384	7,900 M€	400 M€	19,400 M€	0 €	182,300 M€	3.78	20.12
	Sales growth	1384	43.6 %	4.7 %	3.48	-72 %	6871 %	16.37	303.54
	GDP growth	1546	1.51 %	1.61 %	2.53	-9.13 %	5.99 %	-1.30	5.24
High company growth	Sales	691	7,100 M€	300 M€	19,400 M€	2.4 M€	182,300 M€	4.07	22.65
	Sales growth	691	97.8 %	18.4 %	4.88	4.8 %	6871 %	11.70	154.02
	GDP growth	691	2.06 %	1.97 %	1.93	-8.27 %	5.99 %	-0.82	4.94
Low company growth	Sales	693	9,300 M€	1,200 M€	20,000 M€	0.8 M€	165,300 M€	3.39	16.65
	Sales growth	693	-10.4 %	-6.0 %	0.16	-82 %	4.67 %	-2.19	7.95
	GDP growth	693	1.11 %	1.40 %	2.68	-8.27 %	5.99 %	-1.24	4.56
High GDP growth	Sales	682	5,400 M€	200 M€	15,400 M€	0 €	106,500 M€	4.14	21.26
	Sales growth	682	58.4 %	6.6 %	4.80	-70 %	6871 %	12.56	169.57
	GDP growth	769	3.29 %	3.28 %	1.04	1.66 %	5.99 %	0.40	2.27
Low GDP growth	Sales	702	10,500 M€	1,100 M€	22,400 M€	0.9 M€	182,300 M€	3.37	16.70
	Sales growth	702	29.3 %	3.8 %	1.24	-44 %	1460 %	5.41	39.90
	GDP growth	777	-0.26 %	0.58 %	2.29	-9,13 %	1.61 %	-1.59	5.09

4 RESULTS

This section presents and discusses the study results. The stock valuation reactions to the straight bond issue announcements are first presented in the whole sample. After that, the results of the categorical analyses are presented.

4.1 Full sample results

Table 6 presents the average abnormal returns for each day in the event window from ten days before the event until ten days after it. The AAR value in the second column represents the average value of the abnormal return over the estimated return across the events, on the day specified in the first column. The third column presents the proportion of the events that have a positive abnormal return. The fourth column presents the cumulative average abnormal return for the whole sample, calculated from day -10 until the day specified in the first column.

Table 6. Average abnormal returns and cumulative average abnormal returns for each day in the event window in the full sample.

Day	AAR, %	Proportion of positive ARs, %	CAAR, %
-10	0.398	49.0	0.398
-9	-0.355	47.6	0.043
-8	-0.024	48.4	0.019
-7	0.029	49.2	0.048
-6	0.041	50.1	0.089
-5	-0.041	49.0	0.048
-4	-0.110	49.2	-0.062
-3	0.030	48.1	-0.031
-2	0.041	48.4	0.009
-1	0.068	50.6	0.078
0	0.084	49.2	0.162
1	-0.294	46.3	-0.132
2	0.138	46.3	0.005
3	0.093	48.1	0.098
4	0.050	46.3	0.148
5	0.147	50.1	0.295
6	-0.322	47.0	-0.027
7	0.108	50.5	0.081
8	-0.052	48.2	0.030
9	0.216	48.3	0.246
10	-0.167	49.4	0.079

The AARs and CAARs are visually illustrated in Figure 6. The figure shows that CAAR ends at a slightly positive level of 0.08 % after the 21-day period surrounding the event day. Some days point visually out in the picture. There seems to be a substantial negative change in the stock price on the first day after the announcement. This reaction is of interest later in the statistical analysis.

In addition, there seem to appear negative AAR spikes every fifth day. As the returns are calculated on trading days, five trading days usually matches a calendar week. This is interesting, because the issues are not announced on certain weekdays, but can appear at any days. This observation can suggest that there is a pattern around the event, both prior and after it. This could be due to high level of volatility during the examined period.

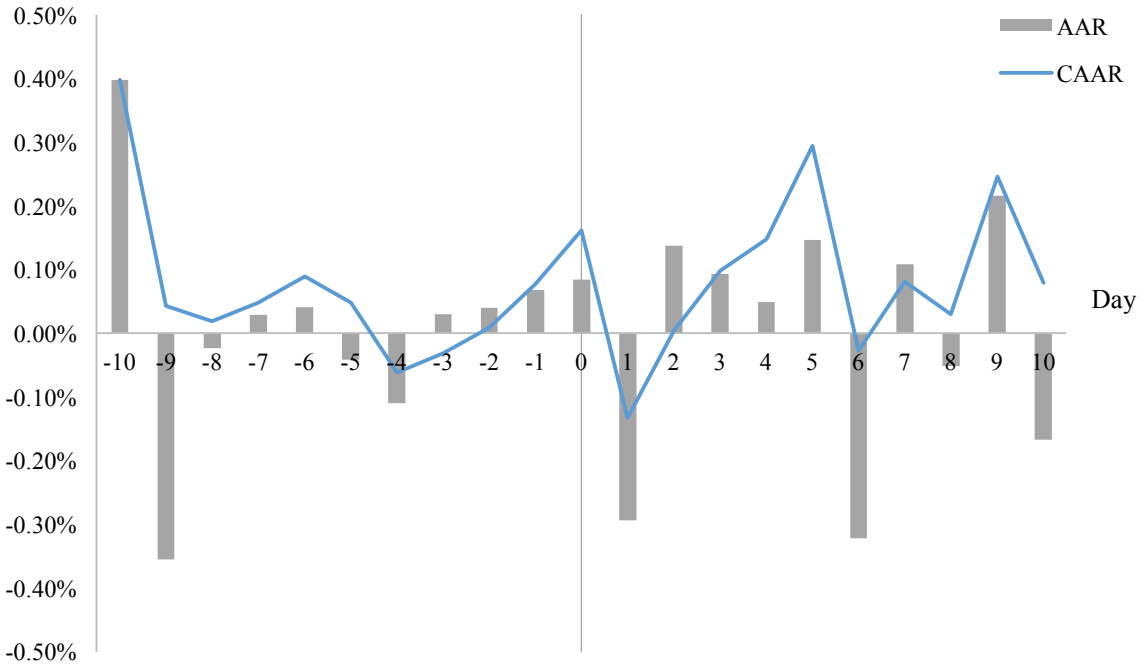

Figure 6. Graph of the average abnormal returns and the cumulative average abnormal returns in the full sample.

Table 7 displays the cumulative abnormal returns with summary statistics around the bond announcements for the selected event windows. The CAAR values are also presented in Figure 7. For most of the event windows, the CAAR values are insignificant. The only reaction that is statistically significant is on the first day after the event. The reaction is negative and significant at 10 % level. This result is interesting, because it shows that the event generates a negative reaction not immediately on the event day but on the following day. However, as Figure 6 shows, this reaction is mitigated during the following days. The total CAAR in the studied window is slightly positive.

Besides the day after event, there are also other windows with somewhat low *p*-values compared to the rest of the results. These windows have larger than 0.1 % CAAR values in absolute value. These periods are short windows surrounding the event day, and they are nonsignificant at 10 % level. Moreover, the longer asymmetric windows before and after the event day are not statistically different from zero. Hence, there are no signs of leakage or lagged effects. The division of the CARs into positive and negative ones is balanced and in accordance with the CAAR values.

Table 7. Cumulative average abnormal returns in the full sample.

$[\tau_1, \tau_2]$	CAAR, %	variance	*J1*	*p*-value	Proportion of positive CARs, %
[-10,-1]	0.078	3.31E-05	0.135	0.446	50.3
[-5,-1]	-0.012	1.66E-05	-0.029	0.489	47.3
[-1,+1]	-0.142	9.94E-06	-0.449	0.327	49.9
[0,0]	0.084	3.31E-06	0.462	0.322	49.2
[0,+1]	-0.210	6.62E-06	-0.816	0.207	48.4
[+1,+1]	-0.294*	3.31E-06	-1.616	0.053*	46.3
[+1,+5]	0.133	1.66E-05	0.327	0.372	45.0
[+1,+10]	-0.083	3.31E-05	-0.144	0.443	45.9

***, **, and * indicate the 1 %, 5 %, and 10 % thresholds of significance, respectively

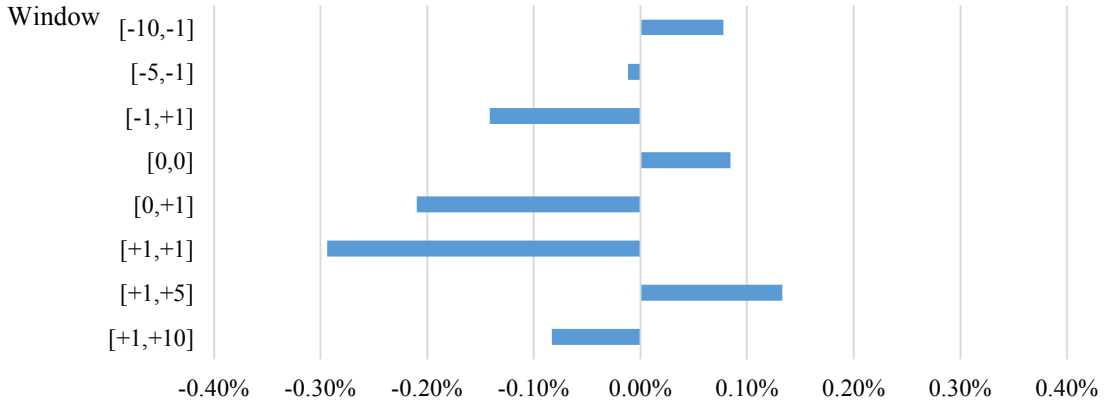

Figure 7. Graph of the cumulative average abnormal returns in the full sample.

4.2 Categorical results

After presenting the results for the full sample, the section now turns to the analysis in the categories for different levels of the company growth and economic growth. The event study results in the categories are presented, followed by the test results for the differences in the CAARs between the categories. The section begins with presenting the results in the groups of different company growth, and continues with the groups of different economic growth. Finally, the results in the four groups that are divided on both of the aspects are presented.

4.2.1 Company growth

First, the results in the two groups of different levels of company growth are presented. The sample was divided half into events linked with low sales growth and events linked with high sales growth at the year prior to the event. After the division, the event study was conducted separately for the groups of the events associated with low company growth and the events with high company growth.

Table 8 presents the AARs for each day in the event window from ten days before the event until ten days after it in the company growth categories similarly as previously for the whole sample.

Table 8. Average abnormal returns and cumulative average abnormal returns for each day in the event window for the company growth categories.

	High company growth		Low company growth	
Day	AAR, %	CAAR, %	AAR, %	CAAR, %
-10	0.59	0.59	0.24	0.24
-9	-0.58	0.01	-0.17	0.07
-8	0.01	0.02	-0.05	0.02
-7	-0.05	-0.02	0.15	0.17
-6	0.04	0.02	0.04	0.21
-5	-0.01	0.00	-0.02	0.19
-4	-0.31	-0.30	0.10	0.29
-3	-0.06	-0.37	0.12	0.41
-2	0.24	-0.13	-0.13	0.28
-1	0.10	-0.03	-0.04	0.24
0	-0.09	-0.12	0.25	0.49
1	-0.64	-0.75	0.01	0.50
2	-0.32	-1.08	0.68	1.18
3	0.15	-0.92	0.05	1.24
4	0.13	-0.80	0.01	1.24
5	0.12	-0.68	0.13	1.37
6	-0.70	-1.38	-0.01	1.36
7	0.07	-1.31	0.11	1.47
8	0.05	-1.25	-0.15	1.32
9	0.49	-0.76	0.11	1.42
10	-0.43	-1.20	0.02	1.44

Figure 8 presents the plot of the cumulative abnormal returns for the events connected with high and low company growth. This figure illustrates some interesting points of the straight bond announcement effect. The two groups of the company growth follow substantially similar paths prior the event day, although the figure shows some small separation in the CAARs already in the pre-event period. The companies do not appear to have notably positive or negative abnormal returns. After the event day, there is a noteworthy separation of the paths. The high company growth firms appear to generate negative stock market effects, whereas the low company growth firms have positive reactions. The reaction for both groups is visibly clear. The low company growth firms stay on the attained level stably,

whereas there seems to be more unsteady movement in the group of the high company growth firms.

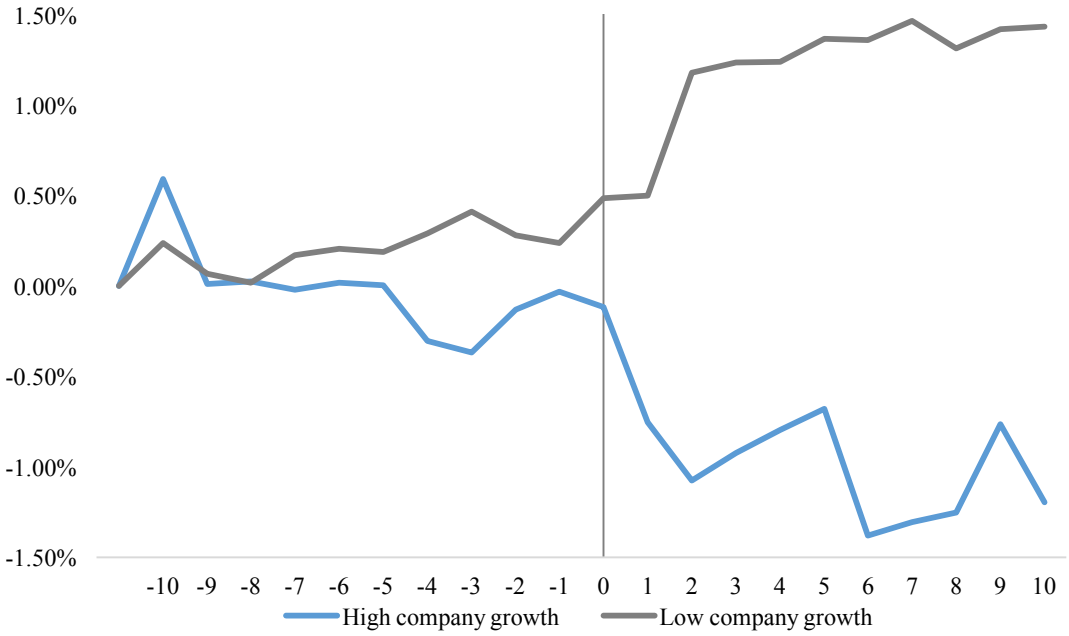

Figure 8. Graph of the cumulative abnormal returns in the company growth categories from day -10 to day +10.

Table 9 presents the CAAR values for the companies in the two groups of different levels of company growth as well as the differences of the CAARs in the selected event windows. The different reactions are presented visually in Figure 9.

For the high company growth firms, the reactions are negative in value in all of the event windows, but many of these windows are statistically insignificant. The same event window [+1,+1] is significant as for the whole sample, and this time the significance is higher. The reaction is negative, as hypothesised.

For the low company growth firms, the bond issue has significantly positive reactions in several event windows. On the event day, there is a positive reaction that is significant at

5 % level. In addition, the window that includes the event day and the next day has a significantly positive reaction. The longest windows after the event day are also positive and highly significant. Figure 8 supports this observation. The plots are stable before the event, take a big leap on days 1 and 2, and stay on that level after the event.

The third column of Table 9 presents the differences of the CAARs between the two groups. Although the individual values in the separate categories are significant in certain windows, only one difference is statistically significant. The highest differences are in the longest post-event windows. The differences are significant in practical sense, although they remain statistically insignificant. This observation also supports the finding that the event is significant.

Table 9. Cumulative average abnormal returns for the company growth categories.

$[\tau_1, \tau_2]$	High company growth N = 691 CAAR, %	Low company growth N = 693 CAAR, %	High-Low difference, % (t-statistic)
[-10,-1]	-0.030	0.240	-0.270 (0.613)
[-5,-1]	-0.050	0.032	-0.082 (0.159)
[-1,+1]	-0.623	0.221	-0.844 (1.130)
[0,0]	-0.086	0.247**	-0.333 (0.782)
[0,+1]	-0.721*	0.262*	-0.983 (1.167)
[+1,+1]	-0.635**	0.015	-0.650 (0.786)
[+1,+5]	-0.561	0.882***	-1.443 (1.300)
[+1,+10]	-1.081	0.949**	-2.030* (1.836)

***, **, and * indicate the 1 %, 5 %, and 10 % thresholds of significance, respectively

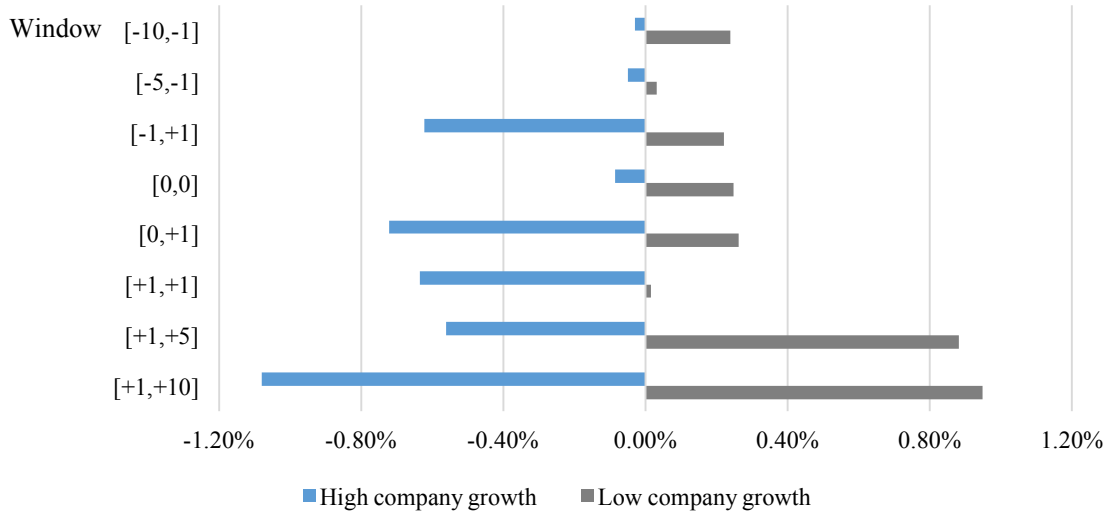

Figure 9. Graph of the cumulative average abnormal returns in the company growth categories in the selected windows.

4.2.2 Economic growth

Next, the results in the different economic growth groups are presented. The sample was divided into two groups based on the GDP growth level in the issuing company's country the year before the event. After the division, the event study was conducted separately for the groups of the events associated with low GDP growth and the events with high GDP growth.

Table 10 presents the AARs for each day in the event window from ten days before the event until ten days after it in the GDP growth categories similarly as previously for the other groups.

Figure 10 presents the plot of the cumulative abnormal returns for the events connected with high and low GDP growth. There are some interesting points in the figure. Day -10 is very different in the groups, but the positive peak of the low GDP growth companies is smoothened on the next day. After that, the groups follow substantially similar paths until the event day. The companies do not generate greatly positive or negative abnormal returns prior the event day. On the event day, the paths separate. The high GDP growth firms appear

to have a very negative effect on day 1. This reaction is greatly reversed on day 2. In the rest of the window, the CAAR trend is decreasing. The low GDP growth firms seem to have abnormally positive reactions that are not immediate but increase slowly. The absolute CAAR values are lower than for the company growth groups. The slow and weak reactions can imply that the markets have difficulties in deciding whether the announcement is good or bad news for the firm valuation. Nevertheless, there is a visually outstanding difference between the groups. The high GDP growth events generate more negative CAARs than the low GDP growth events do.

Table 10. Average abnormal returns and cumulative average abnormal returns for each day in the event window in the GDP growth categories.

	High GDP growth		Low GDP growth	
Day	AAR, %	CAAR, %	AAR, %	CAAR, %
-10	0.05	0.05	0.73	0.73
-9	-0.12	-0.07	-0.58	0.15
-8	-0.06	-0.13	0.01	0.16
-7	0.05	-0.07	0.01	0.16
-6	0.14	0.07	-0.05	0.11
-5	0.00	0.07	-0.08	0.03
-4	-0.04	0.03	-0.18	-0.15
-3	-0.09	-0.06	0.14	-0.01
-2	0.07	0.01	0.02	0.01
-1	0.16	0.17	-0.02	-0.01
0	-0.03	0.13	0.20	0.19
1	-0.80	-0.67	0.18	0.37
2	0.65	-0.01	-0.35	0.02
3	-0.03	-0.04	0.21	0.23
4	-0.08	-0.12	0.17	0.40
5	0.08	-0.04	0.21	0.61
6	-0.16	-0.20	-0.47	0.14
7	0.14	-0.06	0.08	0.22
8	-0.18	-0.25	0.07	0.29
9	-0.01	-0.26	0.43	0.72
10	-0.05	-0.31	-0.28	0.44

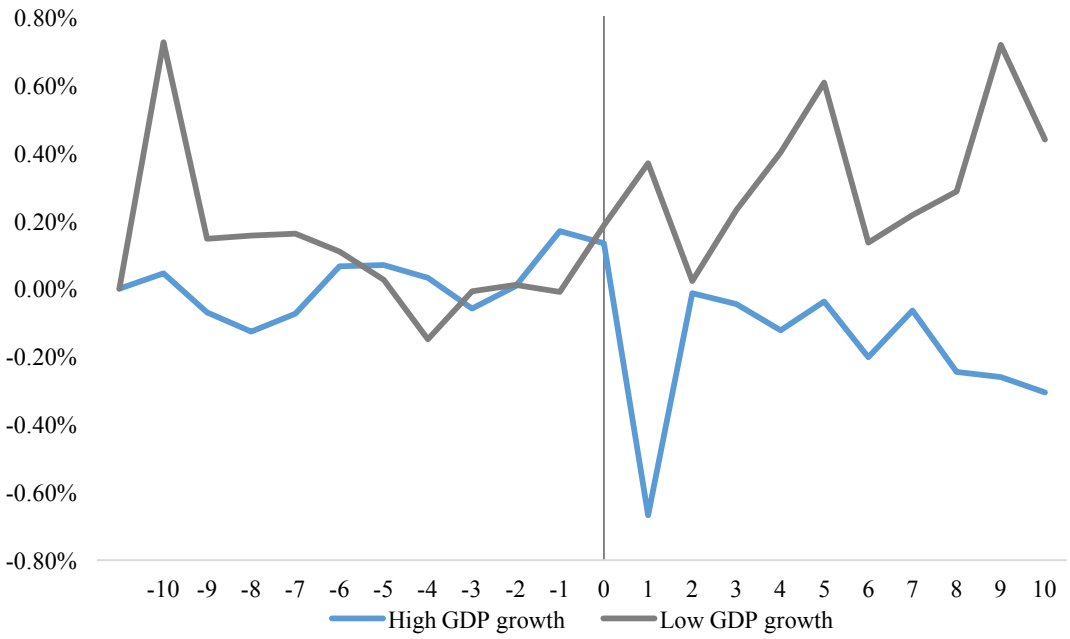

Figure 10. Graph of the cumulative abnormal return for the GDP growth categories from day -10 to day +10.

Table 11 presents the results of the categorical analysis for the events divided into two categories based on the GDP growth in the issuer's country one year before the event. The reactions are presented visually in Figure 11. In the group of high economic growth, there are highly significant negative effects in three short event windows around the event day, but not on the one including only the event day. It seems that day 1's reaction has a high impact on the CAARs. These results suggest that the straight bond issues result in a negative valuation effect for the companies that have been exposed to high economic growth. However, although the immediate reaction is strongly negative, there is an opposite positive reaction on the following day. Hence, the CAAR after day 2 is milder. In the rest of the examined period, there is a decreasing trend in the CAAR of the group of high economic growth.

The group of low GDP growth has no significant effects in any of the studied windows. The CAARs are mainly positive, but none of the tested windows has a reaction that can be said to be different from zero.

The third column of Table 11 presents the differences of the CAARs between the two groups. None of the differences is statistically significant when tested with t-test. The largest differences are in the short windows that include day 1. The differences are smaller than for the company growth groups.

Table 11. Cumulative average abnormal returns for the GDP growth categories in the selected windows.

$[\tau_1, \tau_2]$	High GDP growth N = 769 CAAR, %	Low GDP growth N = 777 CAAR, %	High-Low difference, % (t-statistic)
[-10,-1]	0.169	-0.008	0.178 (-0.424)
[-5,-1]	0.103	-0.119	0.221 (-0.466)
[-1,+1]	-0.676***	0.359	-1.034 (1.528)
[0,0]	-0.035	0.196	-0.230 (0.594)
[0,+1]	-0.837***	0.378	-1.215 (1.595)
[+1,+1]	-0.802***	0.182	-0.985 (1.320)
[+1,+5]	-0.173	0.420	-0.593 (0.588)
[+1,+10]	-0.441	0.252	-0.693 (0.684)

***, **, and * indicate the 1%, 5%, and 10% thresholds of significance, respectively

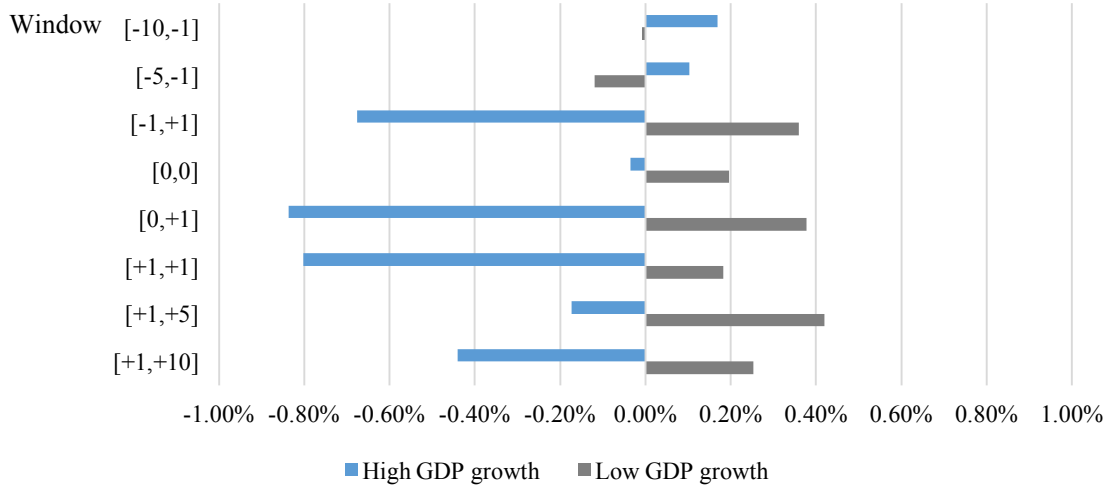

Figure 11. Graph of the cumulative average abnormal returns for the GDP growth categories in the selected windows.

4.2.3 Company and economic growth

The events were further divided into four categories by both GDP and company growth. These groups are first the high GDP growth and high company growth, second the high GDP growth and low company growth, third the low GDP growth and high company growth, and finally the low GDP growth and low company growth. Table 12 presents the AARs and the CAARs for the groups from day -10 until day +10.

Table 12. Average abnormal returns and cumulative average abnormal returns for each day in the event window in the company and economic growth categories.

	High GDP and high company growth		High GDP low company growth		Low GDP and high company growth		Low GDP and low company growth	
Day	AAR, %	CAAR, %	AAR, %	CAAR, %	AAR, %	CAAR, %	AAR, %	CAAR, %
-10	0.06	0.06	-0.13	-0.13	1.20	1.20	0.50	0.06
-9	-0.15	-0.10	-0.03	-0.15	-1.07	0.13	-0.27	-0.15
-8	0.07	-0.03	-0.15	-0.30	-0.05	0.08	0.02	0.07
-7	0.05	0.02	0.17	-0.13	-0.15	-0.07	0.14	0.05
-6	0.14	0.16	0.22	0.09	-0.07	-0.14	-0.09	0.14
-5	-0.19	-0.03	0.26	0.35	0.19	0.05	-0.22	-0.19
-4	-0.12	-0.15	0.07	0.42	-0.53	-0.48	0.12	-0.12
-3	-0.13	-0.28	-0.10	0.32	0.02	-0.46	0.28	-0.13
-2	0.17	-0.12	-0.11	0.21	0.32	-0.14	-0.15	0.17
-1	0.23	0.11	-0.08	0.13	-0.05	-0.19	-0.01	0.23
0	-0.10	0.01	0.10	0.23	-0.07	-0.26	0.35	-0.10
1	-1.54	-1.53	-0.06	0.17	0.39	0.13	0.07	-1.54
2	-0.02	-1.55	1.80	1.97	-0.67	-0.54	-0.12	-0.02
3	-0.12	-1.67	0.09	2.06	0.47	-0.07	0.03	-0.12
4	-0.17	-1.84	-0.01	2.05	0.47	0.40	0.02	-0.17
5	0.02	-1.83	-0.04	2.02	0.23	0.63	0.24	0.02
6	-0.25	-2.08	0.02	2.04	-1.22	-0.59	-0.03	-0.25
7	-0.02	-2.09	0.31	2.35	0.17	-0.41	-0.04	-0.02
8	-0.25	-2.34	-0.18	2.17	0.40	-0.02	-0.13	-0.25
9	0.00	-2.34	-0.10	2.07	1.05	1.03	0.25	0.00
10	-0.01	-2.35	-0.12	1.95	-0.92	0.11	0.11	-0.01

Figure 12 presents the cumulative abnormal returns of all these groups. The patterns are similar to what was found in the previously examined groups. Prior to the event, there are no remarkable movements and no signs of leakage effects. However, the event day appears to be a structural change.

High GDP growth events seem to have clear reactions. For the events associated with both high GDP growth and high sales growth, the reaction is negative. For the events with high GDP growth and low sales growth, the reaction is positive. These groups have very clear shifts on day 1 or 2. After the event, the plot is stable for the high GDP low sales growth firms, and continues to decrease for the high GDP high sales growth firms. This pattern is quite similar to the results in the previously examined groups of different levels of company growth. This could suggest that company growth is dominant in determining the stock valuation reaction. However, the other two groups do not fully support this idea, because they both seem to have positive or near zero CAARs albeit the company growth group.

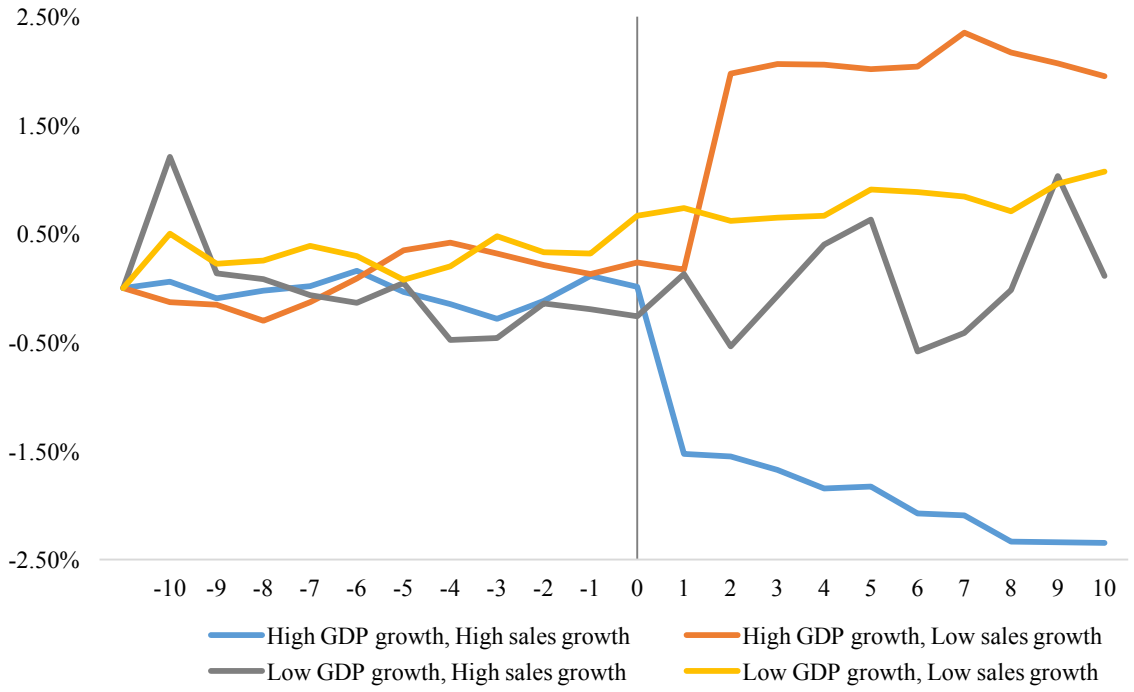

Figure 12. Graph of the cumulative abnormal return for the GDP and company growth categories from day -10 to day +10.

For the companies that have low company growth and low GDP growth, the plot is relatively steady, showing only slightly increasing trend after the event day. This is similar to the results in the previous sections within the groups of low company and low GDP growth separately, when the sample was divided only based on one aspect. The low GDP growth events had a similar pattern, and the low company growth events had a clearer increasing pattern.

However, the firms with high company growth and low GDP growth have a very interesting pattern. After the event day, the plot has major shifts in different directions. Low GDP growth resulted in this kind of pattern, but high company growth had a clear decline after the event. This could imply that the markets have trouble in adjusting to the announcement.

Next, the CAARs are presented for these four groups in the selected event windows. Table 13 presents the CAARs for the groups, and they are also illustrated in Figure 13. It is noteworthy that the scale is substantially larger than in the previous pictures. The full sample's highest absolute value was 0.29 % and the half-divided sample's highest absolute value was 1.1 %, but at this point the largest absolute value is 2.4 %.

Table 13. Cumulative average abnormal returns for the subcategories in the selected windows.

$[\tau_1, \tau_2]$	High GDP growth, High sales growth N = 373	High GDP growth, Low sales growth N = 309	Low GDP Growth, High sales growth N = 318	Low GDP Growth, Low sales growth N = 384
[-10,-1]	0.114	0.130	-0.195	0.318
[-5,-1]	-0.044	0.043	-0.057	0.024
[-1,+1]	-1.408***	-0.039	0.272	0.406*
[0,0]	-0.102	0.104	-0.068	0.349**
[0,+1]	-1.640***	0.042	0.324	0.418**
[+1,+1]	-1.538***	-0.063	0.392	0.070
[+1,+5]	-1.840***	1.782***	0.894	0.242
[+1,+10]	-2.358***	1.716***	0.374	0.405

***, **, and * indicate the 1 %, 5 %, and 10 % thresholds of significance, respectively

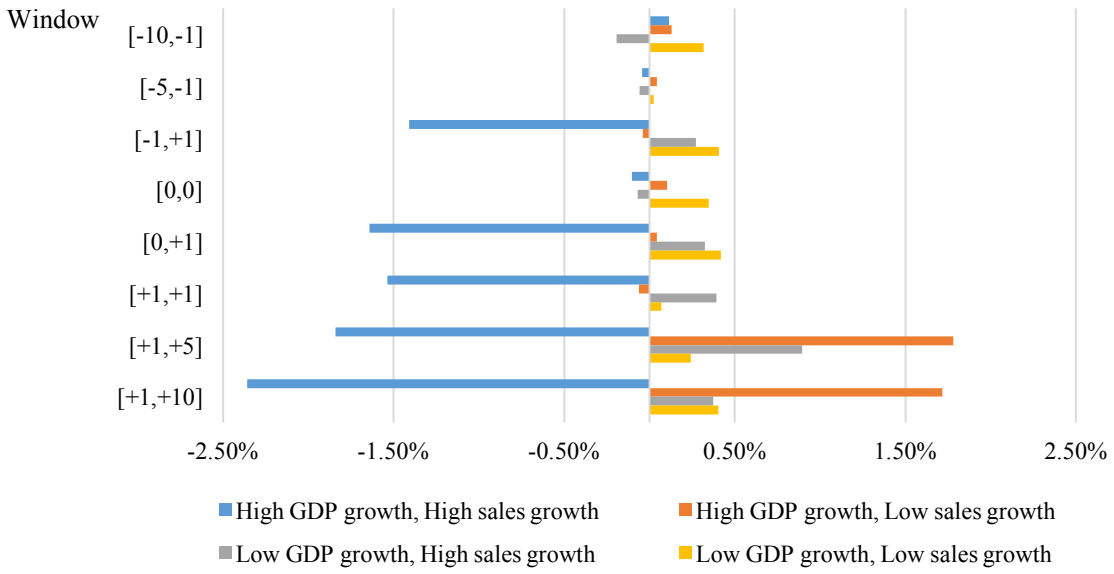

Figure 13. Graph of the cumulative average abnormal returns for the subcategories in the selected windows.

The group of the events with high GDP growth and high company growth has clearly negative and highly significant CAAR values in several event windows. This is in accordance with what was noted in Figure 12. All the event windows that include day 1 have negative and highly significant CAARs. This result implies that the valuation effect of the straight bond issue announcement is negative for the events with high economic growth and high company growth. The reaction does not occur immediately on the event day, but appears on the following day.

The group of high GDP growth and low company growth has mostly nonsignificant values, but the two longest post-event windows have positive and significant CAARs. These results suggest that the markets adjust to the information slowly but the reaction is positive. The group of low GDP growth and high company growth has only CAARs that are not significantly different from zero.

The group of low GDP growth and low company growth has mostly insignificant CAARs. Nevertheless, the short windows that include the event day have positive and significant values. This is highly supportive to the bond issues having positive valuation effects within

this group. The CAAR values are smaller in absolute value than any other significant CAARs within the groups.

Generally, in the groups of high GDP growth, the reactions are large. They are either positive or negative depending on the sales growth level. Within the groups of low GDP growth, the reactions are not as big. The reactions are generally positive, although mostly nonsignificant.

The differences between then groups are presented in Table 14, comparing two groups at a time. There are some statistically significant differences, which appear in the longer post-event windows at 10 % significance level. All significant differences have the group of high GDP and high company growth as the other party. This group had already alone most significant results which were negative in sign, whereas other groups had mostly positive reactions.

Table 14. Differences of the cumulative average abnormal returns in the subcategories in the selected windows.

	High GDP growth: High - Low sales growth difference, % (t-statistic)	High Sales growth: High - Low GDP growth difference, % (t-statistic)	Low GDP growth: High - Low Sales growth difference, % (t-statistic)	Low Sales growth: High - Low GDP growth difference, % (t-statistic)
[-10,-1]	-0.016	0.309	-0.512	-0.188
	(0.026)	(0.535)	(0.797)	(-0.278)
[-5,-1]	-0.087	0.013	-0.081	0.019
	(0.210)	(0.014)	(0.089)	(0.038)
[-1,+1]	-1.370	-1.680	-0.135	-0.445
	(0.949)	(-1.155)	(0.226)	(-1.221)
[0,0]	-0.207	-0.034	-0.417	-0.244
	(0.920)	(-0.041)	(0.527)	(-1.140)
[0,+1]	-1.682	-1.965	-0.094	-0.377
	(1.172)	(-1.180)	(0.097)	(-1.250)
[+1,+1]	-1.475	-1.930	0.323	-0.132
	(1.034)	(-1.171)	(-0.349)	(-0.636)
[+1,+5]	-3.622*	-2.734*	0.653	1.541
	(1.675)	(-1.692)	(-0.769)	(0.996)
[+1,+10]	-4.074*	-2.733*	-0.030	1.311
	(1.868)	(-1.775)	(0.039)	(0.814)

***, **, and * indicate the 1 %, 5 %, and 10 % thresholds of significance, respectively

4.3 Robustness

For checking the validity and robustness of the findings, the event study procedure was run separately for several individual markets. Countries are not equally represented in the sample, but there is country-level heterogeneity that could have affected or biased the results. It is therefore important to examine whether the results hold true in case of the individual markets. The analyses were run for the top four countries with the most events to see if the reactions are similar in all cases. There were over 50 events in each of the four largest countries: 721 issues by Polish companies, 319 French, 125 Norwegian, and 94 Italian. The results of the robustness analyses are presented in detail in Appendix 1.

The results of the robustness checks suggest that Poland with the largest number of events is dominating in creating the significance in the results in all stages of the study. First, the overall reaction to the straight bond issue announcements was examined. The issues by Polish companies have negative and highly significant CAAR values in three event windows. The two next largest markets, France and Norway, do not have any significant results in the selected windows. The fourth largest country, Italy, has significant positive results in some windows. Because the full sample results have low significance and the reactions in the four largest markets are not aligned, it cannot be concluded that there is a robust overall stock valuation reaction in the whole Europe.

Moreover, the categorical analyses were run for the four largest countries separately. The results of these robustness checks are similarly suggesting that individual countries have a heavy impact on the overall results.

To conclude, the robustness tests on individual countries do not support the overall results, because a few individual countries are represented heavily in the sample. Therefore, it is important to note that the results should not be generalized across whole Europe, because the country level heterogeneity plays a significant role in understanding the stock valuation reactions of the straight bond issues.

5 DISCUSSION AND CONCLUSION

The presented study has examined the stock valuation reactions of the straight bond issues in Europe using an event-study methodology. The main findings are summarized in this chapter, after which implications and conclusions of them are drawn. The evaluation of the validity in the research and the generalizability of the results are summarized. The limitations of the study are reviewed. Finally, possible topics for future studies are presented along with suggestions of how the research could be developed in the future.

5.1 Discussion

In this section, the achieved results are discussed, their importance is evaluated, and their meanings are interpreted based on the practical sense. The results are summarised in Table 15. Generally, the study found statistically significant results for the whole sample as well as in several categories. Some of the results are contrary what was hypothesised. There are no significant pre-event reactions in any of the categories, but there are significant on-event and post-event reactions, which implies that the announcement of a straight bond issue is an event that causes a stock valuation reaction. Thus, the announcement is not anticipated.

Table 15. Summary of the results reflected to the hypotheses.

Group	**Expected reaction**	**Reaction** On-event	Post-event
H1: Full sample	0	– *	
H2: Change of information asymmetry			
High company growth	–	– **	
Low company growth	+	+ **	+ ***
H3: Debt-serving abilities			
High economic growth	+	– ***	
Low economic growth	–		
Non-hypothesised groups:			
High economic growth, high company growth		– ***	– ***
High economic growth, low company growth			+ ***
Low economic growth, high company growth			
Low economic growth, low company growth		+ **	

– indicates positive effect
+ indicates negative effect
***, **, and * indicate the 1%, 5%, and 10% thresholds of significance, respectively

For the whole sample of straight bond issues, the study found a negative immediate reaction, which is contrary to the expected nonsignificant reaction of the hypothesis 1. The results suggest that a straight bond issue announcement is generally negative news for the market. Explaining the result with the trade-off theory would imply that the issuers' financial leverage was at a higher than optimal level.

The result implies that the investors in Europe consider a straight bond issue as a negative news, and the stock valuation reaction appears relatively fast. It is interesting that the negative reaction appears not on the event day but on the following day. This result could imply that the investors do not react immediately, but need some time to react to the announcement.

The general conclusion from the previous studies is that a straight bond issue does not result in a significant stock valuation effect. Thus, this study's finding of a significant reaction is different than in the previous research in general. The result could imply that there is something unique in the conditions that makes the stock market react differently. This study is different from the previous studies because of the market, which is Europe. Based on the results, it seems possible that the stock valuation reaction is not similar in Europe as in the U.S. market. Additionally, it is possible that the studied years had a notable impact in making the results significant, because the finance crisis had created a special environment during the examined years.

Nevertheless, the finding had low significance and the robustness checks did not support the overall reaction. Therefore, this study cannot robustly conclude that there is a general stock valuation reaction to the straight bond issues in Europe. It would therefore be highly beneficial to study the reaction further.

The immediate negative reaction is followed by contrary reactions that even out the immediate negative reaction during the rest of the studied period. This could be due to high level of volatility during the examined period. Alternatively, the pattern could imply that the markets realise that the immediate reaction was not truthfully reflecting the genuine change in the company valuation. When the investors notice that the company is undervalued, the market price adjusts accordingly.

The first categorical division into companies of high and low sales growth aimed to test the hypothesis 2. It expected that a straight bond issue results in a negative stock valuation effect for the high growth firms, and a positive effect for the low growth firms. The study was able to reveal significant immediate results that were supportive for the hypothesis. The high company growth events resulted in significantly negative stock valuation effects, and the low company growth events had significant positive effects. In addition, the post-event results were highly significant and positive for the low company growth events. This is supportive to the theory that a bond issue would bring more positive effects for low company growth firms than for high company growth firms.

An explanation to the found results can arise from arguments based on the agency problems and the free cash flow theory. The results suggest that there in fact is a link between the company growth level and the stock valuation reaction following a straight bond issue. First, the issue announcement resulted in a positive stock reaction for the group of the low growth companies. This could be because the bond issue reduces the information asymmetries and the agency problems, and these benefits are significant for the low growth firms that have only few investment opportunities. The agency problems for the low growth firms are more severe and could be reduced with the bond issue. It is also possible that the low growth companies have found a beneficial investment opportunity, and issuing a bond is this way revealing the growth expectations for the investors.

Second, the straight bond issues resulted in a negative stock valuation reaction for the high growth companies. This is supportive to the reasoning that excess free cash for the high growth companies creates problems. As discussed, it is possible that the high growth firms cannot expand fully with profitable actions and would therefore have more free cash flow problems when they gain additional funds. This would increase the agency problems when the managers have excess cash.

To conclude, the findings suggest that the bond issue changes the level of the agency problems of the issuing company. The study results are supporting to the argumentation that the company growth is linked with the investment opportunities, and the investment opportunities are linked with the free cash problems. The straight bond issue reduces the

agency problems of the low growth companies, but increases the agency problems of the high growth companies.

On the contrary, the results for the economic growth categories were against what was proposed in the hypothesis 3. The study revealed a significant negative reaction for the high economic growth events, and no significant effects for the low economic growth events. These results give a rejecting answer to the theory that the debt-paying abilities explain the stock market reaction. Another explanation for the finding could be that the economic growth is not a good measure of the issuers' debt-paying abilities, but the financial situation is more company-specific. It is also possible that there are other factors in the different economic conditions that are more dominant than the debt-paying abilities.

The valuation reaction for the high economic growth issues was negative. The economy is growing, but the new bond issues generate negative reactions and the investors see the issue as negative news. It seems that new financing in a growing economy is considered as bad news. It is possible that the company is seen as not doing good if needing more cash during strong economic growth. Another explanation could be in the agency problems, as the issue brings more cash under the managers' control. Thus, the results could imply that these problems are severe in times of high economic growth. This would mean that there are not enough profitable purposes for the firms to use the funds gained with the issue when operating in markets of high economic growth.

The reaction for the low economic growth issues was found insignificant. It might be that the bad economic conditions are not affecting the issuers, but instead these companies are performing well despite the economic conditions. The results suggest that issuing a bond in times of low economic growth is considered as neutral news. The stock valuation is no different than without the issue. It is also possible that the reaction is nonsignificant because investors cannot say if the issue is negative or positive news. The straight bond issue might imply that the company has a clear need for cash, for example a profitable investment opportunity. However, because the economic circumstances are not good, there are uncertainties with the outcome of the investment. Thus, the stock market does not show any clear reaction for the issue announcement.

The further division into subcategories by both company and economic growth revealed significant results in three of the four categories. The results followed the reactions that were found in the analyses of the categories divided by only one factor. Furthermore, the reactions were stronger when same direction, and nonsignificant when opposite.

One exception to this was the category of high economic growth and low company growth. The valuation reaction within this group was strongly positive, although the categories alone had opposite and significant reactions. The high economic growth group alone had a negative reaction and the low sales growth group alone had a positive reaction. However, the subcategory result was quite expected after all, as the negative reaction for the high economic growth group was relatively minor, as illustrated in Figure 10. In general, the subcategory results followed more the company growth results than the economic growth results. Thus, the level of the company growth seems to be more dominant than the level of the economic growth in creating the stock valuation reaction.

There are some implications to managers that can be drawn from the results. First, the managers can assess the expected stock valuation effect when planning to issue straight bonds in general and in different economic and company growth situations. Second, the results can be used to plan the firms' financial structure and the timing of the straight bond issues. The timing can be planned in terms of company's growth and the conditions of economic growth.

The general results showed that a straight bond issue results in a negative stock valuation reaction on day 1. If the company aims to avoid any negative peaks in the stock price, this reaction could be hedged with another simultaneous announcement that would generate a contrary reaction. However, the short-term effect after 10 days is no longer negative. Should this stock price pattern be suitable for the company, there is no need to worry about the immediate negative reaction.

Managers can consider the economic conditions and the sales growth conditions, if they want to create a better result on the stock market valuation. When the target is to avoid stock price decreases and seek for increases, it is best to avoid issuing straight bonds during times of

high economic growth and high company growth, because this situation generated the most negative reactions in the study. Similarly, it could be advised to announce the issue during high economic growth and low company growth, because this situation created the most positive effects. In addition, with the expected announcement effect known, the managers can try to mitigate the reaction with actions that are expected to create opposite stock price movements.

In addition to managers, investors can benefit from the findings. The result of a general negative effect on day 1 could be utilized by reacting to the announcement already on event day. However, the reaction after day 1's negative peak is positive. Thus, investors could react when stock price is at the lowest to benefit from this positive trend.

This study does not consider other conditions besides the issue in general, company growth and economic growth. Moreover, it is not possible to give any long-term implications, as the study has focused on short-term effects.

5.2 Conclusions

In this section, the study's success to meet the set objectives and to answer the research questions are evaluated. The research objective was to measure the valuation effect that issuing a straight bond has on short-term, and further, to measure the valuation effect in the subsamples divided based on the information asymmetry and the economic growth conditions.

This study was able to reach the research objectives and found answers to the research questions. The results have importance in the general discussion. The studied markets had not been under previous investigation. This study concentrated on the European market, which was a novel approach. The study was also able to reveal new aspects of the stock valuation reaction within the groups of different company growth and economic growth. The study confirmed some of the previous studies' results but also added new insights into the general discussion.

First, this study found that the short-term effect of a straight bond issue is negative on the stock valuation. However, the result has low significance, and the finding is not robust in different countries. The country level heterogeneity plays a significant role in understanding the reactions of the straight bond issuances. Thus, the results should not be generalized across whole Europe.

Second, the study aimed to examine the stock valuation reactions for companies with different levels of company growth. For the firms that have high level of company growth, the study revealed a negative short-term effect. For the firms that have low level of company growth, the study revealed a positive short-term effect. In absolute terms, the reactions were of the same size in both of the groups. Moreover, the reactions were bigger than in the whole sample.

Third, the research wanted to examine the valuation reactions for firms exposed to different levels of economic growth. For the firms that are exposed to high level of economic growth, the study revealed a negative short-term effect that was of same size than for the previous division by company growth. For the firms that are exposed to low level of economic growth, the study did not reveal any significant short-term effect.

The study successfully measured the valuation effects that issuing a straight bond has on short-term for the whole sample of European companies in the years 2010–2016. Further, the valuation effects were successfully measured in the groups divided based on the company growth and the economic growth conditions.

5.3 Reliability and validity

The research was designed carefully. Reliability and validity were considered as important features in the process. Despite of this, there are some limitations in the research that reduce the validity of the results. Reliability was ensured with consistency of the measurements and the methods. The data was collected from databases. Thus, it can have reliability issues which are out of the researcher's control. The exclusions of some companies and events were made to ensure validity. Excluding financial companies ensures that the study measures the desired reactions.

Market efficiency might bias the results. The applied event study method assumes semistrong-form efficiency for the results to be valid. As the results showed a clear reaction in the event window, it can be concluded that the market is semistrong-form efficient to a required degree.

The proxy choices for the company characteristics and the market portfolio were done carefully, but are anyway a possible source of biases. It is possible that other choices would have resulted in different research findings. Especially the economic growth measure choice can bias the results. Economic growth was measured as a single market's GDP growth rate. It is possible that the results are affected by this choice. The economic growth in a single market might not be able to capture the full economic conditions that affect a company that operates in several markets.

5.4 Limitations and further research

The generalizability of the study results is limited by the characteristics of the research sample. The sample size was aimed to be large enough to ensure generalizability of the results. The chosen time period was seven years, which was the longest possible clearly after the finance crisis and before the beginning to collect the data. It is possible to generalize the results in time to some degree. The closest following years can be expected to have similar results. The more time passes, the more there are possibilities that the market behaviour changes.

The focus of this study is Europe, and this is justified. Naturally, the concentration on a single market however reduces the generalizability. On the other hand, Europe is not a unanimous market. There are events of different countries and companies in the sample. On the one hand, this increases the validity of the results, because the results are significant within a diverse sample. On the other hand, some countries are overemphasized in the sample and have a large impact on the results. There is country-level heterogeneity that has affected and biased the average results. The robustness checks revealed that the results were not aligned in individual countries. Therefore, the generalizability of the results is limited. This is a notable limitation of the study results. It would be highly beneficial to analyse the

impact of the individual markets further. This would enlighten their effect in biasing the results, as well as what are the reactions in different markets and whether there is any overall reaction in Europe as a whole.

The stock valuation reaction still requires further examination and the findings of this study provide inspiration for further studies. The limitations of this study create some interesting development possibilities for this research and other future research opportunities.

The stock valuation effects of the straight bond issues have been studied in the U.S. market, but as this study is in the narrow line of research focusing on Europe, the results need further confirmation to be concluded as robust. On the other hand, as this study only focuses on Europe, it would be valuable to see if the findings are similar in other stock markets, especially in the studied period of the post-finance crisis.

The impact of the company growth was supportive to the hypothesis 2. The influence of the company growth could be taken into account in the future studies as well to see if the results retain similar in different situations.

The impact of the economic growth was found different than in the previous studies, and therefore this field requires more research. The economic growth could be taken into account in further studies to see if the results retain similar in different situations. The hypothesis and its theoretical argumentation did not get support. Thus, it would be extremely beneficial to analyse and deliberate the phenomenon deeper and have more research of the possible effect of the economic growth conditions.

In general, the applied categorical divisions were simple. To achieve more sophisticated results, it is encouraged to use more specific categories. For instance, the divisions could be made based on practical structural change points instead of the median. Additionally, the relations could be studied with correlation analysis or regression analysis, when considered suitable.

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APPENDICES

Appendix 1. Robustness checks

All events, cumulative average abnormal returns, %

$[\tau_1, \tau_2]$	Full sample N = 1546	Poland N = 721	France N = 319	Norway N = 125	Italy N = 94
[-10,-1]	0.078	0.066	0.454	-0.710	0.701
[-5,-1]	-0.012	0.205	-0.206	-0.484	0.238
[-1,+1]	-0.142	-0.580**	-0.120	1.367	0.700**
[0,0]	0.084	0.091	-0.122	-0.010	0.208
[0,+1]	-0.210	-0.680***	-0.160	1.351	0.416**
[+1,+1]	-0.294*	-0.771***	-0.037	1.361	0.209
[+1,+5]	0.133	-0.010	-0.233	2.413	0.335
[+1,+10]	-0.083	0.086	-0.427	0.684	0.660

High company growth, cumulative average abnormal returns, %

$[\tau_1, \tau_2]$	Full group N = 691	Poland N = 359	France N = 130	Norway N = 68	Italy N = 35
[-10,-1]	-0.030	-0.190	0.062	0.302	0.094
[-5,-1]	-0.050	-0.104	-0.141	0.260	-0.297
[-1,+1]	-0.623	-1.538***	-0.113	2.130	0.563*
[0,0]	-0.086	-0.065	-0.180	-0.217	0.472**
[0,+1]	-0.721*	-1.692***	-0.159	1.968	0.644**
[+1,+1]	-0.635**	-1.627***	0.021	2.185	0.172
[+1,+5]	-0.561	-1.798***	-0.127	4.584	-0.290
[+1,+10]	-1.081	-1.981***	-0.271	1.123	0.172

Low company growth, cumulative average abnormal returns, %

$[\tau_1, \tau_2]$	Full group N = 693	Poland N = 302	France N = 189	Norway N = 36	Italy N = 56
[-10,-1]	0.240	0.161	0.724	-1.430	1.023*
[-5,-1]	0.032	0.412	-0.251	-1.791**	0.458
[-1,+1]	0.221	0.273	-0.125	0.684	0.428
[0,0]	0.247**	0.351*	-0.083	0.279	-0.106
[0,+1]	0.262*	0.417	-0.160	1.020*	0.109
[+1,+1]	0.015	0.066	-0.078	0.742**	0.215
[+1,+5]	0.882***	2.091***	-0.306	0.014	0.319
[+1,+10]	0.949**	2.620***	-0.535	0.506	0.600

High GDP growth, cumulative average abnormal returns, %

$[\tau_1, \tau_2]$	Full group N = 769	Poland N = 480	France N = 78	Norway N = 62	Italy N = 12
[-10,-1]	0.169	-0.038	0.669	1.362*	-0.069
[-5,-1]	0.103	0.059	0.252	0.276	0.204
[-1,+1]	-0.676***	-1.216***	0.217	0.620	0.150
[0,0]	-0.035	-0.109	-0.225	0.149	-0.183
[0,+1]	-0.837***	-1.342***	-0.109	0.402	0.053
[+1,+1]	-0.802***	-1.233***	0.116	0.253	0.235
[+1,+5]	-0.173	-0.157	-0.236	-0.520	0.247
[+1,+10]	-0.441	-0.449	-0.339	-1.368*	0.364

Low GDP growth, cumulative average abnormal returns, %

$[\tau_1, \tau_2]$	Full group N = 777	Poland N = 241	France N = 241	Norway N = 63	Italy N = 82
[-10,-1]	-0.008	0.273	0.385	-2.749	0.813
[-5,-1]	-0.119	0.497	-0.354	-1.232	0.243
[-1,+1]	0.359	0.688*	-0.229	2.102	0.781**
[0,0]	0.196	0.488**	-0.089	-0.166	0.265
[0,+1]	0.378	0.638**	-0.176	2.285	0.470*
[+1,+1]	0.182	0.151	-0.087	2.451	0.205
[+1,+5]	0.420	0.283	-0.232	5.300	0.348
[+1,+10]	0.252	1.152*	-0.456	2.703	0.703