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The Growth of the Swedish Corporate Bond Market

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THE GROWTH OF THE SWEDISH CORPORATE BOND MARKET

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Abstract

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Abstract: Since the early 2000s the Swedish corporate bond market has experienced a significant growth. This study does, through a quantitative method, research and discuss the factors that are the main drivers of growth in the Swedish corporate bond market and how they are related. The study focuses on the development since 2007, as the prior available data is limited. Initially, a literature review indicated that the Swedish central bank rate and the Basel Accords were the main drivers of growth. These two factors were therefore chosen as independent variables and were tested against the dependent variable, issued amount of bonds in SEK, in a number of regression analyses. The study's two propositions were; the central bank rate is a main driver for the growth in the Swedish corporate bond market, and the Basel Accords are main drivers for the growth in the Swedish corporate bond market. The first proposition, that the central bank rate is a main driver for the growth in the Swedish corporate bond market, was rejected as no significance in the regression analyses could be seen. The second proposition, that the Basel accords are main drivers of growth in the Swedish corporate bond market, was supported as significance between the issuance of bonds and the Basel variables (with time lags) could be seen in the regression analyses. As the study found support for this proposition it indicates that regulations have triggered a market development. Thus the Basel accords seem to have triggered growth in the Swedish corporate bond market.

Keywords: Corporate bonds, Corporate bond market, Swedish corporate bond market, Financial market, Capital market, Credit market, Regulations, Basel Accords, CRD, Capital requirements directive, Central bank rate, Risk, High yield, Investment grade, GDP, Market development, Financial Innovation, Financial crisis

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Thank you,

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1. Introduction

The introduction presents the background of the study, introduces the financial markets and gives an overview of the corporate bond markets. It presents the problem discussion, which in turn leads to the purpose and research questions. Also, the research aim, which includes the thesis contribution, and the limitations for the study are described.

The financial markets are becoming increasingly global, and as a result companies are getting access to several markets and are given more possibilities when it comes to financing. (Gozzi et al., 2012) Financial innovations, which essentially are the development of new products, services and processes, are constantly evolving and contribute to the creation of new opportunities on the markets. (Ende et al., 2006) With the right innovations and with economic stability, companies can thus grow and develop, and financial crises can be avoided or diminished. (Allen and Yago, 2010) Furthermore, the financial markets have experienced turbulent years since the financial crisis in 2008. (Bonthron, 2014) Decision-makers in countries all over the world realized that something had to be done to stabilize and increase the control of the financial markets, which resulted in different initiatives to develop new regulations. The regulations, in combination with that the financial markets have adjusted themselves after the financial crisis, have greatly changed the financial environment. (Finansinspektionen 1, 2015)

The corporate bond market, which is a part of the financial market, has grown continuously on a global level since the 1990s and has become an alternative source of financing. The corporate bond market has especially become an alternative source of financing for private companies, in addition to equity and loans. (Luengnaruemitchai and Ong, 2005) When a company issues a corporate bond it means that one borrows money from the market, through an intermediary, instead of raising capital through shares or bank loans. Until the millennium the European corporate bond market mainly consisted of big financial companies with high credit ratings. A shift in recent years can be seen where the market moves towards more industrial companies with lower credit[1] ratings, as well as towards more small and medium sized companies. (Baele et al., 2004) According to Baele et al. (2004) corporate bonds with a lower credit rating were more or less non-existing before 2000 but did in 2003 represent a quarter of the total outstanding bonds in the euro-area. The reason is mainly explained by the involvement of more non-financial corporations. (Baele et al., 2004) The corporate bond market is growing in a fast pace as both the number of issuers and the volumes are increasing. An explanation for the growth is that many companies find it harder to attain financing from the banks and thus turn to the market. The increased supply has been met by an increased

[1] *Corporate bonds are by the credit rating divided in two groups, investment grade and high yield. The investment grade corporate bonds consists of bonds with a credit rating of BBB- (S&P and Fitch), Baa3 (Moody's) or higher, and the high yield category consists on bonds with a lower credit rating or without a credit rating. (Bonthron, 2014)*

demand from investors looking for a better return on their money. The low interest rate climate after the financial crises in 2008 made investors seek out high yield investments and thus also higher risk. (Finansinspektionen 1, 2015; Bonthron 2014) The reasons as to why companies are choosing corporate bonds and the growth of the global corporate bond market in the last 10-15 years varies between different parts of the world, even though it can on an overall level be explained with the factors costs, risk and availability. (Luengnaruemitchai and Ong, 2005; Baele et al., 2004)

Moving on, there are global and domestic corporate bond markets, and many companies choose to use both of them as complements to their financing. Why companies choose to use both foreign and domestic corporate bonds markets is not explained by specific differences between firms or countries. (Gozzi et al., 2012) Gozzi et al. (2012) rather suggest that they specialize in different features and that international bond markets usually are used for larger issuances with shorter maturities, foreign currencies and fixed interest rate, which also leads to different development levels of the markets. As an example, in Asia the growth in the market was first triggered by the Asian crisis in the late 90ies and then by the financial crisis in 2008, but due to high costs and undeveloped systems it has not seen the same growth[2] as Europe and the well-developed US market. Nevertheless, this shows how corporate bonds can be used as a risk diversification alternative when the banking system is weakened. (Turner, 2002; Levinger and Li, 2014) Moreover, in Europe the market growth has similarly been triggered by the financial crisis but in addition also by the introduction of the euro, the yield levels, regulations and a higher demand for long term investments. (Baele et al., 2004; Kaya and Meyer, 2013) The financial crisis brought an unstable environment for the companies, which restricted their development and access to financing. As a result is leads to that companies do have an incentive to look for other alternatives to be able to survive, thus the effect of a crisis often lead to development and innovations. (Allen and Yago, 2010) Furthermore, the financial crisis did also trigger the incentives for developing regulations for the financial market, thus restricting the market. (Finansinspektionen 1, 2015) As a result, development and financial innovations often occur as a sidestep to regulations to avoid limitations, which in turn can give both positive and negative effects. (Calomiris, 2009)

The Swedish corporate bond market is one of the markets in Europe that have experienced a growth since the 1990s, however the most of the growth can be seen from 2004 with a significant increase after the financial crisis. (Barr, 2011; Bonthron, 2014) Traditionally, Swedish companies have had a strong relationship with their banks, which has enabled them to get favourable interest rates when using the same bank for numerous services such as lending, deposits, payments and currency exchanges. (Barr, 2011; Juks, 2015) However, as in many other countries, several factors have triggered the Swedish corporate bond market and caused the growth. Thus a few questions arise, which specific factors are the triggers, which have the strongest effect, and what happened with the strong ties to the banks? With the

[2] *Except from Japan, Korea and Malaysia*

financial turmoil that has hit the European economies the strong and more stable Swedish krona has become an attractive investment for both Swedish and foreign companies, which has increased the competition. (Ewing and Bhatia, 2012; Juks 2015) The increased competition in combination with strengthened regulations, a more integrated financial market and low yields can be the vital factors that have loosened up the ties with the banks and given the Swedish corporate bond market a push forward. (Ewing and Bhatia, 2012; Baele, 2004)

Almost all previous studies that have been conducted on the Swedish corporate bond market have been done with qualitative research methods where actors such as banks, intermediaries and companies using corporate bonds have been interviewed. That research has shown their perception of the growth of the corporate bond market, and which is often connected to the new regulation Basel III. Furthermore, many financial analysts and journalists claim that a structural change is happening on the Swedish financial market. It started after the financial crisis and is partly due to Basel III, which forces banks to improve their capital adequacy and liquidity, which in turn can lead to more expensive and restrictive bank loans for companies. The Swedish central bank (The Riksbank, hereafter referred to as the central bank) however claimed, in a study made in 2011, that no clear trend could be seen between the implementation of Basel III and the growth in the Swedish corporate bond market. Instead, according to the central bank, the main cause of the rise in demand for corporate bonds is investors looking for alternative investments in order to get a better rate of return (at a higher risk). This is a result of the expansive monetary policies of the central bank the last couple of years, which has made the yield levels very low. (Riksbank 5, 2011; Juks, 2015) Juks (2015) also claims that corporate bonds are becoming more attractive as the banks are raising the lending rates of bank loans to keep their profitability.

As a result of previous studies there is a conflict between which factors that are affecting the market and to what extent. Thus, this research aims to sort out and answer these questions by studying the factors that have the strongest effect on the growth in the Swedish corporate bond market. The aim is to use a quantitative research method in order to show, in a more objective manner, what may have triggered the financial innovation of corporate bonds in the Swedish market. By studying the factors that have been mentioned in the previous qualitative studies in a quantitative manner the aim is to be able to complement and get an indication whether the qualitative studies are correct and also to fill the gap of the more speculative qualitative researches.

1.1 Purpose and Research Question

The purpose of the study is to identify the factors that may have affected the growth of the Swedish corporate bond market and test these factors against the growth of the market in order to be able to prove or deny the previous theories. Thus the research question has been defined as the following:

Which factors are the main drivers of growth in the Swedish corporate bond market? What is the relationship between the growth in the Swedish corporate bond market and those factors?

In order to answer the research question previous research and theories will be studied to be able to identify the factors and then test them in a quantitative study against the growth of the Swedish corporate bond market. As a result, the study aims to create a discussion, with a background in the literature review, of why these specific factors have affected the market and if they have done it to an extent that it has led to structural changes on the Swedish capital market.

1.2 Research Aim

The aim with the study is to identify which factors that have had the strongest effect on the growth of the Swedish corporate market. That means that the study is able to support or decline that the identified factors have had an affect on the growth on the corporate bond market in Sweden. By performing a quantitative study it will bring a more objective perspective to the specific field of research and will contribute as a complement to previous studies. Since most previous studies are qualitative and often are reflections of what actors believe, this study will instead show with the help of descriptive statistics an objective perspective. The aim is to see if it is possible to see correlation and significance between the identified main drivers and the growth of the Swedish corporate bond market.

The study may in the future be of help to further research within the field of corporate bond markets and their development. Since the study will provide a conclusion about which factors that have triggered the growth of the Swedish corporate bond market, it will provide a deeper understanding of the market and which effect certain factors can have. As a result the study can be used as contribution to guidelines on how to handle and use the market, both for legislators, institutions, companies and individuals. By studying the main drivers the study will provide a contribution to what effects the main drivers have and prepare for future changes in both the corporate bond market and the financial market as a whole. With the knowledge of the effect, the market will get an indication of what can happen in the future in case of similar events on the Swedish market.

1.3 Limitations

Since there is no clear widely used definition of the Swedish corporate bond market the authors decided to limit and define the market as bonds issued in Swedish kronor (SEK) by non-financial corporations. The definition has also been used by the central bank in several articles and it is therefore motivated to use, since it makes it possible to compare the research. In other words, banks, government, municipalities and the mortgage industry were excluded. However, investments banks and investment companies have been included since they are not seen as financial corporations in the same extent as banks that have bank licenses. Those companies are however limited and will not have a big effect on the result. On the other hand

the limitation opens up for corporate bonds issued in SEK outside Sweden, which also is a limited amount.

In addition, a limitation of the study is to focus on the Swedish market itself as the financial markets differ between countries and thus a comparison can be hard. The Swedish market is a bank-centred financial market, which provides different market conditions from for example a market-based financial market. The limitation means the study will try to explain the situation on the Swedish market. However, it is important to be aware of that other financial markets might operate differently and therefore the results might not be applicable on those markets.

1.4 Report Structure

The paper starts by introducing the field of interest and gives an overview of the corporate bond market on a general level. A problem discussion follows where the problem is introduced and it is described why it is of interest to investigate further. The purpose and the research questions are then directly presented so that the reader obtains awareness of in what direction the paper is heading. Also, the research aim and relevance is explained and its contribution described. Thereafter, the literature review starts with a broad perspective in order to deepen the knowledge of the Swedish financial market. The literature review is done with a deductive approach and is divided into three parts, each more specific than the later one. At first the financial market and its development are presented, then the field of the Swedish corporate bond market. From this two parts, indications as to what factors are triggering growth on the Swedish corporate bond market are given, which are presented in the third part. These are then used as a base for the propositions. Moving on, the next section of the thesis is the methodology part where the research strategy, research design and research method (including data collection and analysis) are presented. The third chapter also includes a reflection of the quality of the study by looking more closely at the validity and reliability.

In the fourth section the study's results are presented. The results are described with the help of descriptive statistics and econometric tools, in this case correlational and regression analyses. The results are illustrated with the help of graphs and tables. The empirical findings are used and compared to what the literature review indicated and showed. The results and literature review create a discussion that ends up in a conclusion. Within the final section the propositions and research questions will be supported or rejected, and answered. The thesis then comes to a closure by giving suggestions for further research and in the very last part the references and appendix are attached.

2. Literature Review

The frame of references consists of four parts. The first part introduces the financial market and the development that has occurred in recent years. The second part presents the Swedish corporate bond market and its structure. The third part discusses the factors that have triggered the Swedish corporate bond market and explain their connections, which also lead to the propositions of the study in part four.

2.1 The Financial Market

During 2007 the world economy went into an insecure phase and banks became careful with their financing and reluctant to lend to each other. During the coming year the insecurity fluctuated until September 2008 when Lehman Brothers filed for bankruptcy and the financial crisis was unavoidable. The financial crisis hit most economies hard, Sweden one among them. (Riksbank 4, 2009)

2.1.1 Economic Development in Sweden and the Structure of the Financial Market

Sweden, as a small economy with a great export and a globally integrated financial market is dependent on the surrounding world and therefore vulnerable to financial instability. (Riksbank 4, 2009) Since the financial sector provides services that are essential for the growth and the development of the Swedish economy as a whole, difficulties such as those that arose during the financial crisis in 2008, affect the whole economy. For example, if banks are more restrictive when giving out credit it might reduce companies' ability to invest, which in turn can lead to higher unemployment. Thus the stability of a country's financial system is of vital importance and has a strong connection to the growth and financial performance of the economy. (Riksbank 3, 2014) An indicator that is used by economists, as a measurement for how the economy is performing is the Gross Domestic Product (GDP). The GDP is the market value of the total amount of goods and services produced and sold within a country during a specific time period. It includes all goods and services, before they are resold in any way, which are produced by economic resources in the country, regardless of ownership. (Encyclopaedia Britannica, 2015-04-14) The measurement is used by looking more at the change in the GDP rather than the absolute number of GDP itself. (Law, 2014) The Swedish GDP is published quarterly and is the most used measurement within the national accounts system. It is estimated by the governmental agency Statistics Sweden and the regulations, classifications and definitions that are used when estimating the GDP is the same for all 28 members of the European Union. (Statistics Sweden, 2015-04-14)

Even though Sweden was hit by the financial crisis the banks did survive quite well with some help from the central bank and other financial institutions that provided mostly liquidity but also support through cooperation with other institutions in Northern Europe. (Riksbank 4, 2009) The financial crisis led to a drop in the production, which also led to a decrease of

about 6 % for the GDP and an increased unemployment. The decrease in GDP was however temporary and has since regained its growth. (Ekonomifakta, 2009)

Moreover, the financial market is divided up into two areas, the capital market and the money market. The capital market, which is the area relevant for this study, is the supply channel that enables companies, organisations, individuals and governments to get access to funds by investing or lending capital. The capital market consists of the credit market and the equity market. In Sweden, and in many other countries, the equity market is relatively limited compared to the credit market. Companies fund their activities by using both the equity and the credit market, and the most usual way to access the capital market is by turning directly to a financial intermediary, most commonly a bank. However, the use of a bank is not always the most efficient way of accessing capital, but rather for companies to directly turn to the capital market for funding through for example issuance of bonds and other money market instruments. By using these types of standardised securities, that on an established market can easily be sold or bought, funding can become even more efficient. The issuers of bonds and similar instruments can thus be compared to the banks' borrowers. (Riksbank 3, 2014) An illustration of the financial market is composed and presented in figure 1.

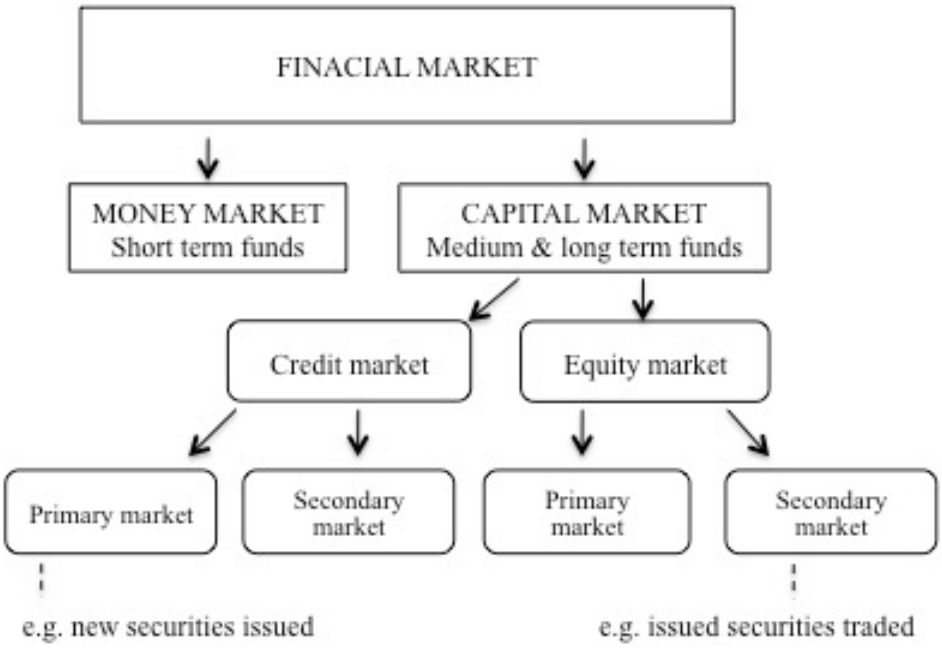


Figure 1. Illustration of the Financial Market

Source: By authors

Furthermore, organised trading with standardised securities and clear regulations contributes to the creation of an efficient market and effective pricing. Also, when there are many actors participating, analysing and keeping control of the market the information and transactions costs can be reduced. The risk is also lowered as having more actors on a market makes it more liquid and open for day-to-day trading. As a result, it becomes easier to estimate the

value of a financial service (such as a bond or loan) and therefore simplifies the task of pricing, thus making them more comparable. (Riksbank 3, 2014)

2.1.2 Financial Innovation

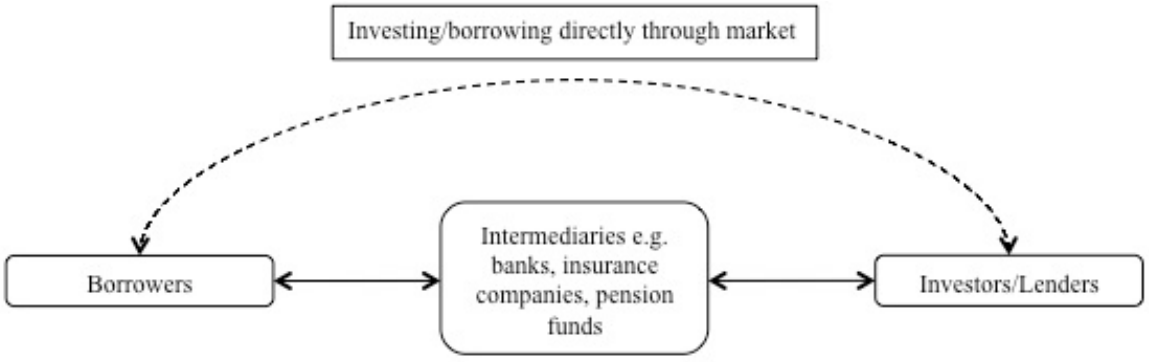
Financial innovation is essential in the development of new products, services or processes. According to Ende et al. (2006) there are three main drivers of financial innovation; supply and demand, taxes and regulations. Demand-driven innovation occurs when companies want to protect themselves from market risks such as instability in interest rates, exchange rates and energy prices. On the supply side financial innovation is encouraged by advancements in technology and by a competitive environments. Other financial innovations often occur as a response to new taxes and regulations as companies try to minimize the costs that these result in. (Ende et al., 2006) In addition to Ende et al. (2006), Tufano (2003) also lists six reasons to why financial innovation occurs; innovation exists to complete incomplete markets (meeting unfulfilled needs), it exists in order to address concerns with asymmetric information or agency problems, to create and enable companies to lower costs for factors such as marketing, transactions or searching, to meet regulation and taxes, as a result of globalisation and increasing risks, and lastly a motivation for financial innovation can be technological shocks.

In the US, history shows that near monopoly banking (similar to how the situation on the Swedish market has been) can create innovation in the financial markets organically. Instead of depositing money in a local bank American investors started to look for higher returns by lending directly to entrepreneurs. In turn the entrepreneurs searched for a cheaper way of financing their business by selling bonds directly on the market. As a result the US generated a large and liquid market for commercial papers and high yield bonds. However, as the market experienced trouble with asymmetric information there was a growing need for intermediaries that brought more security to the table. Furthermore, competition is something that generates innovative behaviour. This happened in the US especially during the 1970s and 1980s when the macroeconomic volatility increased the pace of financial innovation immensely. The inflation was unstable and the banks interest rates declined (due to risk). Thus there was a demand to diversify funding and to achieve a better return on investments. (Wright and Quadrini, 2012) Corporate bonds can therefore on a global level not be considered a new innovation since it has existed for a long time in the US, but as for the Swedish market it is a relatively new phenomena. (Barr, 2011; Giesecke, 2011) Larger Swedish companies have traded with corporate bonds for a longer period of time but mostly on the international market, for smaller and medium-sized companies the corporate bond market is quite new and has thus opened up for new opportunities. As the Swedish companies get more alternatives and change their structure of financing it leads to new demand. The traditional way of financing has mainly been trough the banks and the development of the Swedish corporate bond markets lead to a new customer demand. (Barr, 2011) As the banks get a new demand from their customer it requires them to change their business model to be able to create value to maintain their customers and thus the revenue streams. (Teece, 2010)

2.2 The Swedish Corporate Bond Market

Traditionally, Swedish companies have (as mentioned in the introduction) had close ties to their banks, and by using one bank for most of the financial services (transactions, foreign exchange deals, loans and deposits) the companies could receive favourable offers on their bank loans. (Bonthron, 2014; Gunnarsdottir and Lindh, 2011; Petersen and Rajan, 1994) It has however made the companies dependent on the banks and thus more sensitive for financial chocks. (Bonthron, 2014; Petersen and Rajan, 1994) The dependence was evident especially after the last financial crisis where many companies found it more difficult to receive good offers from their banks and thus made it harder to obtain funding via bank loans. Also, as investments are becoming increasingly capital intense and include long-term risks companies have encountered a bigger need for long-term capital, which means that it is difficult to have bank loans as the only financing option since it makes the companies even more vulnerable. (Endo, 2000) Many companies have as a result of the financial crisis (2008) turned to the market for corporate bonds as a way of reducing their dependence on bank loans. A new role for banks is instead often as an intermediary where they help companies issue bonds. The main intermediaries on the Swedish corporate bond market are actually the five large banks; SEB, Handelsbanken, Nordea and Swedbank and Danske Bank. However, on the market for high yield corporate bonds the main actor is instead the Norwegian company Pareto Securities followed by the above mentioned banks. (Bonthron, 2014) The shift towards corporate bonds did thus not just offer the companies an additional opportunity to access financing and lower their dependence on their banks but also an opportunity to diversify its financing. (Bonthron, 2014; Gunnarsdottir and Lindh, 2011) An illustration of the corporate bonds is presented in figure 2.

Figure 2. Illustration of Corporate Bonds



Source: By authors

Further on, the last financial crisis resulted in lower yields for investors, which led to that the investors started to look for other options with higher yields and as a result higher risks. The search for higher yields resulted in a higher demand for corporate bonds and also opened the door for companies with lower or without credit rating to enter the market. (Joyce et al., 2014) The Swedish corporate bond market has to some extent existed before 2000, however it is first after 2004 that a growth can be seen, followed by a recession in 2008 and 2009 before the market grew significantly and reached today's level. In addition, the Swedish corporate

bond market has long seen a lack of transparency and control, which might be one of the reasons to why corporate bonds have not been given a larger interest and developed earlier. But with the growth, increased interest and pressure from companies the Swedish Financial Supervisory Authority have evaluated the market and been given the responsibility to increase the transparency and control. (Barr, 2011; Bonthron, 2014)

Moving on, the market for Swedish corporate bonds is divided into two markets; the primary and the secondary market. Companies issue bonds on the primary market, usually through a intermediary such as a bank, and after this step the bonds can be bought and sold by investors on the secondary market. The investors usually consist of mostly foreign investors, different funds and institutes, and insurance companies, which later offer the investments to private consumers. (Bonthron, 2014) Since the study focuses on the primary market, the secondary market will not be explained further. Companies issue bonds in two ways, with either fixed or variable coupon rates. The fixed coupon means that the yield normally does not change, while the variable coupon usually changes depending on the STIBOR (Stockholm interbank offered rate). (Bonthron, 2014) The majority of the bonds are according to Bonthron (2014) issued with a variable coupon rate (74% in 2014). Furthermore, the maturity for a corporate bond needs to be a year or more, the average maturity on a bond issued on the Swedish market in 2014 was around 4 years. (Bonthron, 2014) There is no official minimum size for a corporate bond, but an unofficial minimum size limit is often SEK 250-500 million on the Swedish market, since issuing smaller bonds would create illiquidity.

According to Gunnarsdottir and Lindh (2011) the cost of issuing corporate bonds can often be more expensive than bank loans and requires much more administration. However, Endo (2000) instead suggests that corporate bonds should be cheaper but that it depends on the company's ability to effectively manage it, and many companies lack the knowledge and skills. How big the cost difference is between a bank loan and a corporate bond is hard to measure since the banks individually evaluate each company for a bank loan. Companies with good relationships and a lot of activities in the bank often get a better price on their loans than the bank itself can obtain from its own funding on the market. The use of relationships means that the interest rate for a bank loan is really complex and individual, while the interest rate for a corporate bond is the market price. However, the cost of issuing corporate bonds also differs a lot between investment grade and high yield bonds. The investment grade bond is cheaper, but to be able to issue bonds within the category investment grade the company needs an official credit rating that is BBB- (S&P and Fitch), Baa3 (Moody’s) or higher, and the yearly cost of a credit rating is about 2 million SEK. It is only S&P, Fitch and Moody’s ratings that are admitted as official credit ratings. (Bonthron, 2014; Gunnarsdottir and Lindh, 2011) A high yield bond on the other hand can be up to ten times more expensive than an investment grade since the investor requires a higher return due to the increased risk they take on. (Barr, 2011) Thus, the high cost of issuing corporate bonds makes it more attractive for larger and medium sized companies as they can afford to do so. (Kaya and Meyer, 2013) Also, if a company issues a large bond it is often syndicated, that is having several

banks/intermediaries participating in the issuance. (Kaya and Meyer, 2013; Gunnarsdottir and Lindh, 2011) Currently the Swedish market is a market for larger and mid-sized companies and also quite large investors with only a few intermediaries (mainly banks). The smallest amount that is traded in the secondary market is usually around 1 million SEK. The trade of corporate bonds is conducted Over-The-Counter (OTC), which is usually over the phone or through electronic trading systems where the actors agree on price and conditions. (Barr, 2011; Bonthron, 2014) There is sometimes indicative prices listed online but the transparency has been very limited. The liquidity is usually quite low and most investors who have bought bonds when issued hold on to them until their maturity. (Barr, 2011)

A reason for the global growth of high yield bonds is the increased transparency, which has made investors more willing to take on a higher risk. However, one obstacle on the Swedish market has been the lack of transparency and standardization. (Finansinspektionen 4, 2014) This means that it is difficult for both investors and issuers to compare prices of bonds, resulting in an impaired competitiveness in the different ways of financing. This in turn leads to higher expected lending costs and a lower lending volume. The banks, which participate in most of the trading, have the knowledge of who is trading and to what prices. The other actors that rarely participate in the trading itself have little knowledge of the state of the market, which puts them in at an information disadvantage. The asymmetric information and the lack of transparency are causing the corporate bond market to be an incomplete market. (Thorsell, 2014) Thorsell (2014) argue that introducing new transparency regulations on the corporate bond market could counteract the problem. Introducing new transparency regulations would then improve the transparency and in turn increase the market liquidity by having an open and competitive market. The problem has been noticed by lenders, investors and institutions, and has led to changes in regulations (Mifid 2), which aims to create a more efficient market and will be implemented in the beginning of 2017. (Finansinspektionen 1, 2015) Such intentions do not change the market radically but fills a gap, which can attract new actors and offer new opportunities. (Allen and Yago, 2010) According to Allen and Yago, 2010, a country with a better-developed market and financial institutions is more likely to experience faster growth. They claim that it is not unusual that development of markets or innovations is seen after a crisis, for example the changed regulations that followed the financial crisis in 2008.

2.2.1 Issuers of Corporate Bonds

The type of issuers have as mentioned gone from big financial companies to more mid-sized industrial companies with lower credit ratings and higher risk. Since market-based financing is getting more attention more companies are becoming open to the alternative. (Kaya and Meyer, 2013) According to Bonthron, 2014, the amount of issuers in the Swedish market has almost doubled from 2011 to 2014. The Swedish market is still dominated by larger companies but many mid-sized companies have entered with smaller amounts the last 8 years. The ten largest companies represented 53% of the issued amount in 2013 while the ten smallest represented 3%. In addition, the growth cannot only be seen in the increase of companies but also in the spread among industries, during 2001 and 2007 only seven

industries were represented and by 2014 it had grown to 19 industries. By then the construction sector had taken over the position as the largest issuer from the automotive industry. (Bonthron, 2014) Moreover, Petersen and Rajan, 1994, claim that mid-sized and especially younger companies used to prefer to loan from banks, as they did not have a known track record that proved their trustworthiness, which increased the risk for the investor and thus the cost for the issuer. Thus the entry barriers for smaller companies have been relatively high. (Petersen and Rajan, 1994)

2.2.2 The Structure of Corporate Bonds

With the entrance of companies from both varied industries and of different sizes the average risk of an issued bond has increased. The new mix of companies has resulted in a larger ratio of high yield bonds compared to the previous domination of investment grade bonds. The investment grade bonds still have a much larger part of the market but as the entry barriers and costs are decreasing more companies with low and without credit rating get the possibility to enter, which slowly increases the part of high yield bonds. (Bonthron, 2014) Even though the bond market is growing and new companies and sectors are entering, the bank loans do still see a small growth. However the growth of the bank loans in Sweden has slowed down, even though not as much as in some other countries in Europe where it has seen a negative growth. (Finansinspektionen 2, 2013)

The decision for companies in taking bank loans or issuing corporate bonds is grounded in the costs, which mainly depends on the risks. The risk for corporate bonds is determined by the market risk, liquidity risk and credit risk, and all of these affect the pricing of the corporate bonds. The market risk is connected to the interest rates of the market. (Bonthron, 2014) Liquidity risk refers to the possibility to trade the bonds, a higher possibility to trade on the secondary market gives a lower liquidity risk and reduces the price for the issuer, therefore the issuer have to consider the structure of the bond and how the market structure enhance liquidity. (Edwards et al., 2007; Bonthron, 2014) Credit risk is just a small part of the yield spread for investment grade, while a quite big part for high yield bonds. The credit risk is the risk premium that investors demand for the expected return, which depends on the credit quality of the issuer, and the risk of default, which increases when the economy is bad. The yield spread for corporate bonds is based on the credit risk, liquidity, call and convention features, and the tax regulation regarding corporate bonds. (Huang and Huang, 2012) According to Edwards et al., 2007, the transaction costs increase with the credit risk, but decrease with the increase in transparent trade prices and also with the size of the trade.

In the Swedish market, for example, the expected default rate of the largest issuers has decreased in recent years and simultaneously the share of high yield bonds issued on the secondary market has increased. The liquidity risk has also somewhat decreased as the turnover of these bonds has increased. These conclusions can however be criticized based on the fact that there is little transparency on the market which can make it difficult to assess the risk and makes it harder to choose between issuing corporate bonds or taking on bank loans.

Also as the maturity of the bonds have not changed but at the same time the average coupon rate has decreased which could be an indicator of that the market risk has not decreased at all but rather the contrary (Bonthron, 2014)

2.3 Drivers of Development of the Swedish Corporate Bond Market

During the financial crisis in 2008 it became harder for companies to issue bonds without an official credit rating as investors looked for safer investments. However, as the bank yields stayed low investors rapidly started to look for higher returns and thus higher risks, which have made corporate bonds more attractive. The development has made it easier for companies to issue bonds with no or low credit rating and therefore the high yield bond market segment is increasing. (Bonthron, 2014) As the credit quality is important when deciding the value of the bond, and an official credit rating is costly, the investors demand for higher return have eased the path for smaller and mid-sized companies. However, the development also makes it harder for investors to determine the value of a bond correctly. (Gunnarsdottir and Lindh, 2011)

In addition to low yields, the Swedish government has also imposed new regulations with the goal of increasing the financial systems resilience to avoid future crisis. These regulations affect both individual institutions and the financial system as a whole. The regulations are usually introduced and enforced to Sweden through the European Union. (Juks, 2015) In short, companies issuing bonds choose to do so in order to diversify their funding and spread the risk. It makes them less dependent of the banks and enables them to obtain funding more easily. In addition, the financial regulations have made ordinary bank loans more costly and the low interest rate environment has increased investors demand (taking higher risk to obtain higher yields). The low interest rates have in turn contributed towards lower risk premiums, thus lowering the cost for companies to issue bonds. (Bonthron, 2014)

2.3.1 Monetary Policy: the Central Bank Rate

Changes in the central bank rate will in the end affect the yields and interest levels given to companies by banks. Thus fluctuations in the central bank rate are often an indicator of how the fluctuations in bank yields and interest rates will look like. This means that the central bank rate is the key signalling rate, which is set by the central bank, also known as the repo rate. It is an indication of what the so-called overnight rate will be (set one week ahead). The overnight rate is in turn the interest rate and yield that banks receive when lending or depositing money at the central bank. As an effect the changes in the central bank rate will in the end affect the banks' own interest rates and yield levels that are given to their own customers. Since the banks' own lending costs will be transferred to their customers, i.e. if the repo rate increases the bank will still want to keep their margins and thus they revise their own yields and interest rates. As a result this means that in the end the bank interest rates and yields are competing with the interest rates and yields given by corporate bonds, as it will be

the alternative financing cost/return on investment. (Riksbank 1, 2015-03-25; Riksbank 2, 2015-03-25)

The executive board of the central bank makes the decisions on the central bank rate about six times per year. More in depth, the repo (or repurchase agreement) is a transaction where the central bank agrees to sell/purchase a security and at the same time agrees to resell/repurchase it after a specific amount of time. If there is a liquidity deficit in the banking system the central banks will then buy securities through weekly repos and if there is a surplus they will instead issue their own securities (here the deposit rate is always 0.75 per cent lower and the lending rate always 0.75 per cent higher than the repo rate). (Riksbank 2, 2015-03-25) However, in practise, there is a much narrower scale than the interest rate corridor (1.5 per cent spread) as the corridor makes it profitable for banks to borrow from each other. As a result the lending-borrowing rate usually stays plus minus 0.1 per cent around the repo. (Riksbank 1, 2015-03-25) The banks borrow from each other with reference to the Stibor (Stockholm Interbank Offered Rate), which is the average interest rate that banks are willing to lend to one another without securities at different maturities (set by Handelsbanken, Swedbank, Danske Bank, Länsförsäkringar Bank, Nordea and SEB). (Swedish Bankers' Association, 2015-03-25)

2.3.2 Regulations

The aftermath of the financial crisis led to that several countries all over the world realized that the financial markets needed more stability, thus regulations were created in order to secure the stability. The results of the discussions were Basel III and Solvency II, as follow-ups to the earlier Basel and Solvency regulations. The Basel Accords directly affect the banks and investments companies, while Solvency affects the insurance companies. (Finansinspektionen 1, 2015; Finansinspektionen 3: Om Solvens, 2015-04-20) Solvency II will not be implemented until 2016 and its effect on the corporate bond market is expected to be limited, thus the regulation will not be explained further. In addition, with the growth in the corporate bond market and the EU's aim for a more integrated financial market, the Mifid (Markets in Financial Instruments Directive) is also being developed and will possibly have an effect for the corporate bond market the coming years. (Finansinspektionen 1, 2015)

2.3.2.1 The Basel Accords

The Basel Accords frameworks are determined by the Basel Committee on Banking Supervision, which is a global committee made up of representatives of central banks and financial supervisory authorities. (Juks, 2015) The G10 countries founded the Basel Committee on Banking Supervision in the 1970s as a result of the Bretton Woods breakdown. The first Basel regulation was created and implemented in in the 1980s and have led to a long cooperation between the leading economies in the world, which aims to "enhance financial stability by improving supervisory knowhow and the quality of banking supervision worldwide". There are four Basel Accords; Basel I, Basel II, Basel 2,5 and Basel III. The

biggest difference is seen between Basel I and Basel II, while Basel 2,5 and Basel III are development from Basel II. (Bank of International Settlements, 2015-04-17) The agreements have no legal force but are recommended and often made into the legislation of each country themself. In Sweden these are introduced through the means of EU legislation. (Juks, 2015)
The first Basel regulation (Basel I) treated the capital ratios of the international banks, since the committee was worried about with the increasing risks with a more global financial market. The aim was also to evolve the grade of the regulation over time, but it also came to include other areas than the credit risks. In 1999, a proposition was made to replace the out-dated regulation with a new updated one; Basel II, which was announced in 2004 and thereafter updated several times. Basel II consists of three pillars; minimum capital requirements, supervisory, and market discipline. It was implemented in the beginning of 2007, but it was soon recognized that it was not enough and that the regulation had to be revised and strengthened. It was thus developed to a Basel 2,5 regulation (subsequently Basel III), which was announced and implemented after the financial crisis in 2008. Basel III consists of the three developed pillars capital and liquidity requirements, enhanced supervisory, and enhanced market discipline. (Bank of International Settlements, 2015-04-17)

Further on, the new regulations under Basel 2,5 and III (which in the EU have been implemented under the names CRD III and CRR/CRD IV) should lead to the banks becoming a safer investment, thus reducing investors risk taking and creating a more stable financial market. When the risk is lower the investors should then theoretically require a lower return, but in reality it might be difficult for investors to assess the bank's risks due to restricted access to information, and they might also actively seek for higher returns (riskier investments). (Juks, 2015; European Commission, Banking and Finance, Citizens' Summary, 2015-05-19) More in depth, Basel III raises the total risk weighted capital requirement for banks, which in the same time has to be met by using common equity (mainly common shares and retained earnings) to a greater extent. Thus the higher level of risk in a bank's assets the more equity the bank will need to fund its operations. In addition, Basel III introduces a leverage-ratio requirement that in contrast do not have a connection with the risk of assets. Instead the leverage-ratio requirement works as a supplement and demand the banks to have a certain amount of capital in relation to their total (unweight) assets, which means that this requirement is indifferent to risk. (Juks, 2015; Accenture, 2012)

Another part of the regulation is the liquidity standard, which imposes that banks should be more resilient to short-term liquidity stress and to have more long-term and stable funding, in order to reduce liquidity and funding risks. These regulations have mainly been introduced in Basel III as the liquidity coverage ratio (LCR) and the net stable funding ratio (NSFR). The LCR requires a bank to hold liquid assets corresponding to the cash outflows for 30 days, which aims to improve short-term resilience and thus a short period of stress. To meet the requirement banks can either increase their holdings of liquid assets or increase the average maturity of their funding. Both choices will however lead to increased costs for the banks as liquid assets typically have a lower return and long-term funding is more expensive to

conduct than short-term. The NSFR includes the requirement of a certain ratio of stable funding a bank needs in relation to its assets, and which aims to improve the long-term resilience. Simplified it means that the banks need to have assets that have a maturity of over a year or that is historically stable (i.e. household deposits). The regulation is stricter for long-term assets and illiquid assets, thus it affects banks immensely as they have a large share of mortgages and corporate loans with a long maturity. (Juks, 2015; Accenture, 2012) In order to improve their NSFR the banks can go about it in several ways; changing the conditions for deposit accounts, reducing assets requiring stable funding, extending short-term funding to long-term funding etc. As a result, banks will (then with larger liquidity buffers) receive a lower return than if the capital would have been invested differently. In addition, by extending the maturity of the banks' own funding the cost of their interest rate for borrowing increases. The new costs can be imposed on the customers in a number of ways, among them by increasing lending spreads or by charging more in general for the banks services. The bank can also choose to decrease the lending, to lower the maturities of the loans they provide or to decrease the credit limit. Depending on which path the banks choose to take it will impact companies by reducing the loan supply, higher borrowing rates and an increasing the refinancing risks. (Gunnarsdottir and Lindh, 2011) To conclude, all the new regulations may lead to increased costs for banks both in their general lending-borrowing operations but also in their intermediary role. The actual effect of these costs depends on how the banks want to handle them and if the bank investors are willing to adapt their return requirements. (Juks, 2015)

An effect of the new regulation for the banks is the increased importance of other financial intermediaries and services, which leads to requirements for more structured alternatives and markets. (Finansinspektionen 1, 2015) As the companies turn their attention to corporate bonds it also increases the demand for a structured market and thus improved policies, since innovations demands that the financial system supports and follows the shift to become a long-term stable function. (Allen and Yago, 2010 ;O'Sullivan, 2006) The first Mifid regulation was implemented in Sweden in 2007 but did just include the stock exchange market, and not other financial products such as bonds. The revised version, which also includes other financial products, Mifid 2, will be implemented in January 2017 with the aim to create a transparent and secure environment for the investors. Since the EU is striving towards a more integrated financial market a decision was taken in 2014 to revise the Mifid regulation to enhance more efficient capital markets for securities and bonds. The aim with the regulation is to create more transparency and a more efficient market. However, some companies such as institutions can be excluded for the regulation. (Finansinspektionen 1, 2015)

2.4 Propositions

With help of the literature a pattern has emerged where one can disclose what factors that may have affected the Swedish corporate bond market. As mentioned in the introduction, cost, risk and availability seem to be the common denominators when studying the factors that cause

growth on a global level. By having these factors as a base the literature has been studied on a deeper level and shown the underlying factors for the Swedish corporate bond market. As a result the first proposition is that the level of interest rates/yields that causes growth, which is what most official sources (such as the financial supervisory authority and the central bank) believe. The interest rates/yields determines both the cost and the availability for both issuers and investors. Since interest rates/yields is set by the central bank rate it will be the measurable reference.

Proposition 1: *The central bank rate is a main driver for the growth in the Swedish corporate bond market*

The second proposition is that the Basel Accords are the main factors affecting the growth. The latter proposition is what we have found that many economists/analysts believe and also determines the cost, availability and risk.

Proposition 2: *The Basel Accords are main drivers for the growth in the Swedish corporate bond market*

3. Methodology

The methodology is divided into four parts. The first part, the Research Strategy, introduces the study and the chosen method. The second part, the Research Design, presents how the research were planned and performed. The third part, the Research Method, describes the process of the study step by step. And the fourth part, the Quality of the Study, discusses in a critical way through the validity and reliability how risks and weaknesses of the study have been evaluated and treated.

3.1 Research Strategy

The purpose of the study is to identify which drivers that are the main drivers of growth in the Swedish corporate bond market. In order to do so a quantitative research method with a deductive approach has been chosen, since it enhances a more structured research and a quantifiable result. The research aims to give a better understanding of the factors that affect the corporate bond market. As most of the factors in the study were already quantified a quantitative study was more suitable and could then potentially give more verified results. Also, quantitative research opens up for repetition of the study in the future, to be able to see the long-term effects and also to study with a longer time perspective. (Bryman and Bell, 2011; Gray, 2014) Most prior research within the field of corporate bonds (especially with a focus on the Swedish market) has been done using qualitative methods, much due to lack of quantitative information. But as the markets have evolved, more data can be collected and analysed. Thus a need was seen for a study using quantitative methods to complement the previously qualitative researches.

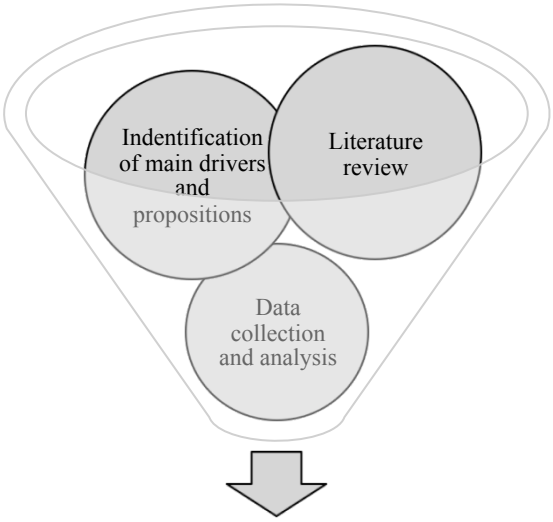
Moreover, by using a quantitative research strategy to test the issuance of corporate bonds and the factors that may have triggered the growth, one can achieve an objectiveness that is more difficult to attain through a qualitative study. (Bryman and Bell, 2011) A qualitative research could, on the other hand, give a better understanding as to why these factors have affected the market and also open up for the possibility of factors that might not otherwise come up in the literature review. However, a qualitative research would require interviews that instead might include personal values and speculations from the interviewed person, and there would be a need to interview a lot of people in different positions, companies and institutions to get a fair view of the research question. (Bryman and Bell, 2011) As a result, a quantitative research method was chosen, as it was more suitable for our specific study, since the aim is a more objective perspective.

3.2 Research Design

The research was formed through an experimental and deductive approach. At first, with a broad perspective, a study of the market was performed through a literature review in order to identify the growth of the Swedish corporate bond market and find the factors that affect it.

The first step was followed by a more narrowed research about those specific factors. (Gray, 2014) The aim with the deductive approach was to identify factors that affected or could somehow be connected to the growth of the corporate bonds market, to be able to perform a multiple regression analysis with time series data and test the variables against each other. With the broad approach the factors that indicated a larger effect on the growth of the corporate bond market was identified and chosen as independent variables. Also, control variables were chosen in order to have factors that remained constant (in the multiple regression analyses) while looking into the relationship between the dependent and independent variables. When the factors had been identified the propositions for the study were formed, followed by the data collection and analysis to be able to support or reject the propositions, accordingly to the deductive process explained by Bryman and Bell (2011). In addition, the results was also discussed and compared with the previous research on the area in a conclusion. The process of the methodology is illustrated in figure 3.

Figure 3. Overview of Methodology



Moving on, the quantitative research method was performed through an econometric model, multiple regression analysis, with the growth on the corporate bond market in the years 2007-2014 as the dependent variable. The time frame was chosen with regards to the available data. Initially a time frame of 10 years was planned, however, the collection of data regarding issuance of corporate bonds is limited and earlier data would therefore not increase the quality of the thesis. Moreover, the data was tested and analysed by using descriptive statistics and econometric models, in regression analyses and by correlation. The significance level, in the regression analyses, then indicated if the tested factors could be considered main drivers of the growth. These factors/variables were, as mentioned, chosen according to what was found relevant in the literature review. Also the previous qualitative studies that had been done on the area gave an indication of what factors to focus on and test. The testing was done by quantifying the variables and through regression analyses enabling the results to show what factors that had affected the growth. The data was recoded and adapted so that it could be

easily compared. By recoding the data, one could find actual patterns and connections that would be very hard to find through a qualitative study. Also, through these types of quantitative analyses it enabled the study to support or reject the propositions. The results were then presented, and as for the discussion/conclusion were done by comparing the results of the quantitative study with the earlier findings from the literature review.

3.3 Research Method

Secondary data was used throughout the whole research process as the study is based on the literature review and the already collected data from existing databases. The focus during the search for relevant literature was upon the following fields; corporate bonds, development and growth of the corporate bond market, the Swedish and European corporate bond markets, innovations on the capital market and drivers of financial innovation. The literature review involved reports, scientific articles and previous research from both university and institutions on a global and national level. The electronic databases that were used were Google Scholar, Emerald, LIBRIS, GUNDA, SuperSearch (Gothenburg University Library) and GUPEA with a complementation from the Central Bank (Riksbanken) and the Financial Supervisory Authority (Finansinspektionen). In general on a global level, cost, risk and availability were frequently mentioned as explanations for the growth of the corporate bond market and many factors within these areas were discussed in the process of choosing the independent variables. However, the literature review clearly indicated the central bank rate and the Basel accords as the main drivers of growth for the Swedish corporate bond market, thus these became the independent variables. After choosing these, Sweden's GDP as well as the ratio of investment grade and high yield bonds were selected as control variables. They were relevant for the growth but still were stand alone factors that remained constant when assessing the relationship between the independent and dependent variables. The next section provides an overview of the chosen variables, motivation of the choices and the data collection process.

3.3.1 Definition of Variables

With the background in the literature review a decision was made to have the issued amount of corporate bonds in SEK on a monthly basis the years 2007-2014 as the dependent variable. At first, there was a need to define the Swedish corporate bond market since it would enable to start the collection of data. As there is no widely used clear definition of the Swedish corporate bond market the authors decided to define the market as bonds issued in Swedish kronor (SEK) by non-financial corporations. The definition has previously been used by the Swedish central bank in several articles and it is therefore motivated, in addition it makes it possible to compare the research. In other words, banks, governments, municipalities and the mortgage industry were excluded. However, investments banks and investment companies have been included since they are not seen as financial corporations in the same extent as banks that have bank licenses. Moreover, in order to describe the growth the amount of issuers and amount of issued bonds have also been researched. As mentioned, the central bank rate and the Basel regulations were decided as the independent variables. The control

variables were decided to be the Swedish GDP and to indicate the risk the ratio of investment grade and high yield bonds.

3.3.1.1 Collection of Dependent Variable

An initial step of the data collection was to collect data about the issuance of corporate bonds. There are few databases to collect the data from and it is hard to know if the data is complete, structured in currencies, and also many databases require a paid subscription. During the broad perspective literature review a Norwegian database called Stamdata, owned by Nordic Trustee (trustee service to investors), was found and contacted. The company gave free access to the data since it was for scientific purposes and with the requirement that the results were also sent to them.

At first, a lot of data covering corporate bonds was extracted from Stamdata, which included other currencies, banks, governments, municipalities and the mortgage industry. The data was collected from Stamdata's statistics and the tranche based tool. The settlement date (date of transaction) was first set to include everything from 2007-01-01 to 2014-12-31, then the risk classes was set to include company rating class 1-6, subordinated, negative pledge, pledge, guarantee, finance and none. For the issuer type both bonds and convertible bonds were included. Both high yield and investment grade bonds were included in the study to be able to see the change over time in that category. The authors decided to include all currencies at the first extraction and sort the data themselves afterwards, to assure that the data was as complete as possible. When having extracted the data it had to be sorted manually, first the currencies were sorted to include just SEK. Furthermore, as many companies have a company within their corporate group to handle their financing, they end up in the same category as the banks, but should be included in the research since they only finance the parent company. Thus in the second step of the sorting, the authors looked at the issuers and made sure to delete banks, governments, municipalities and the mortgage industry that were excluded from the research. Some actors were deleted immediately, while others were researched further and marked for further analysis.

Since the issuance of corporate bonds have not been previously measured in Sweden the authors wanted to control that the data from Stamdata gave a complete view of the market. The control was made by comparing the data with data from DataStream, an American database owned by Thomson Reuters, which the university offers access to in the library. The authors found out that some data was missing, especially during the first years for the research. At first the authors tried to collect all data from DataStream to be able to complement the data from Stamdata. Due to the limited subscription at the university, that would just admit a limited amount of data (4000 values), the authors could not extract all data from 01-2007 to 12-2014. Therefore the authors decided to extract a complete data file with all the bonds but without the values by using criteria search and choosing to collect all bonds issued in SEK during the chosen time period. The data was then compared to the data from Stamdata by comparing the individual ISIN number that each bond has. If finding bonds that

were missing from Stamdata the value of the bonds were extracted manually from DataStream by searching for the ISIN number or the company name, and then included in the research.

Before the data was sorted 8928 values were extracted from Stamdata, which included banks and bonds issued in EUR, DKK and NOK by both Swedish and foreign corporations. From DataStream 8971 values were extracted in SEK with banks included. The greater amount of bonds issued in SEK from Datastream does not just depend on missing values but also on the fact that many foreign companies have issued bonds in SEK on an international market or their local market, which were not fully included in the data from Stamdata. Those values are however included in the study since they are issued in SEK. In total 1323 values were used from the both databases, 539 from DataStream and 784 from Stamdata. The values were then summarized on a monthly basis and divided with the number of bonds that in turn had been divided with the number of issuers to get an average that would not affect each other in the regression analyses.

3.3.1.2 Collection of Independent and Control Variables

The independent variables, the central bank rate and the Basel Accords, and the control variables, Swedish GDP and the ratio of investment grade and high yield bonds, were all extracted in various ways. The central bank rate was of course already quantified and easily found on a monthly basis through Ekonomifakta, which is operated by the Confederation of Swedish Enterprise (Svenskt Näringsliv). The other independent variable, the Basel Accords, was more difficult to attain. In the research both the announcements and the implementations have been taken into account since both of them can possibly be triggers on the market. The announcements and implementations were mainly found through the websites for Bank of International Settlements, the central bank (The Riksbank), and the Financial Supervisory Authority (Finansinspektionen). For each month, when an official announcement or implementation had been done, the number 1 has been given. The coding has been done both with numerically and with solely binary numbers. Thus if there was several announcements in a month there would be a number for each of these and the binary one would only contain either a 0 or a 1. Since it is hard to measure the value of the event a binary method gives a more justified view of the Basel Accords. In addition, in order to control the quality of the data and avoid type II errors, it has been complemented by a research of news regarding the Basel regulations. The news search has been done by using Google News and searching for "Basel II" and "Basel III" for each month the years 2007-2014. The amount of news was then summarized for each of the months and compared to the first data that was found regarding the Basel Regulations. This means that the numerical and binary Basel variables were created with the same data and thus are co-dependent. However, the news-based variable is completely independent from that data and can therefore be used together with one of the other Basel variables.

Moving on, the control variable Swedish GDP was chosen since the growth and development of markets often follows the GDP. The GDP was extracted from Ekonomifakta and was structured from the quarterly measurement to a monthly basis to compare with the other variables. Since the GDP was measured with year 2013 as the reference year, the dependent variable was also adjusted for inflation with 2013 as reference year. Also, since the literature review indicated that the growth of the corporate bond market was affected by the risk the ratio of investment grade and high yield bonds were included as a control variable. The choice of using the ratio as a control variable was taken since the it shows how the risk has changed but cannot itself be granted to affect the growth, and it is hard to measure the risk in any other way. To avoid variable bias one of those variables were chosen to be included, and since investment grade bonds still hold the largest part of the market this variable was chosen. However, only the data extracted from Stamdata (and not from DataStream) did show the investment grade and high yield class and it will therefore represent a sample and indication of the ratio. Lastly, all the variables were summarized into time series with a monthly basis in one Excel-document.

3.3.2 Results and Analysis

After summarizing the data it was imported into STATA. As the variables issued amount, number of issuers and number of bonds are co-dependent and would impact the results if used individually a variable was created by using issued amount/(number of bonds/number of issuers). The new variable was then adjusted for inflation (reference year 2013) and named Adjusted Issued. The first action was summarizing the data by using the commands “desc” and “summarize” to get an overview of the variables by looking at the means and standard deviation. This step built further on the creation of the descriptive statistics, which was primarily constructed in Excel by illustrations in graphs. The second step was to declare that the data to be in time series, which was done by using the command “tsset” and marking our time variable, namely “Month”, which had been converted into numbers ranging from 1-96.

When the data had been set into time series is was then followed by a making a multiple regression analysis of the time series with the dependent, independent and control variables with the command “reg” followed by the concerned variables. Thereafter the correlation was also controlled between the variables with the command “corr”. As the results were not initially significant and since it is possible that the dependent variable would show effect first after some time had passed a decision was made to try and create a time lag of 1,2 and 3 months of the independent variables. The time lags were done by using the commands L. L2. and L3. before the concerned variable. Initially 2 months were tried and since the results were significant for the Basel Accords variables it was also to tried for 3 months. As the significance became less in month 3 a decision was made to stop, as it would be unlikely that it would suddenly be strong again in future months. Both the variables Basel Binary and the numerical Basel Accords were tried. In a last regression analysis the Basel News Search was also included together with the Basel Binary. The results found in the correlation and regression analyses were thereafter extracted, summarized and explained in the results. A

detailed summary of the descriptive statistics for the variables can be seen in Appendix A. Finally, the results were compared and analysed with the literature review, and the propositions were supported or rejected. A discussion of what the results showed followed, and the authors were able to draw certain conclusions regarding the main drivers of the growth in the Swedish corporate bond market.

3.4 Quality of the Study

The quality of the study is estimated through the validity and the reliability, meaning the estimation whether the data have been measured correctly and the possibility of replicating the study.

3.4.1 Validity

According to Bryman and Bell (2011) there are several aspects of validity to consider. Overall the validity refers to that the study is measuring the correct data i.e. the purpose of the study but also to be able to generalize the study and draw conclusions from it. (Bryman and Bell, 2011) By studying different factors from both research and previous studies, and how they are connected to the corporate bond market the study have treated the measurement validity. The choice of measuring and analysing, descriptive statistics and econometric model, are well-proven research methods and therefore the measuring validity can be considered high. However, what could lower the measuring validity is how the data is collected and used as the variables. The dependent variable has been controlled by the use of two databases, and might still not be complete, but gives a clear indication and a trustworthy sample of the corporate bond market. Since there is no widely used definition of the Swedish corporate bond market it can lead to a risk of a unclear and unfair view of the market since some of corporate bonds are actually issued in SEK outside Sweden. At the same time, bonds issued in SEK will still affect Sweden to some extent even if they are issued outside Sweden. The central bank rate as the independent variable can be seen with very high credibility since it is already quantified and set. One item that could be discussed is that the central bank rate usually is changed in the middle of the month, which means that it could be small differences depending on the source and how the change has been transferred to monthly statistics. However, this would not have a significant impact on the results. Another risk could potentially be the choice of the central bank rate as an indication of the banks' own lending/borrowing rates to companies. The exact lending/borrowing rates cannot however be altered as these figures are not official and individual to each customer, meaning that the banks most likely do not want to share these numbers with the public. The other independent variable, the Basel accords, could be discussed more since it is really hard to measure the reactions to the announcements and implementations. A risk is the authors' interpretation of the independent variable of the Basel accords. It has been manually quantified and interpreted and thus leaves room for error. However, the risk has been somewhat mitigated by using several separate measurements for it, which in the end all showed the same result, thus avoiding type II errors. The control variable, GDP, is likewise to the central bank rate a variable with high credibility that is well known, already quantified and measured by reliable sources. The credit rating of the bonds is

a sample from the data and therefore an indication of how the risk awareness and yields have changed, it is however a credible sample that might somehow be slightly biased since it just included data from Stamdata and the data was shown to not be fully complete in the first researched years, 2007-2008. Overall, a factor that can lower measurement validity could also potentially be the authors' ability to draw conclusions from the result and the data itself. (Creswell, 2014)

Another aspect to consider is the internal validity, which mostly refers to causality. (Bryman and Bell, 2011) The causality can be considered covered by the study of the different factors from both research and previous studies, but is has also been mitigated by the use of several independent sources for the measurement of the factors. However, there would still be hard to say that there is not causality between the factors and therefore the results should primarily be seen as indications. There is also external validity, which refers to the generalization of the study. (Bryman and Bell, 2011) Since the research has studied the Swedish corporate bond market it draws the conclusions from one nation's capital market, and the structure on capital markets can differ between nations. However, it still gives an indication that can be generalised to other nations, and especially those with similar capital markets. The generalization can also be done to other areas with the perspective of financial innovation. Since the research initially looks at the subject from a global perspective it also helps to support the research from a national level, since the subject has been studied to a limited extent on a national level. The global perspective however contributes to a better possibility of generalization. (Creswell, 2014)

3.4.2 Reliability

According to Bryman and Bell (2011) the reliability primarily connects to the possibility to repeat the study, which is also seen as a common issue for quantitative studies due to the possible instability of the measures. Since the study is researching past events and by the use of highly reliable databases it increases the reliability, thus the stability of the research. The research method has also been thoroughly described and should therefore be easily transferred to a similar future research. The variables have been measured in such way that they can easily be replicated. The independent variable, the Basel Accords, was made to binary numbers to make them more easily replicable. Since the method is clearly described it means that the numbers would be the same and would therefore generate the same results if doing the research again. However, if doing the research on a different time span it might show different results and the research should therefore be seen as an indication. Since the data regarding issuance of corporate bonds have not been collected and measured for a long time, the results might also differ slightly between different databases and their completeness should therefore be carefully controlled. According to Gray (2014) this is considered equivalence.

4. Results

The results aim to present and describe the results of the study's empirical findings. The first section describes the variables one by one and how they have developed during the studied time period. The second part describes the results of the correlation and the regression analyses.

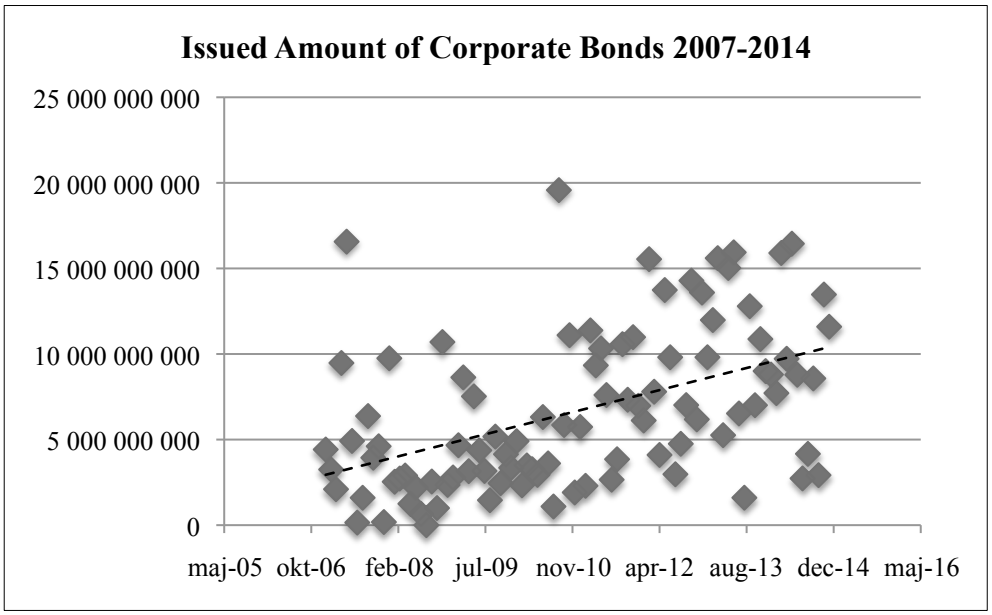
4.1 Descriptive Statistics

The descriptive statistics describes each variable by using graphs to illustrate the development for the collected data. In the study the dependent variable is the issued amount of corporate bonds in SEK, which includes all bonds issued in Swedish kronor (SEK) by non-financial corporations. In other words, banks, government, municipalities and the mortgage industry were excluded. However, investments banks and investment companies have been included since they are not seen as financial corporations in the same extent as banks. The independent variables used for the study are the central bank rate and the Basel Accords, and the control variables are the Swedish GDP and the ratio of investment grade bonds

4.1.1 Issued Amount of Corporate Bonds

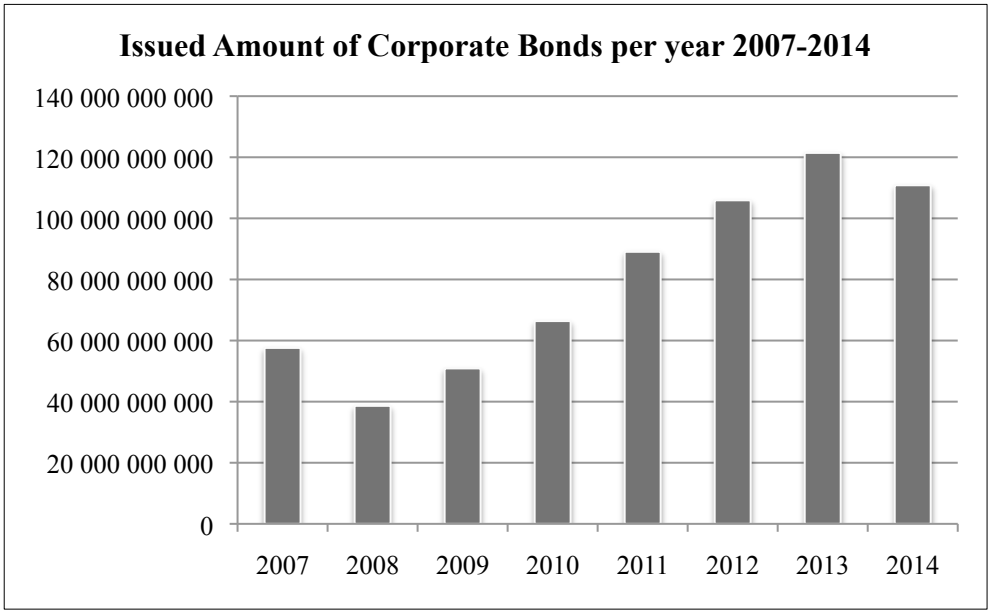
For the dependent variable, issued amount, a total of 1323 values were used and sorted into months, which resulted in 96 observations in the timespan of January 2007 - December 2014. All the data was collected from Stamdata and DataStream. As can be seen in figure 4 there is a clear up going trend for the issuance of corporate bonds on the Swedish market. The mean of the issued amount is 6.67 billions with a standard deviation of 4.62 billions. By looking at the mean and the standards deviation, one can see that the standard deviation is large, which means that the observations are widely spread between the minimum of 0 and the maximum of 19.58 billions. The minimum of zero means that there is one month that has no issued corporate bonds, which is in August 2008.

Figure 4. Issued Amount of Corporate Bonds per Month 2007-2014



In figure 5 the data has been summarized yearly to clearly show the growth. From about 60 billions in 2007 the issued amount fell to about 40 billions in 2008, which is mainly due to the financial crisis in 2008. With the lowest level in 2008 a yearly growth of about 25% (15 billions each year) can be seen until 2013 where the issued amount reached the highest level of about 120 billions before a small decrease in 2014 to 110 billions.

Figure 5. Issued Amount of Corporate Bonds per Year 2007-2014

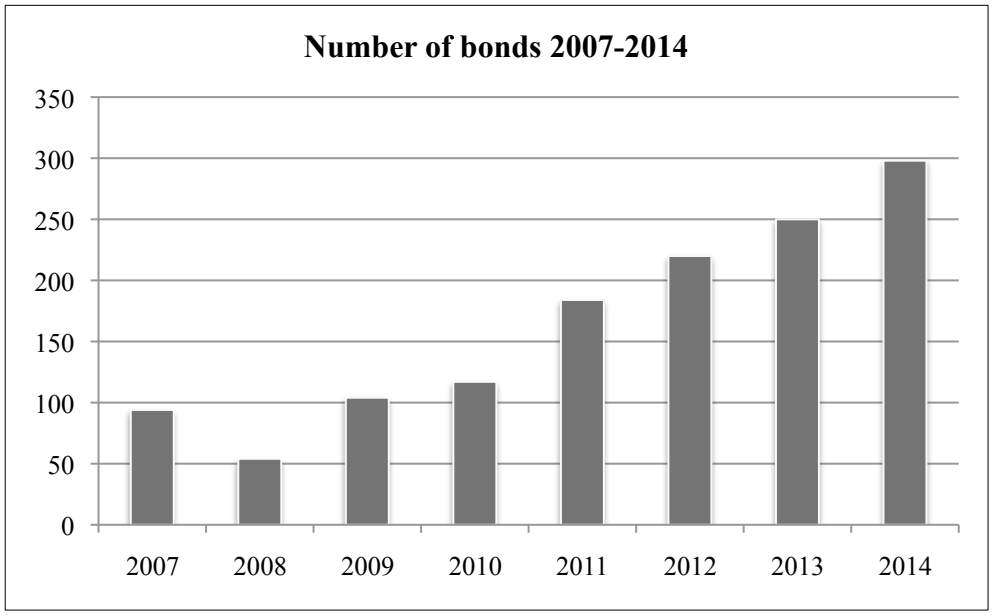


4.1.2 Number of Corporate Bonds and Issuers

In addition, the number of bonds issued has seen a strong increase in the last couple of years and shows the same pattern as the issued amount. In figure 6 the number of bonds are

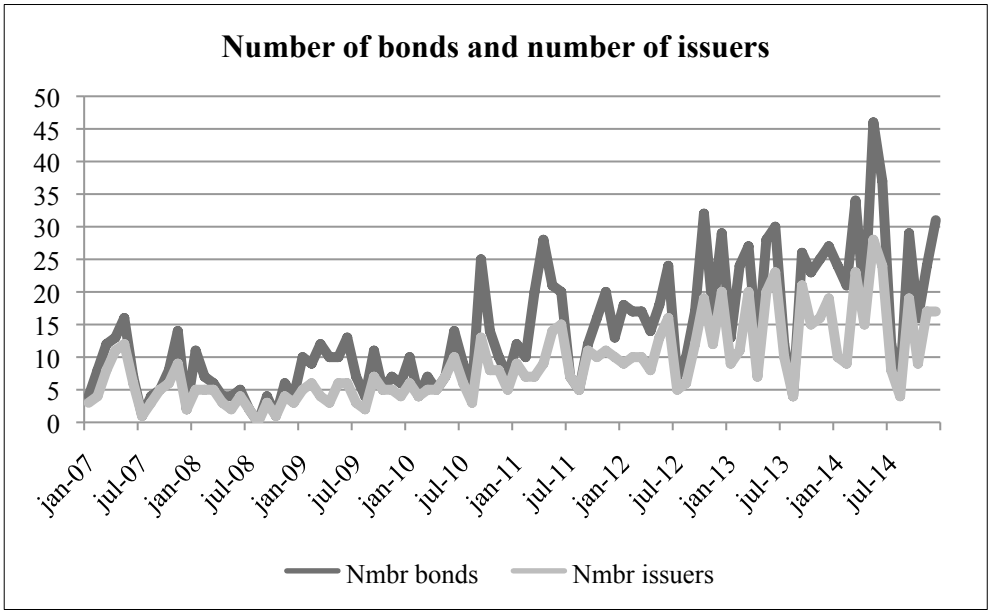
summarized on a yearly basis to clearly show the similarity to the issued amount. In 2007 almost 100 corporate bonds were issued while the year after this number was cut in half. In 2009 the number of bonds were back to about 100, and in 2010 there was a small increase when 117 bonds were issued. The biggest growth came in 2011 where an increase of almost 60 % can be seen (184 bonds) and thereafter the growth continued yearly with about 17% until 2014. The biggest difference from the issued amount is that there is no decrease in 2014, which means that the average issued amount is smaller in 2014. The mean for the number of bonds in each month is 13.76 bonds, with a standard deviation of 9.38.

Figure 6. Number of Corporate Bonds Issued per Year 2007-2014



The number of issuers have also seen an increase and have in figure 7 been summarized to unique issuers per month and are compared to amount of bonds issued per month. Both curves show an up going trend. The unique issuers per month means that if a company have issued two bonds during one month they would just be calculated one time, but if they have issued two bonds in different months they would be calculated two times. The mean for number of issuers is 8.91 for each month with a standard deviation of 5.99.

Figure 7. Number of Bonds and Numbers of Issuers per Month 2007-2014



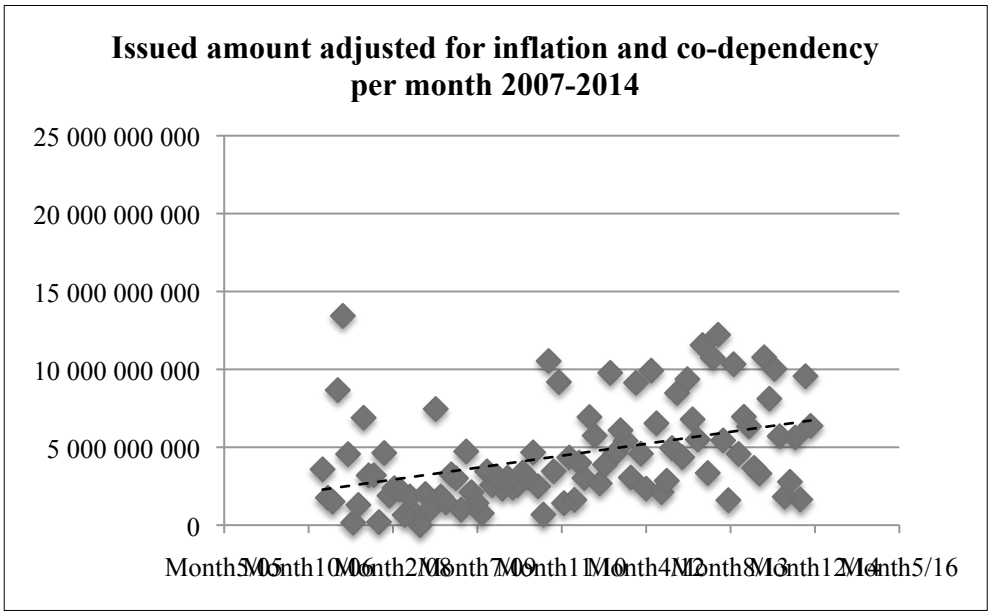
4.1.3 Issued Amount of Corporate Bonds Adjusted for Inflation and Co-dependency

For the analyse of the data in STATA a new variable was created, as the variables issued amount, number of issuers and number of bonds are co-dependent and would impact the results if used individually. Also the variable was adjusted for inflation with 2013 as the reference year. The year 2013 was used since the GDP was adjusted accordingly. Thus equation 1 was used, were the variable issued amount has been divided with the division of the number of bonds and the number of issued, which in turn has been multiplied with the inflation.

$$Equation\ 1:\ Issued\ Amount\left(\frac{Number\ of\ Bonds}{Number\ of\ Issuers}\right)*Inflation$$

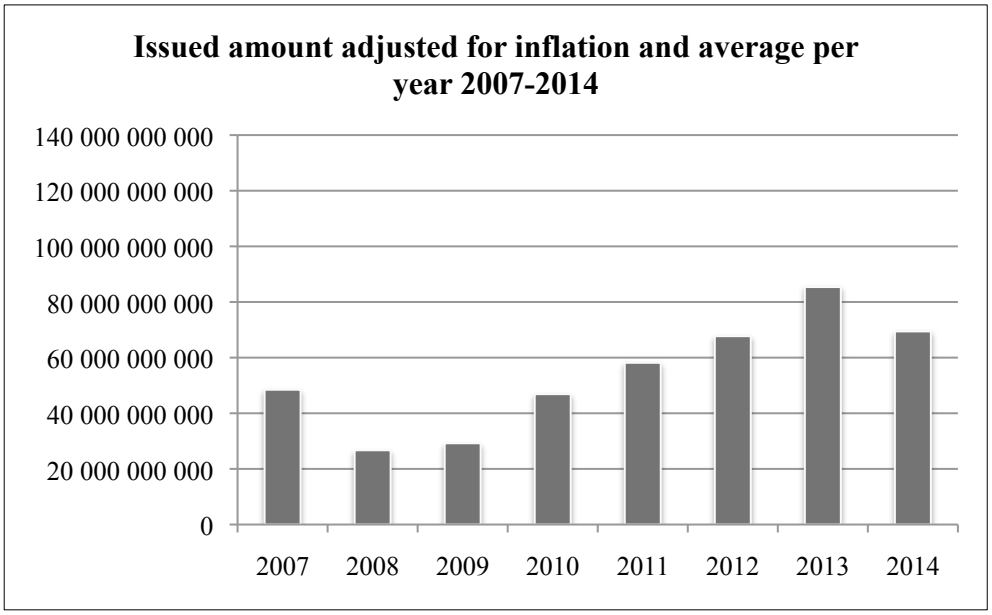
As a result the adjusted issued amount became the dependent variable when doing correlation and regression analyses. In figure 8 the result is presented and can be compared to figure 4, which shows a similar growth but with a less steeply growing trend. The mean of issued amount adjusted for inflation is 4.5 billions, with a standard deviation of 3.17 billions.

Figure 8. Issued Amount Adjusted for Inflation and Co-dependency



In figure 9 the average issued amount adjusted for inflation is summarized in years. The curve is similar to the one in figure 5, even though the growth between 2008 and 2009 is almost non-existing. The growth is not as linear as figure 5 but rather have a bigger growth from 2009-2010 (60%) and 2012-2013 (26%).

Figure 9. Issued Amount Adjusted for Inflation and Co-dependency

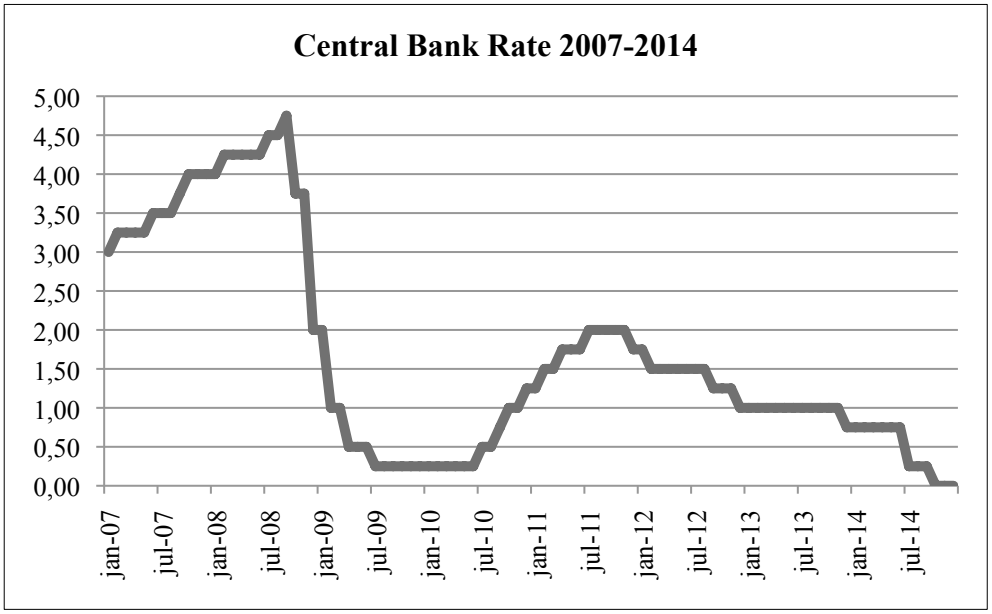


4.1.4 The Central Bank Rate

The central bank rate (also called repo rate) has in the last couple of years experienced quite strong fluctuations, which can be seen in figure 10. The steepest fall occurred in the end of 2008 and the beginning of 2009 when the financial crisis was at its peak and the central bank rate fell from 4.75% to 0.25% during ten months. After eleven months at the bottom the

central bank rate increased again but did not reach higher than 2% in 2011 before it started to fall again until it reached 0% in the end of 2014. The central bank rate has a mean of 1.66 and a standard deviation of 1.36.

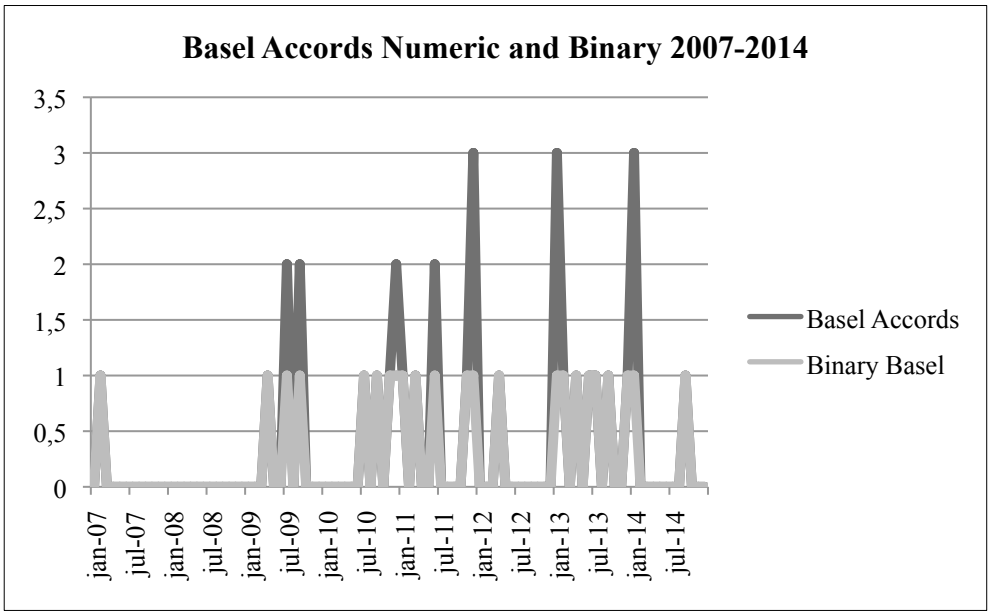
Figure 10. The Central Bank Rate 2007-2014



4.1.5 The Basel Accords

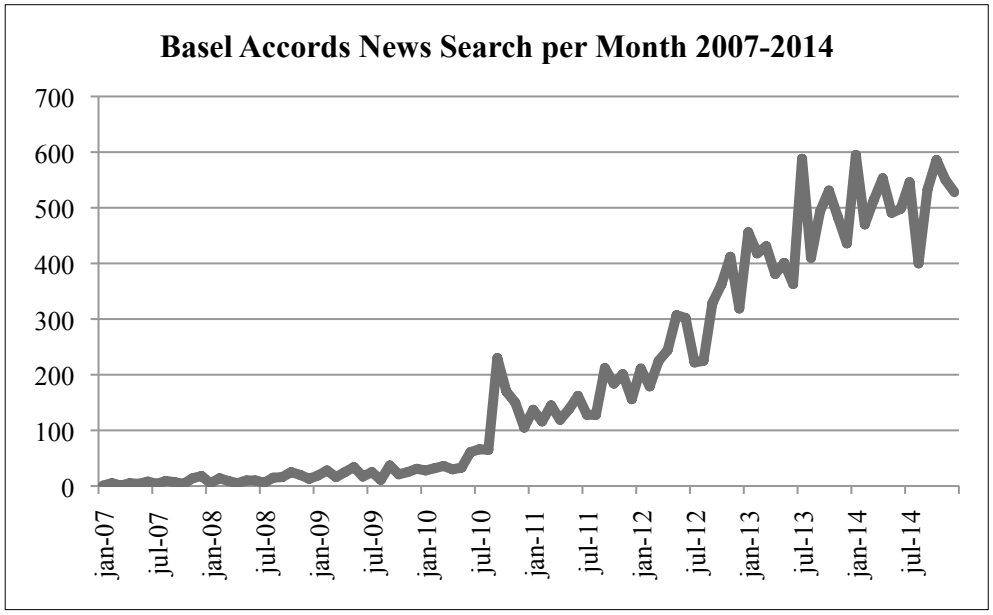
When quantifying the Basel Accords several measurements have been used in order to increase the quality and certainty, as mentioned in the method. Figure 11 is the numerical and the binary variable together, and the figure 12 is the news based variable. The numerical and binary variables are essentially the same except for the fact that the binary one consists of only 0 and 1. The binary numbers remove the valuation factor of the announcements and implementations i.e. even though there have been several announcements during one month they have just been given 1, which implies that the reaction would not be stronger than if there would have been just one announcement. The numerical variable is hereby referred to as the variable Basel Accords. A list of the found announcements and implementations can be seen in Appendix B. As can be seen in the figure 11 the announcements and implementations have become more frequent and intense especially since 2009, which is after the financial crisis.

Figure 11. The Basel Accords Numeric and Binary 2007-2014



The third factor that was studied was the news based variable, which is presented in figure 12. As one can see there has been a worldwide increase in news concerning the Basel Accords, especially since 2010-2011. When studying the growth the biggest difference can be seen between 2009 and 2010, where the attention for the Basel Accords raised by almost 350%. Between 2010 and 2013 the yearly growth were around 75%, but between 2013 and 2014 it was only 16%. The mean for the news based is 191.05 news per month, with a standard deviation of 196.83, which means that there is a high standard deviation as is it even higher than the mean. The results for the news search shows a clear increase in September 2010, which is the month when the Basel Committee announced more specific and higher minimum capital standards for the Basel Accords. Another top can be seen in January 2014 when Basel III was supposed to be partly implemented.

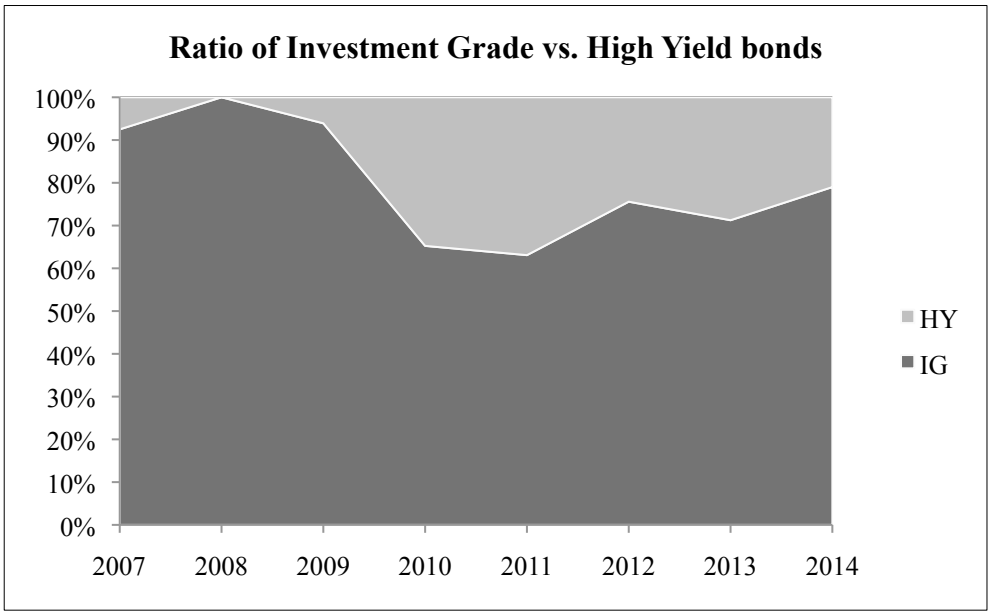
Figure 12. The Basel Accords News Search via Google per Month 2007-2014



4.1.6 Ratio of Investment Grade and High Yield Corporate Bonds

The ratio of high yield bonds in relation to investment grade, presented in figure 13, did in 2010 see a shift, from almost no high yield bonds in during 2007-2009 to an average of about 30%. Even though the percentage part is more that 30% in 2010-2011 and a bit less 2012-2014 the real numbers has still increased, since much more bonds were issued during 2012-2014. However, the result is just a sample of the collected data since the division of investment grade and high yield bonds were just mentioned in the data from Stamdata, which are 784 values. Since the complementary data from DataStream indicates that some values were missing during 2007-2008, the ratio of high yield bonds might be higher those years.

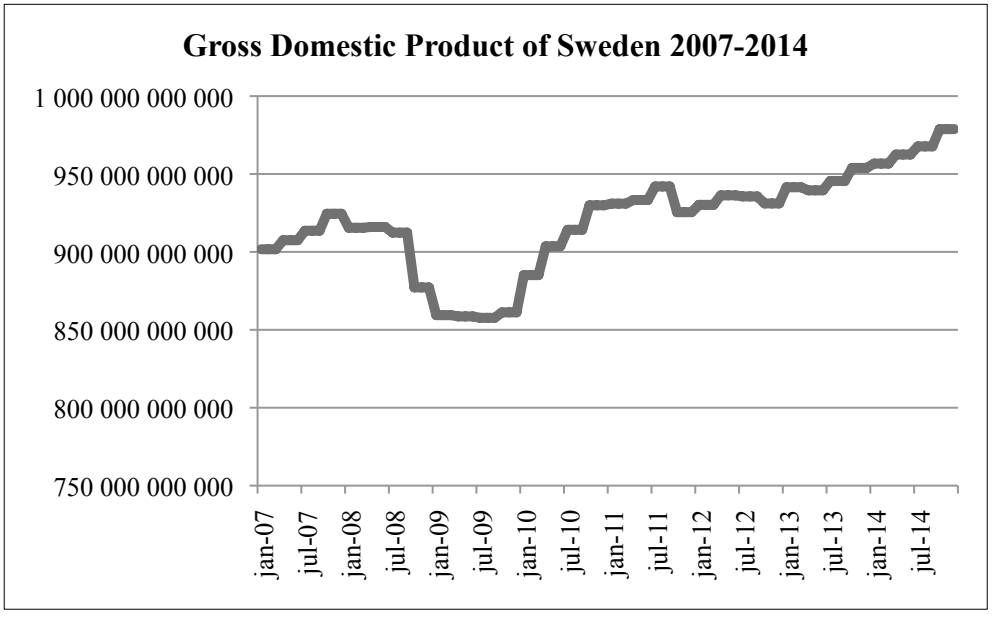
Figure 13. Ratio of Investment Grade vs. High Yield Corporate Bonds 2007-2014



4.1.7 Gross Domestic Product in Sweden

The Gross Domestic Product (GDP), as described earlier, is an indicator of how well a country's economy is performing. Figure 14 shows the development of the GDP from 2007-2014. A decline in the pattern can be observed during the midst of the financial crisis. The GDP variable is in the study used as a control variable. The GDP has a mean of 920.29 billions and a standard deviation of 31.76 billions, which can be seen as a low standard deviation. The low standard deviation is however expected as the GDP is just measured quarterly and the fluctuations are not that big.

Figure 14. Gross Domestic Product of Sweden 2007-2014



4.2 Econometric Results

The econometric results have been produced by using STATA. A summary of all variables has been done and the correlation has been estimated. Furthermore, four regression analyses were done to present the relation between the variables.

4.2.1 Summary of Variables

In order to get a better understanding of the variables a summary was made (Table 1), which presents observations of each variable, mean, standard deviation, minimum and maximum values. There are in total eleven variables and all of them have 96 observations each. All the variables were made numerical in order to enable processing in STATA. However, since they are all in different frequencies it is not possible to compare the mean and the standard deviation. In order to compare the results a detailed summary was processed, which can be seen in Appendix A. Since the standard deviation itself varies a lot between the variables due to their different frequencies the skewness and the kurtosis were studied instead. The skewness presents the curve of the variable, if the value is zero it is considered normal distributed, if negative it is skewed to the right and if positive it is skewed to the left. The kurtosis also measures the normal distribution by measuring the height of the curve. If the value is higher than three it is considered to not be normal distributed but rather having a sharp peak and thick tails, meaning that the values are more populated close to the mean and there is little variance. The variables issued amount, adjusted issued amount, number of bond and number of issuers are all positively skewed with a value of about 0.88, which means that their curves is skewed to the right. This also means that the mean is higher than the median and i.e. there are a few extreme values that make the mean higher. The independent variables have similar skewness to the left, but what can be noticed is that the Basel Accords have a much higher skewness (2.262) and also a really high kurtosis (7.754). The high skewness and kurtosis means that the variable is strongly skewed to the left and has a really sharp peak with thick tales. The control variables ratio investment grade and GDP both have a negative skewness, meaning that their curves are skewed to the right.

Table 1. Summary of Variables

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max
Issued Amount	96	6 674 000 000	4 622 000 000	0	19 580 000 000
Adjusted Issued	96	4 499 000 000	3 166 000 000	0	13 430 000 000
Number Bonds	96	13.76	9.381	0	46
Number Issuers	96	8.917	5.992	0	28
Central Bank Rate	96	1.661	1.364	0	4.750
Basel Accords	96	0.344	0.708	0	3
Basel Binary	96	0.240	0.429	0	1
Basel News Search	96	191.1	196.8	1	595
Ratio IG	96	0.719	0.305	0	1
Ratio HY	96	0.198	0.221	0	1
GDP BSEK	96	920.3	31.76	857.7	978.8

4.2.2 Correlation and Regression

To be able to control and understand the relationship between the variables the correlation was studied and several regression analyses were done. Initially the correlation of the variables was studied. The correlation indicates how much each variable follow each other. As presented in table 2 the correlation between the dependent variable Adjusted Issued and the independent variable Basel News Search have a correlation of 0.4630, which is the strongest correlation with the dependent variable. With a correlation of one the curves follow each other perfectly, if zero they do not follow each other at all and if negative one they are following each other in the opposite way. The control variable GDP has the second strongest correlation with the dependent variable with 0.3772. The only negative correlation with the dependent variable can be seen with the Central Bank Rate with a value of -0.2076, meaning that when the Adjusted Issued curve goes up the curve of the Central Bank Rate goes down. However, in the regression analyses there is no significance with the Central Bank Rate. In addition, in order to control the quality of the Basel Accords, three variables were composed; the numerical variable called Basel Accords, the Basel Binary and the Basel News Search. The correlation between the numerical variable, Basel Accords and the Basel Binary is naturally strong, 0.8692, since they come from the same data but are composed in different ways. The Basel News Search, on the other hand, has a correlation with the Basel Accords (0.1804) and the Binary Basel (0.1940). This indicates that there is a small positive correlation but the curves do not follow each other that strongly, which can also be seen if comparing figure 11 and Figure 12 where the results for each variable is presented. In table 2 the correlation between the GDP and the Basel News Search is shown to be high, 0.7874, however the variables are not connected to each other but rather correlated by chance. The high correlation is however considered in model 4, which is presented in table 6.

Table 2. Correlation of Variables

VARIABLES	Adjusted Issued	Central Bank Rate	Basel Accords	Basel Binary	Basel News Search	Ratio IG	GDP
Adjusted Issued	1.0000						
Central Bank Rate	-0.2076	1.0000					
Basel Accords	0.0646	-0.2079	1.0000				
Basel Binary	0.1160	-0.2332	0.8692	1.0000			
Basel News Search	0.4630	-0.5019	0.1804	0.1940	1.0000		
Ratio IG	0.0877	-0.2312	0.0248	-0.0418	0.0667	1.0000	
GDP	0.3772	-0.0986	0.0628	0.0859	0.7874	-0.1133	1.0000

After studying the correlation of the variables the regression analyses were performed. Several multiple regression analyses of the relationship between the dependent, independent and control variables were done to be able to control for eventual time lags but also to perform analyses with the three different Basel variables. When performing the first regression analysis (Table 3) the Basel Binary was used. The first regression analysis included the dependent variable Adjusted Issued, the independent variables Basel Binary and the Central Bank Rate, and the control variables GDP and Ratio IG (Investment Grade). The result of the first regression analysis shows no significant result for the independent variables but significance for the control variable GDP. The significance is marked with three stars, which means that there is a significance of 0.01 and therefore a 99% certainty that the variable have a relationship to the dependent variable. However, with significance of 0.05 or less would be considered as a strong result and an indication that there is at least 95% certainty that the variable have an impact on the dependent variable. The control variables on the other hand cannot be seen as they have an impact on the dependent variable in the same way as the independent variables, since they are just there to control the result.

Table 3. Model 1

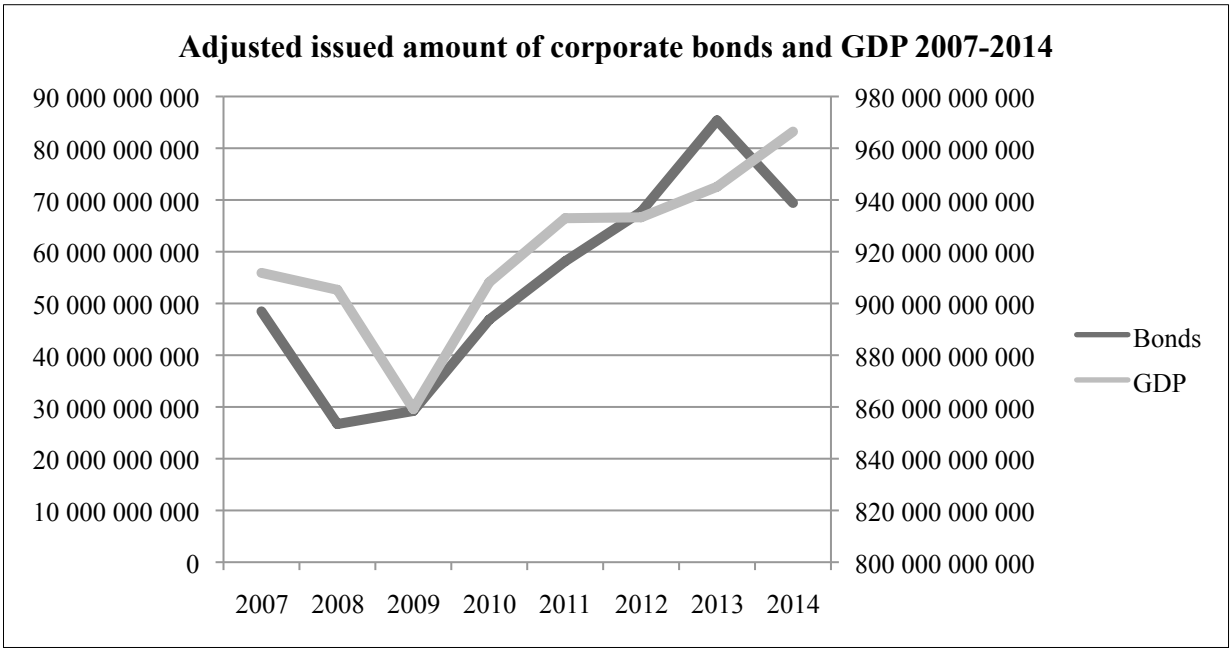
VARIABLES	(1) Adjusted Issued
Basel Binary	421 300 000
	(723 500 000)
Central Bank Rate	-311 900 000
	(235 000 000)
GDP BSEK	36 920 000***
	(9 596 000)
Ratio IG	1 049 000 000
	(1 027 000 000)
Constant	-29 820 000 000***
	(9 022 000 000)
Observations	96
R-squared	0.183

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Furthermore, since the control variable GDP showed significance it means that the GDP and the growth of the corporate bond market have similar curves and a strong relationship. The strong relationship between the Swedish corporate bond market and the GDP is illustrated in figure 15. The relationship between these variables was expected, as the corporate bond market should logically follow the development of economy.

Figure 15. Adjusted Issued Amount of Corporate Bonds and GDP 2007-2014



As the first regression analysis did not show any significance for the independent variables the variables were analysed with time lags, meaning that there might take a while for the corporate bond market to react. For the second regression analysis time lags of 1, 2 and 3 months were created for the independent variables. By using the commands L. L2. and L3. before the concerned variable the regression analysis was performed, which is presented in table 4. When trying out the time lags there was significance for the Basel Binary both in month one and two. Therefore a time lag of three months was also tried to see if the significance would increase or decrease. As the significance became less in month three an assumption was made to not continue since it would be unlikely that the significance would suddenly be strong again in future months. The significance for Basel Binary in month one is 0.1, which means that there is a 90% certainty that the variable has an impact on the dependent variable, the Adjusted Issued, and in other word the growth of the corporate bond market. However, this would not be considered strong enough but in month two there is significance of 0,01, which means 99% certainty that the independent variable have and impact of the dependent variable, which is a strong indication that the growth of the corporate bond market have been affected by the Basel Accords.

Table 4. Model 2 with Basel Binary and Time Lags

VARIABLES	(1) Adjusted Issued
Central Bank Rate	-537 600 000
	(1 455 000 000)
Basel Binary	281 800 000
	(728 300 000)
Ratio IG	1 084 000 000
	(1 037 000 000)
GDP BSEK	35 370 000***
	(10 130 000)
L. Central Bank Rate	-1 048 000 000
	(1 824 000 000)
L2. Central Bank Rate	2 172 000 000
	(1 797 000 000)
L3. Central Bank Rate	-790 300 000
	(1 500 000 000)
L. Basel Binary	-1 391 000 000*
	(732 500 000)
L2. Basel Binary	1 964 000 000***
	(717 500 000)
L3. Basel Binary	1 085 000 000
	(721 300 000)
Constant	-28 970 000 000***
	(9 467 000 000)
Observations	93
R-squared	0.298

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Since the second regression analysis used Binary Basel, and as Binary Basel showed significance, a third regression analysis was performed, with the use of the numerical Basel variable instead. The third regression analysis was performed in the same way as the previous one, with time lags up to three months. As presented in the results of the correlation the Basel Binary and the Basel Accords had a strong correlation and comes from the same data but are composed binary and numerical. The third regression analysis shows similar strength of significance for the Basel Accords as the second one analysis, 0.1 for the first month and 0.01 for the second month.

Table 5. Model 3 with Basel Accords and Time Lags

	(1)
VARIABLES	Adjusted Issued
Central Bank Rate	-394 300 000
	(1 461 000 000)
Basel Accords	139 000 000
	(424 900 000)
Ratio IG	878 700 000
	(1 039 000 000)
GDP BSEK	36 310 000***
	(10 120 000)
L. Central Bank Rate	-1 134 000 000
	(1 829 000 000)
L2. Central Bank Rate	1 985 000 000
	(1 793 000 000)
L3. Central Bank Rate	-699 800 000
	(1 495 000 000)
L. Basel Accords	-816 900 000*
	(429 800 000)
L2. Basel Accords	1 291 000 000***
	(428 600 000)
L3. Basel Accords	303 300 000
	(428 000 000)
Constant	-29 460 000 000***
	(9 469 000 000)
Observations	93
R-squared	0.296

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Since the Basel Accords are hard to measure and quantify a third variable had been created to control and raise the quality of the study. The fourth regression analysis was therefore performed with the Basel News Search as the independent variable instead of the previously used Basel variables. The Basel News Search did unlike the previous Basel variables show a significance directly of 0.1 but no significance in month one but again in month two and three. The significance in month two was 0.05 (95%) and in month three 0.01 (99%). Since significance was seen with three time lags a fourth time lag was added, were the regression showed no significance and the analysis was therefore not taken further. The fact that the results show significance with all three Basel variables strengthen the quality of the study and the indication that the Basel Accords have had an impact on the growth of the Swedish corporate bond market. Since the Basel News Search showed a high correlation with the GDP, model 4 was also tested without GDP, which gave the same result.

Table 6. Model 4 with Basel News Search

VARIABLES	(1) Adjusted Issued
Central Bank Rate	4 755 000
	(1 514 000 000)
Basel Binary	15 060 000
	(769 900 000)
Basel News Search	14 850 000**
	(6 627 000)
Ratio IG	1 039 000 000
	(1 011 000 000)
GDP BSEK	4 808 000
	(23 400 000)
L. Central Bank Rate	-792 000 000
	(1 945 000 000)
L2. Central Bank Rate	1 790 000 000
	(1 988 000 000)
L3. Central Bank Rate	-523 200 000
	(1 953 000 000)
L4. Central Bank Rate	-391 900 000
	(1 470 000 000)
L. Basel Binary	-1 045 000 000
	(759 700 000)
L2. Basel Binary	1 159 000 000
	(771 900 000)
L3. Basel Binary	1 252 000 000*
	(731 400 000)
L4. Basel Binary	660 700 000
	(731 100 000)
L. Basel News Search	-2 331 000
	(6 830 000)
L2. Basel News Search	9 715 000
	(7 131 000)
L3. Basel News Search	-17 850 000**
	(7 114 000)
L4. Basel News Search	1 068 000
	(7 125 000)
Constant	-2 558 000 000
	(2 0 770 000 000)
Observations	92
R-squared	0.409

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Finally the regression analyses have been summarized in table 7, which shows that significance for each variable in the different models. The table shows that the control

variable GDP is significant with 99% in model 1-3, but not model 4, which depends on the strong correlation with the Basel News Search. The independent variable Central Bank Rate is not significant in any model, neither is the control variable Ratio IG. The independent variable Basel Binary is significant in Model 2 with 90% with one time lag and with 95% for two time lags. The independent variable the Basel Accords also shows the exact same pattern in model 3 as the Basel Binary in Model 2. In model 4 the Basel Binary was combined with the Basel News Search, which resulted in that the Basel News Search had significance with 95% without time lag and with two time lags. The Basel Binary had significance with 90% with three time lags.

Table 7. Summary of model 1-4

VARIABLES	Model 1	Model 2	Model 3	Model 4
Central Bank Rate	-	-	-	-
Basel Binary	-	-	-	-
Basel Accords	-	-	-	-
Basel News Search	-	-	-	**
Ratio IG	-	-	-	-
GDP BSEK	***	***	***	-
Central Bank Rate L.	-	-	-	-
Central Bank Rate L2.	-	-	-	-
Central Bank Rate L3.	-	-	-	-
Central Bank Rate L4.	-	-	-	-
Basel Binary L.	-	*	-	-
Basel Binary L2.	-	***	-	-
Basel Binary L3.	-	-	-	*
Basel Binary L4.	-	-	-	-
Basel Accords L.	-	-	*	-
Basel Accords L2.	-	-	***	-
Basel Accords L3.	-	-	-	-
Basel News Search L.	-	-	-	-
Basel News Search L2.	-	-	-	**
Basel News Search L3.	-	-	-	-
Basel News Search L4.	-	-	-	-

*** p<0.01, ** p<0.05, * p<0.1

5. Discussion and Conclusion

The discussion and conclusion is divided into two parts. The first part initially introduces a brief summary of the subject, the research question and the propositions. This is followed by an analysis of the empirical findings presented in the previous chapter. Thereafter the research questions are answered and the propositions are supported or rejected, which ends in a conclusion of the study. The second part discusses and proposes further studies of the subject.

Since the early 2000s the Swedish corporate bond market has experienced a significant growth. The study focuses on the development since 2007, as the prior available data is limited. The literature review led us to believe that the central bank rate and the Basel Accords are the main drivers for the growth of the Swedish corporate bond market. In the literature review it was found that cost, risk and availability could on a broader level explain the growth of the global corporate bond market. When narrowing the study down and focusing on the Swedish corporate bond market these factors were reduced to see the underlying measurable factors, which resulted in the central bank rate and the Basel Accords. These two factors were therefore chosen as the independent variables and tested in regression analyses. Also, since the corporate bond market is part of the financial markets there is a strong chance that the growth may have followed the GDP development, thus it was chosen as a control variable. As one of the factors associated with the growth was risk the investment grade ratio was also included as a control variable, to get an indication of how the risk awareness has changed.

Which factors are the main drivers of growth in the Swedish corporate bond market? What is the relationship between the growth in the Swedish corporate bond market and those factors?

Proposition 1: The central bank rate is a main driver for the growth in the Swedish corporate bond market
Proposition 2: The Basel Accords are main drivers for the growth in the Swedish corporate bond market

By performing the regression analyses the propositions could be supported or rejected. It also opened up for a discussion of how the different factors affect each other and conclusions could be drawn. The following paragraphs present the possible outcomes of the propositions.

Proposition 1 Supported: If the first proposition proves to be significant and a connection between the central bank rate and the growth on the corporate bond market can be supported, it indicates that yield levels/interest rates are triggers. Thus fluctuations in yield levels/interest rates will have triggered growth on the corporate bond market and in the end will have triggered innovative behaviour on the financial markets.

Proposition 1 Rejected: When no significance can be seen between the yield levels/interest rates and the issuance of bonds it can not be proven that they have any effect on the corporate bond market. Thus, it would be an indication in this case that they in fact are not drivers of growth or of innovative behaviour.

Proposition 2 Supported: If the study finds support for the second proposition it indicates that regulations have triggered a market development. Thus the Basel Accords will have triggered growth in the corporate bond market, i.e. a regulation has triggered innovative behaviour on the financial markets.

Proposition 2 Rejected: When no relationship between new Basel Accords and market growth has been detected. Thus a regulation, in this case, does not trigger market growth and is neither a trigger of financial innovations in this case.

In the regression analyses the relationships between the variables were studied, with a focus on the relationship between the dependent and independent variables. As the central bank rate acts as a reference rate for banks interest rates/yields it gives an indication how much it would cost for a company to take a bank loan or what yield an investor would get for investing in possibilities given by the bank. This indicates that the level of banks interest rates/yields is an alternative to when issuing corporate bonds and thus is the competition for both the supply and demand for corporate bonds. Our results show that the central bank rate first increased but then fell drastically in January 2009, a couple of months after the financial crisis hit. After the fall the central bank rate did increase a little but not to the same level as before the crisis, and as of January 2012 it turned again and have ever since slowly decreased to an even lower level than in the midst the crisis. In addition, our results show that the growth of the corporate bond market and the central bank rate has a weak negative correlation of 0.21, and there is no significance in the regression analysis even when including time lags. Without significance and with weak correlation an indication is given that the growth of corporate bonds cannot be clearly connected to the central bank rate.

Since the rapid modification of the Basel Accords was somehow a reaction to the financial crisis most announcements and implementations have occurred after the financial crisis with a start in January 2009. Thereafter the announcements and implementations saw their most intense period as of January 2010 until January 2012 and then again in January 2013 to January 2014. On the other hand, if instead looking at the results from the Basel News Search a peak can be seen in September 2010 followed by a small recession and thereafter a clear increase. However, the continued increase from 2011-2014 can be criticized since some news are solely available for the public during a limited period and thereafter just for subscriptions, and might therefore not show in the research for the earlier years. If this is the case it means that the curve might not increase as fast in reality, but rather show a less steep growth. Moving on, the literature review shows that the implementation of the Basel Accords would

imply that banks get more restrictive when lending out money and that the cost for the bank loans themselves would increase. In order to measure the effect of the Basel Accords the announcements, implementations and news feed have been studied. The announcements and implementations show a weak correlation of 0.1160 with the growth of the corporate bond market when given binary numbers and initially show no significance in the regression analysis. However, when given a time lag of two months significance with the growth of the corporate bond market can be seen. Also, when using the Basel News Search variable for the Basel Accords a correlation of 0.4630 is seen with growth of the corporate bond market and there is also significance with a three-month time lag. Even with a weak correlation the results are significant, and thus imply that the Basel Accords have triggered the growth of the corporate bond market and can be seen as main drivers. The result also supports the theory of that regulations are a driver of innovations and developments of markets.

Moving on, when studying the control variables the Swedish GDP was affected negatively by the financial crisis and dropped about 6 %, but did as of January 2010 started to grow again and has since then showed an up-going trend with some smaller recessions. The results show a clear correlation of 0.38 and clear significance with the growth of the corporate bond market, which agrees with the theory of that the financial market follows the development of the Swedish economy. Furthermore, the risk has increased for the issued bonds, with the biggest shift being between 2009 and 2010. However, since then the ratio of investment grade and high yield bond have been about 70-80% and 20-30% respectively. The risk correlates with the growth of the corporate bond market for the investment grade ratio by only 0.09 and the regression is not significant.

As a result of the findings our first proposition, that the central bank rate is a main driver for the growth in the Swedish corporate bond market, was rejected as no significance in the regression analysis could be seen between the yield level/interest rate and the issuance of bonds. Thus it cannot be proven that they have any effect on the corporate bond market. However, it is good to be aware of that it does not prove that there is not an effect but solely that it could not be supported in this case. On the other hand, it could also be an indication of that the yield level/interest rate are not drivers of growth and neither of innovative behaviour.

The second proposition, that the Basel Accords are main drivers of the growth in the Swedish corporate bond market, was supported as significance between the issuance of bonds and the Basel variables could be seen in the regression analyses. As the study found support for this proposition it indicates that regulations have triggered a market development. Thus the Basel Accords seem to have triggered growth in the Swedish corporate bond market. It also indicates that a regulation can trigger innovative behaviour on the financial market.

The research questions can thus be answered. When asking which factors that are the main drivers of growth in the Swedish corporate bond market, we can conclude that the Basel Accords are the main drivers. As mentioned throughout the study, the literature review gave

an indication of what drivers to investigate closer. The main ones, which ended up being tested, were the Basel Accords and the central bank rate. The regression analysis then found that the Basel Accords showed an effect on the issuance of bonds with a two-month time lag, which means that when an announcement/implementation of the regulations have been made, a rise can be seen in the issuance of corporate bonds after two months. The relationship between the growth and the Basel Accords can thus be described as a positive one where once an announcement has been made a market growth can be seen two months later. As for the relationship between the growth and the central bank rate no clear connection could be identified other than in the literature review, which is partly based on previous qualitative studies. The relationship might exist, as the central bank claims it does, but we could not prove it in this particular case.

To conclude, the Basel Accords have evolved during the last couple of years and each time the regulations have become more specific or have reached new areas. As the requirements for banks have increased, through for example the net stable funding ratio (NSFR) and liquidity coverage ratio (LCR), new costs have occurred for the banks. In turn it indicates that the banks have chosen to impose these newfound costs, in various ways, on their customers, which then have affected the capital markets in the way that it has become both harder and more expensive for companies to borrow from banks. However, even though the study supports that the Basel Accords have had an impact on the growth of the corporate bond market it does not prove that the costs of the bank loan have increased. The study rather indicates that the costs have increased and/or that the companies believe that they will, and as a result they did therefore look for other options. Also, for investors seeking higher returns the reduced riskiness of bank deposits has lowered the yield rates, and thus created a demand for alternative investment options. As mentioned in the literature review, the Swedish corporate bond market used to have a lack of transparency and control, which made the market unattractive. However, with a growing need for other financing options besides the traditional bank loans more companies started to look at the corporate bond market. The new demand and supply have greatly improved the conditions for the Swedish corporate bond market to grow. A somewhat structural change is happening on the capital markets, where the traditionally bank centred Swedish financial system is opening up for other ways of financing, that is directly through the market and were the banks instead act as intermediaries. Thus this leads to that the banks can get a new role and one could say that in the chain of events a regulation has become a driver of a financial innovation, in the sense of a market development. However, this is just one step in the direction towards a changed financial market and there will also be a strong need to develop new regulations to secure the stability of the market and enhance new innovations to make the market as efficient as possible.

5.1 Future Research

There are several directions to further research the Swedish corporate bond market. An obvious idea would be to perform a similar study as this one, but in a couple of years, to see whether the effect of the regulations has changed. Also, there will in the future be more years

of data available to analyse. However, since the interest/yield rates were indicated as a main driver by the literature review, but not significant when using the central bank rate as the indicator and variable, the aspect would be interesting to research further. One way to move forward would be to do a case study with a bank to get access to their historical interest/yield rates. By getting access to more information one could do a quantitative study and test the actual average interest/yield rates against those of corporate bonds. Then bank loans/deposits can actually be compared as a financing option to corporate bonds. Since our study indicated that the Basel Accords have been a main driver for the growth, thus a regulation have been a main driver, other regulations connected to the financial market could be studied to see how the market reacts. Another suggestion for the future is to investigate whether the regulation Mifid 2 have a positive or negative impact on the development of the corporate bond market.

5.2.1 Upcoming Regulation: Mifid

With the implementation of Mifid 2 the aim is to improve the risk evaluation for actors (lowering entry barriers and improving competition), which probably will attract more investors and especially smaller ones. With more investors it will result in more capital and higher liquidity, however, the risk is that it might not be the case in all sectors. The risk is however seen as a short-term problem that will be outweighed by the long-term gains. To minimize this risk some institutions will be excluded from the regulation to protect the investments that larger than normal or where there is a lack of a liquid market. (Finansinspektionen 1, 2015)

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Apendices

APPENDIX A – Detailed Summary of the Variables

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max	(7) Var	(8) skewness	(9) kurtosis	(10) sum
Issued Amount	96	6.674e+09	4.622e+09	0	1.958e+10	2.136e+19	0.715	2.621	6.407e+11
Adjusted Issued	96	4.499e+09	3.166e+09	0	1.343e+10	1.002e+19	0.874	2.876	4.319e+11
Number bonds	96	13.76	9.381	0	46	87.99	0.908	3.379	1,321
Number issuers	96	8.917	5.992	0	28	35.91	1.039	3.475	856
Central Bank Rate	96	1.661	1.364	0	4.750	1.859	0.847	2.417	159.5
Basel Accords	96	0.344	0.708	0	3	0.502	2.262	7.754	33
Basel Binary	96	0.240	0.429	0	1	0.184	1.220	2.489	23
Basel News Search	96	191.1	196.8	1	595	38,742	0.699	1.996	18,341
Ratio IG	96	0.719	0.305	0	1	0.0928	-1.210	3.629	69.01
Ratio HY	96	0.198	0.221	0	1	0.0489	1.272	4.830	18.99
GDP BSEK	96	920.3	31.76	857.7	978.8	1,009	-0.519	2.668	88,348

VARIABLES	(11) p1	(14) p25	(15) p50	(16) p75	(18) p95	(19) p99
Issued Amount	0	2.911e+09	5.499e+09	9.780e+09	1.590e+10	1.958e+10
Adjusted Issued	0	2.119e+09	3.415e+09	6.353e+09	1.073e+10	1.343e+10
Number bonds	0	6.500	12	20	31	46
Number issuers	0	5	7	11.50	21	28
Central Bank Rate	0	0.750	1.250	2	4.250	4.750
Basel Accords	0	0	0	0	2	3
Basel Binary	0	0	0	0	1	1
Basel News Search	1	17.50	128	372	550	595
Ratio IG	0	0.600	0.783	1	1	1
Ratio HY	0	0	0.160	0.333	0.588	1

APPENDIX B – Basel Accords: Announcements and Implementation

ANNOUNCEMENTS AND IMPLEMENTATION	DATE
Basel II fully implemented	2007-02
2009/27/EC, officially adopted	2009-04
Basel 2,5 announced	2009-07
2009/83/EC, officially adopted	2009-07
2009/111/EG, officially adopted. CRD II is accepted	2009-09
Decision to improve the capital requirements for banks (G20)	2009-09
2010/XX/EU additional changes of CRD (CRD III)	2010-07
Agreement on more detailed regulations (Basel III)	2010-09
2010/76/EU, officially adopted	2010-11
Basel III presented	2010-12
CRD II applied	2010-12
2010/76/EU should have been fully implemented	2011-01
Swedish government and the Swedish central bank announces changed capital requirements	2011-03
CRD IV and CRR announced - updated version	2011-06
Implements part I of changed capital requirements	2011-06
Sweden decides to implement Basel III earlier then required and sets higher requirements for larger banks	2011-11
Part II of changed capital requirements is implemented	2011-12
Remaining provisions of 2010/76/EU are implemented. CRD III applied	2011-12
Basel 2,5 is fully implemented	2011-12
Swedish government and the Swedish central bank decide to evaluate how to implement the improved capital requirements directive (CRD IV and CRR)	2012-04
Implementation of Basel III starts	2013-01
Capital buffer - Pillar II	2013-01
Implementation Liquidity Coverage Ratio	2013-01
Preliminary acceptance of CRD IV (Basel III)	2013-02
New capital requirement accepted CRD IV	2013-04
CRD IV and CRR are decided upon	2013-06
Proposal and revision of the prudential treatment of banks' equity investments in funds	2013-07
Swedish government and the Swedish central bank presents the evaluation on the implementation of improved capital requirements (CRD IV and CRR)	2013-09
Swedish Financial Supervisory Authority - Decision PM	2013-12
Basel III is implemented in the EU through directives CRD IV and CRR	2014-01
Basel III implemented generally	2014-01
Minimum capital requirements CET1, Tier 1 and total capital ratio (CAR)	2014-01
Final decision about NSFR	2014-09

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