

Designing a corporate bond

How to design a corporate bond to attract additional capital from the market.

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Abstract:

It is hardly possible to give a total view of my thesis without reading the confidential parts but I will try my best to give a brief summary of the process in this paper. The thesis is written for a private equity firm, which can not be referred to by name, and the information in the thesis is confidential. This paper will give an idea about the chosen path in writing the thesis.

The goal of the thesis was to design a corporate bond for a non-listed firm to attract additional capital from the market. The result of the research is a bond with related credit rating, conditions and prospectus. The market interest rate is historical low and therefore the investors are looking for alternatives to invest their money. The banks are reluctant to provide credit to SMEs. Banks usually only grant credit if there is already long-term debt included in the company. These two factors have led to an increasing number of non-listed corporate bonds.

A credit rating model is built to approach the credit rating of the bond and to identify all the different kinds of risk. The main components of the model are the profitability (rate of return on capital), the solvency and the liquidity. The model is completed with several other variables that influence the risk of the bond.

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1. Introduction

1.1 Background

The research was conducted on behalf of a private equity firm and under the supervision of de Jong & Laan Corporate Finance and the University of Twente. The main goal of the research is to design a financial product to attract additional capital from the market. The private equity firm is a non-listed firm.

There are many types of alternative funding for firms that want to attract the money from the market. An overview of the most common forms of financing can be found on the website of 'de Nationale Financieringswijzer' (www.nationalefinancieringswijzer.nl). There is made a pre-selection between these fundings based on the needs of the private equity firm. The most important for the firm is that the directors will retain all control of the company. Based on the first interviews the following kind of funding are selected:



Figuur 1 - Funding

1.1.1 Peer-to-peer business lending

Peer-to-peer business lending is one way companies can use to borrow money from private individuals or other companies without the intervention of a traditional bank or financial institution. The loan is usually divided into smaller pieces and an individual can take a part of the loan. The expectation is that the market of the peer-to-peer business lending will consist of 40 billion euro's in 2016. (2015, juli, <https://www.fundingtree.co.uk/peer-to-peer-business-lending>)

1.1.2 business lending

A fund that works with banks to borrow money to entrepreneurs. Banks do not lend the full amount requested by the company because for example, the company already has too much long-term debt in the company. (Nederlandse Vereniging van Banken, 2015, <https://www.nvb.nl/nieuws/2015/4090/nieuwe-financieringsmogelijkheden-voor-het-mkb.html?cookie=set>).

1.1.3 Crowdfunding

Crowdfunding is a funding in which money is collected from many people; "the crowd". (Kamer van Koophandel, 2015, <http://www.ondernemersplein.nl/ondernemen/geldzaken/hoe-komt-u-aan-geld/info-en-advies/externe-financiering/crowdfunding>). They want to invest an amount in a company or project because they have sympathy for the project and can make at the same time a small return. It may be a loan, shares, or donation. Usually people invest in crowdfunding relatively small amounts, around a thousand euros.

1.1.4 Real estate fund

A real estate fund is engaged in investing money in real estate like office buildings, shopping malls or houses. The property serves as collateral and the fund earns money on the lease or the ultimate selling of the property at a profit.

1.1.5 Issuing of shares

The issuing of share can in many different forms. A share is a security which represents a part of the capital of the company (Dutch Encyclopedia). The shareholders are entitled to dividends and have voting right in the general shareholders meeting. With the issue of shares you sell a part of your company to another. Before a

company may issue shares, it is reviewed by the AFM. A prospectus must be prepared with all the relevant information from the company. Going public is for a company time consuming and it is not profitable when the firm is looking for a relatively small loan to be repaid within five years.

1.1.6 Bonds

A corporate bond is long term debt (Brealey, 2008). There are many different types of bonds and with the different types the bondholder will receive also different rights. Listed and non-listed firms can issue bonds. The bonds of a listed firm can be traded on the exchange market. Issuing bonds by a non-listed company is a little bit more complex because there is not a exchange market to trade the product. However corporate bonds are increasingly popular due to the current financial situation. Companies can not always borrow money from the bank and a savings account yields a minimum return anymore. The interest rate on a savings account is 0.6% (Rabobank, January 2016).

1.2 Problem statement

Due to the economic crisis and the uncertain near future, it is now more difficult for companies to borrow money at the bank in comparison with before the economic crisis. Banks have to deal with higher capital requirements and a higher leverage ratio with the introduction of Basel II and III (McKinsey & Company, 2010). Banks are quite reluctant to provide riskier loans. The client acquires companies in the Dutch manufacturing industry. For the acquisitions they need money, and the bank is reluctant to provide money for this kind of risky investments. The client will therefore issue a bond to borrow money from private investors. When a debt is included in the company, the bank is more willing to also provide an additional loan. The problem statement of this thesis is:

"How to design a framework that can used to issuing non-listed corporate bonds and how can the framework be used to create a corporate bond for the client to attract additional capital from the market"

1.3 Research questions

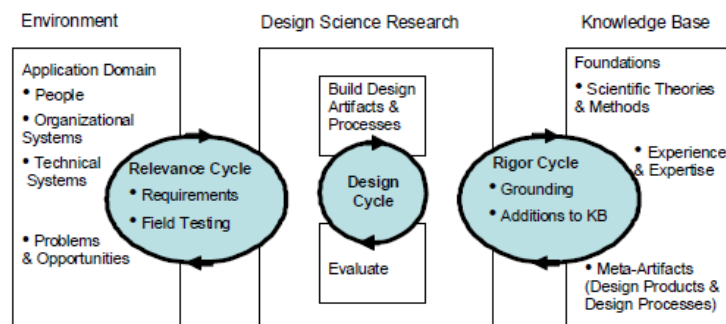
A set of sub questions are created to solve this problem in a structured way. The key aspects of the main problem are the sort of corporate bond, the credit and other risks, the conditions of the bond, the market and the laws and regulations. The following sub questions are set:

- 1. What is the corporate structure of the client and what are the purposes for the coming five years?**
 - What are the needs of the client?
 - What are the goals of the different companies?
 - What are the investment criteria?
 - What are the goals for the new acquisitions?
- 2. What are corporate bonds and which sort is the best for the business of the client?**
 - What kind of bonds exist?
 - What are the conditions of the different bonds?
 - Which bond fits best with the company of the client?
- 3. Which risks can be identified for the different sorts of bonds and how can a credit risk model be created for a non-listed corporate bond?**
 - What are the risks expressed in a qualitative way?
 - How can the risk be transformed into a model?
- 4. Which regulation applies to issuing a non-listed corporate bond?**
 - Which laws are involved in issuing the bond?
 - Which taxes must be considered?
 - What does the Autoriteit Financiële Markten (AFM) say about a corporate bond?

5. **What is the effect of a changing market interest rate on the bond issuance?**
 - How will the market interest rate fluctuate in time?
 - Which factors influence the market interest rate?
 - How can the market interest rate be predicted for the coming five years?
 - What is the influence of a changing market interest rate on the price of a bond?
6. **What is most structured way to determine the coupon rate of the bond?**
 - Is the coupon rate just the reflection of the risk?
 - How does the market interest rate influence the coupon rate?
7. **How to design a framework to create new bonds in the future in an efficient way?**
 - What are the factors for the framework?
8. **How can the client take care of the bond emission?**
 - **confident**

1.4 Research Design

The purpose of this research is to design an alternative funding for a private equity firm in the form of a bond. The research will consist of a knowledge based part, a design part and field testing. First in the knowledge based part a research is done to the characteristics of a corporate bond. The theoretical part consist of the laws, regulations, theories and models about a non-listed corporate bond. A good structured bond will provide a mutual benefit between the investor and the issuer of the bond. The issuers wants to attract money from the market at the cheapest possible rate and the investors wants the biggest possible return. The "design cycle" must provide the right fit between the "environment", the investment market and the "Knowledge Base", the frames, like laws and regulations, for a corporate bond. In this research the *"Three cycle view of design model"* is used (Hevner, 2007).

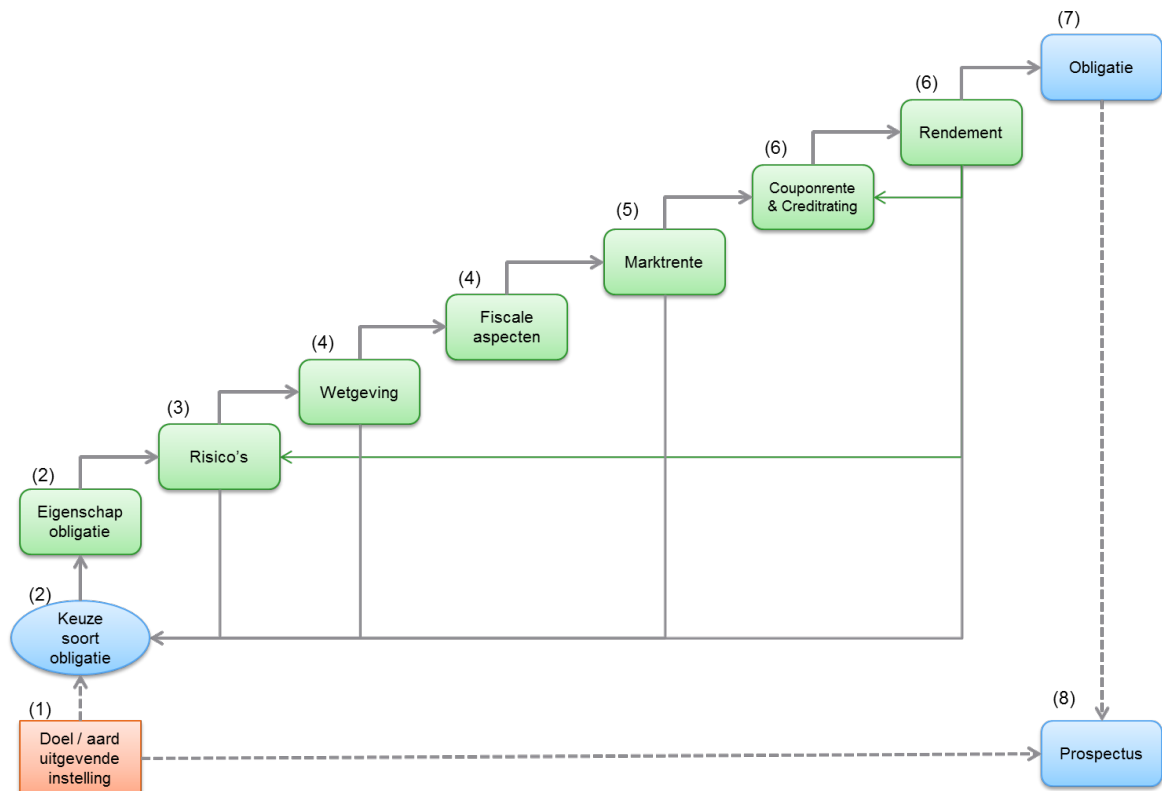


Figuur 2 - Three cycle view of design model Hevner

1.5 Structure

Some validation rounds are performed to get finally the bond that can be issued by a non listed company. The numbers in the upper left corner refer to the research question that is being answered in the steps of the process. In the theoretical framework, Chapter 2, the green collared steps are elaborated.

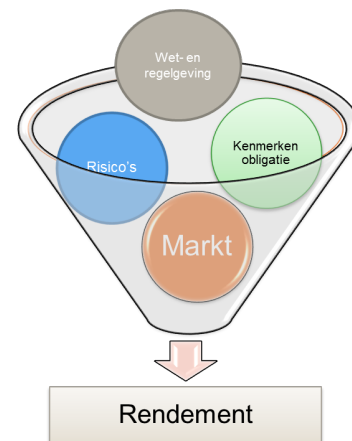
First is inventoried what kind of bonds exist and what the characteristics of the bonds are. Investing money involves certain risks, and these risks are qualitatively expressed in the second step. After the various types of bonds with their properties and risks are identified, the different kind of bonds are compared with the laws and tax regulations. The fiscal aspects are decisive for the eventual rate of return of the bond. Then the market rate has been examined because market interest rates will affect the value and the coupon rate of the bond. The credit rating model is used as an internal measurement tool to determine if the coupon rate is an accurate reflection of the risk associated with the bond. The process for designing the bond looks schematically as follows:



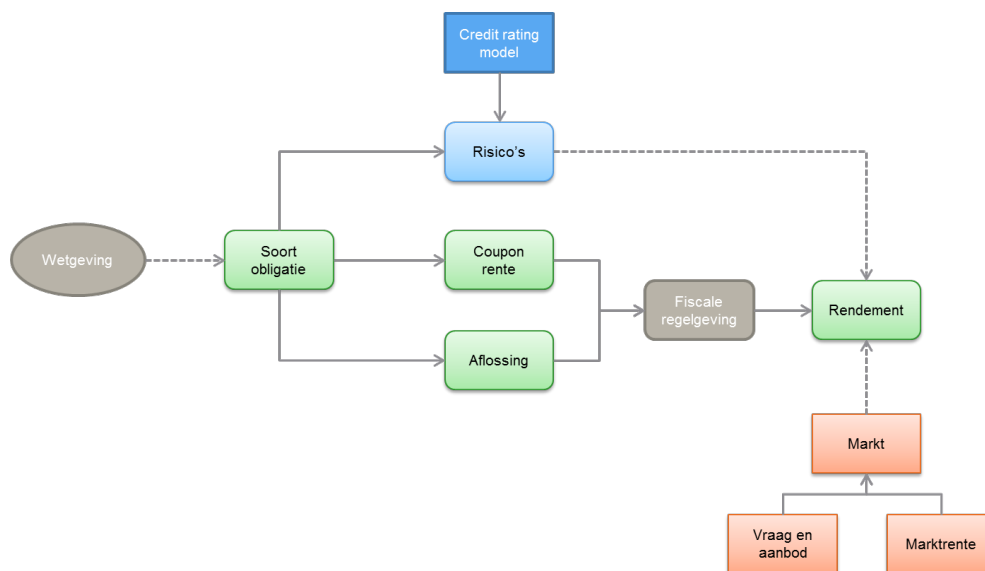
Figuur 3 - Structure thesis

2. Knowledge base

In this part the green collared steps in figure 2 will be explored according to the available scientific literature. This part is the rigor cycle from the model of Hever and will give part of the answers to the research questions 2 till 7. In the end the success of the bonds is dependent of the profitability for the investor. The rate of return is influenced by; the market, de risks, de conditions of the bond and the laws and regulations (figure 4).



Figuur 4 - opbouw rendement



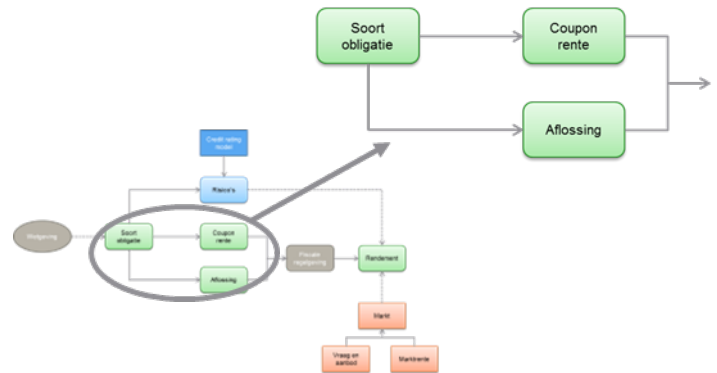
Figuur 5 - structure knowledge base

Figure 5 gives an overview of how the rate of return is influenced in the process. This chapter will point out all the different elements which influence the rate of return.

Confidential

2.1 Corporate Bond

The bondholder lends an amount of money, the nominal value, to the issuer of the bond. In return, the bondholder will receive an annual coupon payment and at the end of the contract, the bondholder receives a percentage of the face value back. The coupon payments and the percentage of refund depends on the kind bond and the conditions of the bond.



Figuur 6 - focus chapter 2.1

2.1.1 Definitions

The following definitions are used (beleggerswoordenboek Rabobank, 2015):

- **Issuer:**
The issuer is the company or institution that will issue the securities to the market and the one who will receive the loan. The company's name is always mentioned on the physical shares.
- **Coupon:**
The coupon is the value of one bond and investors can buy one or more coupons dependent on the terms of the bond.
- **Nominal value:**
The nominal value is the value that is written on the bond, also named the face value.
- **Issuing costs:**
Issuing costs are the recurring costs that must be paid for the transactions of the securities.
- **Pari :**
Pari is the face value of the bond. A bond price equal to the face value is called à pari.

2.1.2 Bonds

There are many types of bonds and a bond is made up of various components and conditions. The conditions of the bonds listed below can also be combined. The most common bonds:

Perpetual Bond

A distinction can be made between a bond loan with an agreed term or indefinite maturity. A perpetual bond is a loan with a everlasting maturity (Beleggerswoordenboek Rabobank, 2010). The annual coupon rate is the interest on the nominal value of the issued bond. A clause could be included in the contract which states that the bonds may be redeemed. This type of bond is usually referred to as a subordinated loan.

Subordinated bond

In a subordinated bond investors take a greater risk because in the case of a bankruptcy the bondholder can not claim the invested money. Usually this means that the investor will lost the money. This higher risk will give a higher coupon rate. (Brealey, Stewart & Franklin, 2010)

Zero-coupon bonds

In a zero-coupon bond there is no payment of a coupon rate. Instead, you can buy the bond at a price below the nominal value of the product. The rate of return is the difference between purchase price and the pay-out value (Hull, 2011)

Convertible bonds

Convertible bonds are bonds that can be converted at an agreed time in stocks of the company. Each bond with a certain face value can be converted into a predetermined number of shares. can than a predetermined number of shares to be acquired each bond with a nominal value. The coupon rate is lower than normal because this form can benefit from the increase in the underlying stock. (Kat, 2001)

Example:

Bond X has a nominal value of €10.000. The bond can be converted into 250 shares of the company X. The conversion rate is $10.000 / 250 = €40$. Suppose the underlying share increase from €40 to €45, the new value of the bond is $45 \times 250 = €11.250$ and the profit is €1250.

Reversed convertible bond

The reversed convertible bond gives not the bondholder the right to convert the bond into shares but the issuer of the bond. If the price of the underlying stock price will decrease, the issuer of the bond will convert the bond into share because the price of a share is less than the face value of the shares (Hull, 2012).

Callable bond

For a callable bond, the bond issuer may, under certain conditions, early pay off the debt of the bond. The price will be above the par value of the bond. A bond is beneficial to pay off early if the coupon rate is higher than the current interest rate. (Hull, 2012)

Covered bond

The covered bond will give the bondholder more certainty on the repayment of the debt. The physical assets of the company are used as collateral for the bond. In this way, the bondholder less risk but receives a lower coupon rate. (Brealey, Stuart & Franklin, 2010)

Bond with compensation in kind

Businesses are becoming more and more creative in paying back the loan and paying interest payments. Increasingly, companies choose to repay in kind, which the investor will not get any money back but instead a product from the company in which it invests. Spyker car company came in 2014 in the news when the issue of the Spyker Venator bonds was announced. Spyker would fetch 12 million, the repayment would be done by means of the limited edition Spyker B6 Venator car (Financieel Dagblad, maart 2014).

2.1.3 Coupon

The coupons are periodic payments to the bondholder in exchange for the money borrowed. The term coupon still comes from the time the bond was issued on paper and you're next to the mantle, the security, a collection of receipts, coupons, received that could be exchanged for the regular pay-out. The coupon payment is expressed as a percentage of the nominal value. A € 1,000 and annual coupon of 4% bond with a nominal value pays example, an interest rate of 40 euros per year.

The coupon rate of the bond depends heavily on the risk of the buyer and what the buyer is willing to pay for the bond. The financial health of the company determines the risk with the other risks listed under the heading risk bond. In addition, the value of the bond is affected by fluctuations in the interest rate which again indirectly influenced the coupon rate of the bond. Bond with a longer maturity have a higher coupon rate than bonds with shorter maturities because there is more uncertainty for a longer duration.

The most common coupon rates are:

Fixed coupon rate

The bondholder will get a fixed percentage of interest each year. The fixed coupon rate does not change during the period (Brealey, Stuart & Franklin, 2010).

Floating coupon rate

With a floating coupon rate the interest rate is variable. Interest rates may fluctuate during the term and usually this surge in interest rates linked to market rates. (Hull, 2011)

Zero coupon rate

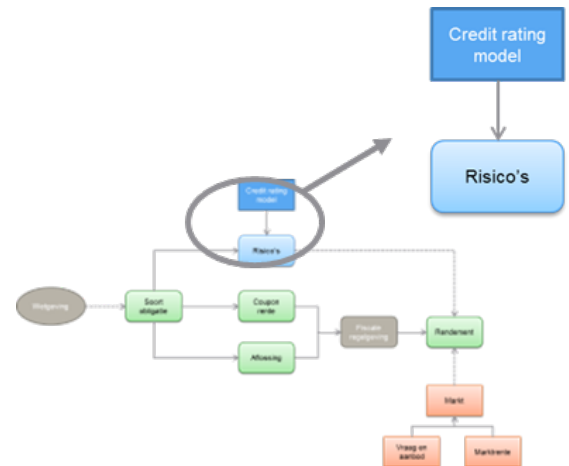
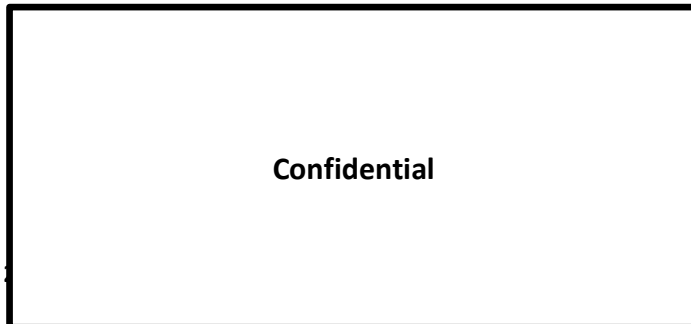
The zero coupon bond will not pay any interest rate. The rate of return in this sort of bonds is a one-time payment at maturity. The amount paid at maturity is higher than the amount originally invested by the bond holder (Hull, 2012).

Bonus

The bondholder will get an additional bonus at maturity in case certain goals are reached. (Brealey, Stuart & Franklin).

2.2 Risk management

There are a number of risks that need to be taken into account when buying a corporate bond. The investor wants a rate of return commensurate to the risk that the investor takes by investing in the bond. The risk of investing in a corporate bond is mentioned in this section. The risk will be expressed in a quantitative and qualitative way. The biggest risk is the credit risk and this risk will be determined with a credit rating model. The 'Autoriteit Financiële Markten' (AFM) states that all the risks that are related to the firm must be included in a qualitative way in the prospectus.



Figuur 7 - focus hoofdstuk 2.2

Credit or default risk

Credit or default risk is the risk that a bond issuer will fail to make the coupon or principal payments and default on the bonds (U.S. Securities and Exchange Commission (SEC), 2014). Credit rating agencies review the bonds and give the issuer and bond a credit rating. The rating is not a guarantee but will give an indication about the credit risk. Companies labelled with a good rating can usually issue bonds with a low interest rate.

Inflation Risk

Inflation risk is the risk of a decline in purchasing power. (SEC, 2014). With the amount of money received at maturity the investor will purchase fewer goods and services than before. In general, when the inflation increases, the effective rate of return will decline.

Liquidity Risk

Liquidity risk is the risk that it is not possible to sell the bond at any moment in time for cash and receive a price that reflects the true value of the bond. A bond that is not traded on an exchange have a higher liquidity risk than a traded bond (SEC, 2014).

Call Risk

The terms of a bond can give the issuer the right to buy back the bond before the maturity date. It is not sure that the bondholder can invest in a bond with comparable terms (SEC, 2014). The issuer of the bond will calling the bond if the market interest rates have fallen relative to the coupon rate on the bond.

Interest rate risk

The price of a bond declines if the market interest rates rise (Hull, 2011). This is called the interest rate and is common to all sort of bonds, even for high investment grade bonds. Bonds with a longer time to maturity have a bigger interest rate risk because the market interest rate can fluctuate more over time.

Value risk

The non-listed corporate bonds are not traded on a public exchange market and thus the price is not determined on the market. There is a risk that the bond can not valued during the maturity and that the bondholder can not sell the bond at a fair price, a price that is equal to the face value of the bond (AFM, 2015).

Fiscal risk

The Dutch government can make changes to the taxation. It can be the case that the issuer or the investor has to pay more tax and the effective rate of return will decline. (AFM, 2015).

Juridical risk

The issuer could be sued in court and a good defence will always costs time and money (AFM, 2015). The issuer will always, regardless the judgement of the court, have the risk leading some reputational damage. The cost of litigation could lead to reduced profitability.

Operational risk

Operational risk is the risk of loss resulting from inadequate or failed internal processes, people, and systems or from external events (Basel Committee, 2011). The people risks, technology risks, legal risk, physical risk etc are included. Reputation risk and strategic risk are excluded from this definition.

Forecast risk

The bonds will be repaid several years after issuance. It is important for the investor to know what the financial projection is for the coming years and if the company has enough cash flow to pay the coupon payments and in the end the repayment of the debt. The issuer will make a financial projection to convince the investor. However, no one can predict the future exactly and it is possible that the forecasts are not in line with the development in the future. The financial forecast may differ both by internal and external factors (AFM, 2015).

Sector specific risk

Each sector has its own specific risk. Investing in a portfolio with investments in different sectors can reduce the risk. The risk will be less if the portfolio is diversified and the investments are made in different sectors and companies (Hull, 2012).

Debtor risk

There is a risk that a debtor can not pay which can lead to a shortage of cash flow to pay the coupon payment in a timely manner (Vriesendorp, 2012).

Directors risk

The development and operation of the issuer depends on the knowledge and experience of the directors. The disappearance of the directors could lead to destruction of capital. This can have a negative impact on the business and financial results of the issuer (AFM, 2015).

2.2.2 Bond versus Risk

Not every type of risk will affect all the different types of bonds. For example, a covered bond has the guarantee that the investor will get back his initial investment. A third party or the real estate of the issuer will guarantee the bond. The covered bond is therefor not influenced by the credit risk because even though the company gets in default the investor will get his money back. The table below gives an indication about the affect of the different risks to the bonds identified in the previous section. The risk of the bond is higher if more "+" are showed in the related column.

	Perpetuele	Achtergestelde	Zero-coupon	Converteerbaar	Omgekeerd converteerbaar	Callable	Covered	Natura
Credit risk	+	+	+	+	+	+	-	0
Inflation risk	+	0	0	+	+	+	0	-
Liquidity risk	+	+	+	+	+	+	+	0
Call risk	-	-	-	-	-	+	-	-
Interest rate risk	+	+	+	+	+	+	+	-
Waarderingsrisico	-	+	+	+	+	+	-	+
Opertioneel risico	0	0	0	+	+	0	-	-
Prognoserisico	0	0	0	0	0	0	-	-
Sector specifiek risico	0	0	0	0	0	0	-	0
Juridische risico's	-	+	-	-	-	-	-	-
Risico afhankelijkheid bestuursleden	-	+	+	+	+	-	-	-
Debiteuren risico	-	+	-	-	-	-	-	-

Figuur 8 - Relatie risico's en soort obligatielening. '+' betekent substantieel risico, '0' een neutraal risico en '-' betekent dat de obligatie niet gevoelig is voor het risico.

The same comparison is made for the kind of coupon payment and the risk:

	Fixed	Floating	Zero-coupon	Winstbonus
Credit risk	+	+	+	+
Inflation risk	0	+	+	+
Liquidity risk	0	0	0	0
Call risk	-	-	-	-
Interest rate risk	-	+	-	+
Waarderingsrisico	0	0	0	0
Opertioneel risico	-	+	-	+
Prognoserisico	-	+	-	+
Sector specifiek risico	0	0	0	0
Fiscale risico's	-	+	-	+
Juridische risico's	-	+	-	+
Risico afhankelijkheid bestuursleden	-	+	-	+
Debiteuren risico	-	+	-	+

Figuur 9 - Relatie risico's en couponrente

2.2.3 Credit rating model

It is hardly possible to determine the coupon rate with a clear formula for non-listed companies. The ratings and related coupon rate are judgements about the financial situation and future of the firm. There is no general accepted way to calculate the rating and the coupon rate. The coupon rate is influenced by many factors and the most common factors are the market interest rate, the credit risk and the supply and demand of non-listed bonds in the market. This section focuses on the approach to find a way to determine the credit risk and the related coupon rate. Rating agencies like Standard&Poor's, Moody's and Fitch Group make credit ratings for companies and earn each year a lot of money by doing this. The credit ratings are based on many variables and as many data of the market. The ratings from Moody's en Standard&Poor's and Fitch are categorized as follow:

Moody's	Standard & Poor's and Fitch
Investment-bonds:	
Aaa	AAA
Aa	AA
A	A
Baa	BBB
Junk Bonds:	
Ba	BB
B	B
Caa	CCC
Ca	CC
C	C

Tabel 1 - Credit rating categorieën volgens Moody's, Standard&Poor's en Fitch

The bonds with the least risk have a tripple-A (Aaa) rating, the second best bonds have Aa rating and so on. The bonds with a rating Aaa till Baa are investment-bonds and these bonds are relative riskless to invest in. Banks, pension funds and other financial institution regulated by the government are only allowed to invest in the high graded investment bonds.

The bonds with a rating below the Baa are rated as high-yield or junk bonds. The risk is much higher than the investment bonds but the effective rate of return can be higher.

Bellow is a table included about the distribution of the credit ratings from companies in the industrial sector. The data is provided by Standard&Poor and show the median of the ratio's over three years. The data can be used to determine the ratios of the issuer and approach a related credit rating for the bond.

Ratio	AAA	AA	A	BBB	BB	B	CCC
EBIT / interest	23,8	19,5	8,0	4,7	2,5	1,2	0,4
Return on capital, %	27,6	27,0	17,5	13,4	11,3	8,7	3,2
Total debt / (total debt + equity)	12,4	28,3	37,5	42,5	53,7	75,9	113,5

Tabel 2 - studie Beaver et al. naar de relatie tussen credit rating en continuïteit van 544 ondernemingen

Beaver, McNichols en Rhie did a study to the ratios of 544 companies who get in a default and to 544 companies that survived. The studied the ratios for a period of 40 years and concluded that the chance on default in the next year is relative to the chance on no default in the current year:

$$\text{Log (relative chance of failure)} = -6,445 - 1,192 \times ROA + 2,307 \times \frac{\text{Liabilities}}{\text{Assets}} - 0,346 \times \frac{\text{EBITDA}}{\text{Liabilities}}$$

$$\text{Relative chance of failure} = e^{\log(\text{relative chance of failure})}$$

The most common ratios used by credit rating agencies to determine the credit rating are the profitability (return on capital), the solvency and the current ratio.

Profitability

The return on capital gives and indication about the profitability of the firm. The profitability is the ratio between the profit that is made and the capital of the firm (Brealey, Stuart & Franklin, 2010):

$$\text{Return on capital} = \frac{\text{earnings} + \text{interest} + \text{taxes}}{\text{total capital}}$$

The profitability should be between the 5% en 10%.

Solvency

The solvency is the ratio between the equity and the debt of the company. The solvency shows in which way the company is financed with debt. The distinction is made between the solvency on total capital and the solvency on long-term debt (Brealey, Stuart & Franklin, 2010):

$$\text{Solvency} = \frac{\text{equity}}{\text{long term debt}}$$

$$\text{Solvency} = \frac{\text{equity}}{\text{total capital}}$$

The solvency should be above the 25%

Current ratio (liquidity)

The current ratio is a liquidity ratio shows if the company is able to pay the short-term and long-term obligations. The current ratio considers the total assets of the company relative to the company's total liabilities (Brealey, Stuart & Franklin, 2010):

$$\text{Current ratio} = \frac{\text{stock} + \text{debtors} + \text{liquid assets}}{\text{current liabilities}}$$

The current ratio should be between the 1,2 en 1,5.

2.2.4 Rating model

The Collin credit model (Collin Crowdfund, 2015) is a model based on the profitability, solvency and the liquidity. The credit rating is calculated based on the historical financial statements and the forecast for the coming years. The Collin credit rating is categorized in the follow rating scores:

Creditscores	Excellent	Goed	Ruim voldoende	Voldoende	Matig
Rentabiliteit	100 – 61	60 – 31	30-11	10-2	1 – negatief
Solvabiliteit	100 – 46	45 – 36	36 – 26	25 – 16	15 – negatief
Liquiditeit (current ratio)	>= 1,5	< 1,5 – 1,4	< 1,4 – 1,2	< 1,2 – 1,0	< 1,0

Tabel 3 - Bepaling Collin creditscore

The rating will be determined with the following weights:

Weging	Excellent	Goed	Ruim voldoende	Voldoende	Matig
Rentabiliteit	40	32	24	14	0
Solvabiliteit	25	20	15	5	0
Liquiditeit	35	28	21	11	0
Maximum punten per categorie	100	80	60	30	0

Tabel 4 - Weging voor Collin creditscores

In the end the sum of the weights will lead to a overall credit score. The credit score is linked to a interest rate interval.

Score	credit score	Rente interval
100 – 91	Excellent	3 - 8 %
90 – 71	Goed	4 - 9 %
70 – 46	Ruim voldoende	5 - 10 %
45 – 21	Voldoende	6 - 12 %
20 of minder	Matig	8 - 14 %

Tabel 5 - Collin creditscores en het bijbehorende rente interval

The Collin credit rate model is the base for the credit rating model that is designed in chapter 5.

The capital market is an important factor if you want to issue a corporate bond. The bond should contain the proper terms to be attractive to investors in the market. The issuer can offer a lower coupon rate if the market interest rate is also low. De investor and issuer are interested in the market interest rate because the bond becomes less worth when the market interest rate will increase. This section will focus on prediction the market interest rate for the coming years.

```
graph TD
    Markt1[Markt] --> VraagEnAanbod[Vraag en aanbod]
    Markt1 --> Marktrente1[Marktrente]
    VraagEnAanbod --> Markt1
    Marktrente1 --> Markt1

    subgraph RendementCalculation [Rendement Calculation]
        Wetsgeving([Wetgeving]) -.-> SoortObligatie[Soort obligatie]
        SoortObligatie --> Risico's[Risico's]
        SoortObligatie --> Couponrente[Couponrente]
        SoortObligatie --> Aflossing[Aflossing]
        Risico's -.-> Rendement[Rendement]
        Couponrente --> Rendement
        Aflossing --> Rendement
        FiscaleRegelingen[Fiscale regelingen] --> Rendement
    end
    RendementCalculation --> Rendement[Rendement]
    Rendement --> VraagEnAanbod
    Rendement --> Markt2[Markt]
    Markt2 --> VraagEnAanbod
    Markt2 --> Marktrente2[Marktrente]
```

Figuur 10 - focus hoofdstuk 2.3

The economic fundamentals that influence the change in market interest rate are the demand and supply of money, the national savings and the inflation. These indicators are an indicator for the economy (ABN AMRO, 2012):

Supply and demand largely determine the change in the market interest rates. At the moment companies and / or families save money for future investments, the supply of money will be higher and the interest rates will fall. On the other hand if businesses and / or families have a lot of confidence in the economy and when they spend and invest more money, the money demand will be greater and thus the market interest rates will increase. The government plays a major role in the supply and demand of money. A larger public deficit means more demand and the market interest rate will increase.

The money of all the families and companies surplus the budget of the government is called as the national savings. If the public deficit is bigger than the national savings then there is a national savings deficit the other way around is a national savings surplus. Countries with a national savings surplus have a relative low market interest rate.

Inflation is strongly related to the market interest rate. If someone lends money he/she will get interest payment in return. The effective interest rate is the nominal interest rate corrected with the inflation. The nominal interest rate is the interest rate that is agreed between the borrower and the lender. If the inflation rise, the effective interest rate will decline. The central bank will increase the market interest rate to correct this effect.

The primary purpose of the monetary policy is the pursuit of price stability. The purchasing power will remain the same if the prices are remain about the same level. Price stability is important for the properly use of our financial system (ECB, 2008). The European Central Bank provides stability by keeping the inflation just below the 2%. Increasing the market interest rate makes it less attractive for families and companies to borrow money. The consequence will be that prices will rise more slowly and inflation remains just below 2%. Conversely, the ECB may cut interest rates to stimulating the economy and inflation will go up.

The Dutch market interest rates will largely depend on the policy of the European Central Bank. The level of the Dutch market interest rate will follow the moves of the European interest rate. The interest is held by the ECB deliberately low from the start of the economic crisis. This is to ensure that does not quite stop the economy in

Europe. Low interest rates enables banks to borrow enough money and thereby provide enough loans to companies or individuals that will promote the growth of the economy.

Adjusting interest rates is done after an analysis of all the central banks of the European member states and the European Central Bank. An economic and monetary analysis is done. De Nederlandsche Bank issues a biannual analysis in the overview; "Overzicht Financiële stabiliteit".

International cash flows

Major international capital flows will affect the market interest rates. For example, if the companies from Europa trade a lot in the United States, the demand for the U.S. Dollar will increase and the interest rate will go up (ABN AMRO, 2012).

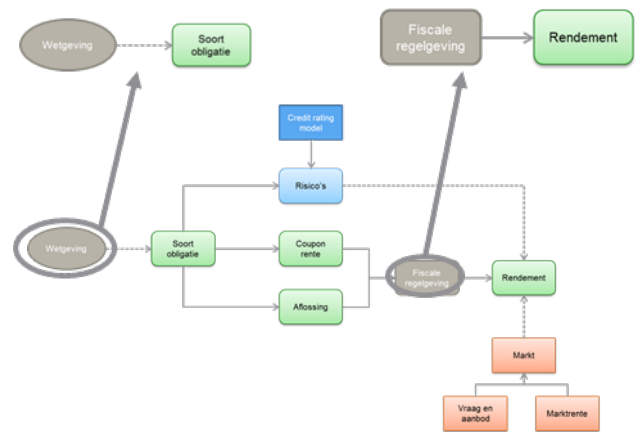
Transparency

The amount of information that is shared from the issuer and the market is essential for the confidence of investors and in the market. Financial markets and products have become increasingly transparent so the insiders have no longer an information advantage. Because all information is available to anyone the interest rates create a more realistic picture and new information is immediately reflected in a change in the interest rate position.

Expectation

To stimulate the economy and provide a higher inflation rate, the European Central Bank have invested more than €60 billion dollar in the economy of the Eurozone. Price stability requires an inflation rate of just below but close to 2% (Praet, 2016). The Dutch economy will grow by 2.1% in the coming year (CPB, December 2015) and most sectors of the industry will show (slight) growth in the next four years (ABN AMRO, December 2015). The main risk is the domestic economy abroad where large uncertainties are, the falling oil price and the declining Chinese economy. The expectation is that it will have a negative effect on the global economy. This will mean that the ECB will adjust its policy. The actions are not known at the time of writing but it is expected that the capital market will remain low in the coming quarters. The main refinancing rate (Refi rate) is determined by the ECB and this is the rate at which banks can borrow money from the central bank backed with securities (Encyclopedia ThiemeMeulenhoff). The refi rate will remain stabbing expected at 0.05% to fourth quarter of 2017 and the deposit rate will decrease by -0.40% -0.50% in early 2016 to late 2017. The expectation is that most banks they will again lower the deposit rate. Due to the low level of interest rates will be the next few years are attractive to invest money in bonds. The trend will be that more invest money by buying bonds. Due to the fact of a historical low market interest rate, the bonds can be issued with a relative low coupon rate.

It is obligated by law to write the prospectus in the language of the country you will submit the bond. The issuer of the bond must act in accordance with the law of the country where the product is submitted, in this case the Dutch law. The most important principle is that a prospectus must be complete, consistent and clear (AFM, 2015). This section describes the laws and tax regulations.



Prospectus

- An emission of securities exclusively to qualified investors or;
- An emission of securities to less than 150 natural or legal persons per member of the EU other than qualified investors or
- An offer of securities addressed to investors who acquire securities for each separate offer for a total consideration of at least EUR 50 000 per investor or
- An offer of securities whose denomination per unit of at least EUR 50 000 or;
- an offer of securities with a total consideration of less than EUR 100 000, which limit shall be calculated over a twelve month period or;
- Offering securities with a total consideration of less than EUR 2.5 million.

The prospectus must contain all information necessary for the buyer to determine the value of the bond. The AFM monitors the prospectus for completeness, consistency, and whether the prospectus is obvious. When the AFM has approved the prospectus, it does not mean that the bond will work exactly as promised in the prospectus. It is not a label that guarantees the reliability of the issuer. The buyer should always give a own value judgment to the bond about the rate of return, the reliability of the seller, the terms of the bond, etc. Chapter II of the Directive 2013/71 / EC of the European Parliament contains all the characteristics that the AFM uses to monitor the completeness of the prospectus. These guidelines will be used to build up the prospectus.

The Dutch law obligate issuers of financial products to put a financial leaflet on all the advertisements for the financial product. The leaflet consists of a indicator for the risk of the financial product. The regulation about the leaflet can be found in the legislation “Nadere regeling gedragstoezicht financiële producten Wft”.

If the exemption from publishing an approved prospectus is used it is obligated to publish this on the front page of the prospectus. This is obligated to protect the investor and make a clear distinction between an approved prospectus by the AFM en the prospectus that is not approved:

If the products Wanneer de uitgevende instelling gebruikt maakt van de vrijstelling van prospectusplicht moet dit vermeld worden. Deze maatregel heeft de AFM ingevoerd om de belegger beter te beschermen en zodat er geen verwarring kan ontstaan omtrent goedkeuring van het prospectus door de AFM:

Let op! U belegt buiten AFM-toezicht.

Geen prospectusplicht voor deze activiteit.



Figuur 12 - verplichte vermelding vrijstelling AFM

2.4.1 Fiscal issues

Wanneer de obligatiehouder een natuurlijk persoon betreft dan moet het inkomstenbelasting betalen over het rendement dat behaald wordt op obligatielening. In Nederland is het inkomen in drie soorten belastbaar inkomen verdeeld die boxen genoemd worden:

Box 1: Dit is het belastbaar inkomen uit werk en woning. Met inkomen uit werk wordt loon, uitkering, pensioen, winst uit onderneming, fooien en andere inkomsten en inkomsten uit overige werkzaamheden bedoeld.

Box 2: Inkomen uit een aanmerkelijk belang in een vennootschap of coöperatie. Een aanmerkelijk belang geldt wanneer men 5%, direct of indirect, heeft van de aandelen, winstbewijzen en/of de genotsrechten van aandelen/winstbewijzen in een binnenlandse of buitenlandse vennootschap of het stemrecht heeft coöperatie of vereniging op coöperatieve grondslag.

Box 3: inkomen uit sparen of beleggen.

Box 1:

Er moet belasting worden betaald in box 1 voor de obligatie als de obligatiehouder een eenmanszaak heeft of participeert in een maatschap of vennootschap onder firma. Er moet belasting worden betaald over de rente die verkregen wordt uit de obligatielening.

Daarnaast moet in box 1 belasting betaald worden over de eventuele winst bij de verkoop van de obligatie. De winst wordt bepaald door het aankoop bedrag minus het verkoop bedrag van de obligatie. Bij verlies op de obligatie mag het verlies als aftrekpost gebruikt worden in box 1.

Schijf	Belastbaar inkomen	Percentage <65 jaar
1	t/m €19.822	36,5%
2	€19.823 t/m € 33.589	42%
3	€33.590 t/m €57.585	42%
4	vanaf €57.586	52%

Tabel 6 - Belasting tarieven box 1 persoon jonger dan 65 jaar

Schijf	Belastbaar inkomen	Percentage >65 jaar
1	t/m €19.822	18,60%
2	€19.823 t/m € 33.589	24,10%
3	€33.590 t/m €57.585	42%
4	vanaf €57.586	52%

Tabel 7 - Belasting tarieven box 1 persoon geboren in 1946 of voor 01-11-1949

Schijf	Belastbaar inkomen	Percentage >65 jaar
1	t/m €19.822	18,60%
2	€19.823 t/m € 33.857	24,10%
3	€33.858 t/m €57.585	42%
4	vanaf €57.586	52%

Tabel 8 - Belasting tarieven box 1 persoon geboren voor 01-01-1946

Box 2:

Obligaties zijn schulden en er is geen sprake van een aanmerkelijk belang in een bedrijf. In box 2 hoeft daarom ook geen belasting te worden betaald voor een obligatielening.

Box 3:

Er moet belasting worden betaald in box 3 over de waarde van bezitting minus de schulden met als peildatum 1 januari van het desbetreffende jaar. De waarde van de obligatie moet worden meegenomen in de berekening van de waarde van de bezittingen. Er bestaat een algemene vrijstelling voor de waarde van bezittingen minus de schulden van €21.139. Er hoeft dus geen belasting te worden betaald als de bezittingen minus de schulden beneden dit bedrag blijft. Op het moment dat er sprake is van een fiscale partner dan wordt de vrijstelling van €21.139 verdubbeld.

Voor ouderen boven de AOW leeftijd van op dit moment 65 jaar geldt dat ze bij een waarde van de bezitting minus de schulden die lager is dan €279.708 recht hebben op een ouderentoeslag. Deze ouderen toeslag hangt af van het inkomen uit box 1:

Inkomen box 1	Ouderentoeslag box 3	Algemene vrijstelling	Totaal vrijstelling
< €14.430	€28.236	€21.139	€49.375
€14.431 - €20074	€14.118	€21.139	€35257
> €20075	€0	€21.139	€21.139

Tabel 9 - Ouderentoeslag box 3 personen boven 65 jaar

Wanneer de houder de obligatie schenkt aan ander of komt te overlijden dan moet de ander belasting over deze schenking betalen. Voor erf of schenk belasting bestaan verschillende tarieven afhankelijk van de relatie die u met de ander heeft en het bedrag dat met de schenking gemoeid is. Er is voor iedereen een vrijstelling over de eerste €2.111 van het bedrag en voor andere relaties gelden de volgende vrijstellingen:

Relatie erfgenaam	Vrijstellingsbedrag
Partner	€633.014
Kind of kleinkind	€20.047
Kind met handicap	€60.138
Ouder	€47.477
Anders	€2.111

Tabel 10 - Vrijstellingsbedrag erf- en schenkbelasting

2.5 Rate of return

The rate of return is one of the decision criteria for the investor to buy the corporate bond. The investor requires a rate of return, which is proportionate to the risk. The yield is determined by the coupon rate, redemption and additional bonus. The return is the sum of the cash flows divided by the years to maturity (Brealey, Stuart & Franklin, 2010):

$$\text{Rate of return} = \frac{\frac{\sum_{t=1}^n C_t}{n}}{\text{nominal value}} \times 100\%$$

Parameters:

$$C_t = \text{cashflow in year } t$$

$$n = \text{total years to maturity}$$

The present value is used to make a correction for time the investors do not have access to the money. The formula calculates the value of all the payments of the bond at the present time. The present value can be used to compare different bonds with different time to maturity. The present value can be calculated with the formula: (Brealey, Stuart & Franklin, 2010):

$$\text{Present Value} = \sum_{t=1}^n \frac{C_t}{(1+i)^t}$$

Parameters:

$$C_t = \text{cashflow year } t$$

$$t = \text{year}$$

$$i = \text{discount factor}$$

If the bond can be traded on the exchange market there is a third factor for the yield beside the coupon rate and the redemptions. The yield is also influenced by the change in price of the bond. The rate of return can be calculated with the yield to maturity (Hull, 2011). The method calculates the yield to maturity of the bond based on the current rate, the interest rate and the repayment discounted with a fixed factor:

$$\text{Price} = \frac{F}{[1 + (\lambda/m)]^n} + \sum_{k=1}^n \frac{C/m}{[1 + (\lambda/m)]^k}$$

Parameters:

$$F = \text{face value}$$

$$m = \text{coupon payments}$$

$$n = \text{periods}$$

$$C = \text{cashflows}$$

$$P = \text{Price of the bond}$$

$$\lambda = \text{yield to maturity}$$

The duration is the used to measure the interest rate sensitivity of the bond. Duration is the first derivative of the price of the bond and the market interest rate. The price of the bond will depend on the maturity, redemption, the coupon payments and the market interest rate. The formula for the duration (Kat, 2001):

$$Duration = \frac{\sum_{t=1}^n t \times \frac{C_t}{(1+i_t)^t}}{\sum_{t=1}^n \frac{C_t}{(1+i_t)^t}}$$

Parameters:

D = duration
C = cashflow
i = discount factor
t = time
n = maturity

If two bonds have the same time to maturity, the bond with lowest duration consists of the least risk.

3. Framework bond

This chapter is confidential.

4. Introduction issuer

This chapter is confidential.

5. Designing the bond

This chapter includes te conditions of the bond and the creation of the credit rating model. This chapter is however confidential.

6. Conclusion

Confidential

How to design a framework that can be used to issuing non-listed corporate bonds and how can the framework be used to create a corporate bond for the client to attract additional capital from the market`

The knowledge base chapter is started with identifying which factors influence the rate of return: terms of the bonds, the development of the market, the laws and regulations and the risks. A credit rating model is built to determine the risk of the company and the bond. I have developed an Excel file to calculate all the terms of the bond, the coupon payments and the redemption. The Excel tool can be used to design corporate bonds in the future in a fast and effective way.

The corporate bond:

The most commonly bonds are the subordinated bond, the zero-coupon bond, the convertible bond, the callable bond and the covered bond. For the private equity firm is a bond designed that is a combination between the subordinated bond and the callable bond. The bond can be labelled as a high-yield bond and to make the bond more attractive for investors an additional bonus will be paid at maturity.

Confidential

The market interest rate:

The market interest rate is an important factor if you want to issue a financial product. The market interest rate is influenced by the monetary policy and the three economical fundamentals; supply and demand of money, the national savings and the inflation. The market interest rate and the price of a bond have a negative correlation. The price of the bond will increase if the market interest rate will drop and the other way around. It is expected that the market interest rate will not increase much in the coming to years. The market interest rate will not be above the 0,5%. Investing in bonds is therefor attractive for investors. The demand for bonds will increase in the coming years.

The risk:

Risk management is since the economic crisis a much-debated subject. Banks and companies create risk departments to guard against the risks and a new economic crisis. This thesis consist of an analysis of all the risks of corporate bonds.

It is not possible to use a fixed formula to calculate the risk and the coupon rate. A credit rating model is built to approach the credit rating of the bond and to identify all the different risks. I have conducted interviews with credit rating agencies and credit platforms to get an idea how to build such a model. The overall conclusion is that the main components of the model are the profitability (rate of return on capital), the solvency and the liquidity. The other components of the model are:

Confidential

7. Recommondations

This chapter is confidential

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Appendix I: Prospectus

This appendix consist the prospectus of the bond and is confidential.