Investor Risks in Crowdfunding

A Risk Study of the Danish Crowdfunding Market

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Executive Summary

In recent years, crowdfunding with its promise of a new and innovative way of investing, has gained ample traction within the Danish investing community. This paper explores the main risk areas which Danish crowdfunding investors must be attentive of, to avoid incurring unforeseen costs. As crowdfunding is new and largely unknown territory for many investors, associated risks of the intermediary platforms, may not be transparent. The paper is based on the classical economics and governance theories of transaction costs and principal-agent problems. In order to explore the most impactful risk areas, four Danish platforms, namely Lendino, Flex Funding, Kameo and Brickshare, are used as empirical basis. Six crowdfunding related risk areas are identified and analyzed, these being regulation, governance, credit assessment, taxation, concentration, and liquidity. Through our analysis it is determined that the risk area with the highest impact is the degree to which a platform is regulated. Ensuring proper regulation of a platform, will provide investors protection from losing funds and avoiding opportunistic platform-management behavior. However, the importance of other areas such as concentration of investments, liquidity and credit assessment practices should not be neglected. We find that as crowdfunding markets are still maturing, risks found in more mature financial markets such as liquidity and concentration may be more prominent here. This is visible from changes in the economic cycle having a severe impact on market liquidity, as well as concentration risk leading to high idiosyncratic risk. Lastly, based on theory of bond risk premia, we examine the loan book of Flex Funding, with an expectation of being able to observe a default risk-, term- and small firm premium. From our observations however, we only find indications of a default risk premium being present. Due to the current limited data availability, further quantitative analysis will be needed to conclusively provide answers on the presence of risk premia. Ultimately, the paper serves as a practical guidance for investors to navigate the complex risk composition associated with crowdfunding platforms.

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1. Introduction

In the mid-2010s a new and alternative way of investing, known as crowdfunding, emerged on the Danish finance scene. Crowdfunding has seen a steep rise in popularity, and this is expected to continue in the years to come. Crowdfunding is operated through a platform and differs in a number of ways from other more well-known methods of investing, and therefore also carry a different set of risks and opportunities, possibly unknown to parts of the investing community.

Crowdfunding is the process of funding investment projects with capital from a crowd of investors each contributing only a fraction of the total funding. This way of financing promises a more efficient solution regarding transaction costs as well as a more direct and democratic process of financing. With such advantages being promised together with relatively high rates of return, the proposition seems revolutionary at first glance. Overall, crowdfunding offers many retail investors opportunities they have previously been prevented from participating in, however these opportunities come with a range of complications investors must be aware of.

Throughout this paper we aim to identify the risks that investors must be especially cautious of if choosing to engage in investments through crowdfunding platforms. This is done by researching the areas which has the highest potential of constituting risks, most of which are platform specific. The specific risk areas which will be touched upon in this paper are regulation, governance, credit assessment, taxation, concentration, and liquidity. To form a basis for our research we have focused on 4 Danish platforms, and have conducted interviews with two of the platforms to help paint a picture of how crowdfunding is operated in practice.

The paper will begin by giving an overview of the crowdfunding market, how it has developed, and the specific characteristics. After this we will look at the potential opportunities and problems from a high-level perspective utilizing classical theories of economics and governance such as transaction costs and principal-agent framework. Following the high-level perspective, we focus on the specific risk areas which we have identified, again based on the four selected platforms. Finally, we will round of the paper with a discussion of the impact of the analyzed risks, before presenting our conclusion to the paper.

1.1. Motivation

Crowdfunding allows investors to access instruments which previously have been off-limits to retail investors, and therefore brings about exciting opportunities. However, as it is often the case, these investment opportunities do not come without risks attached. Due to the fact that crowdfunding is still

relatively unknown territory for many Danish investors, they may not be aware of all the associated risks which accompanies the investments, especially as some are more obvious than others. Contrary to other investments, what further complicates crowdfunding is that a new intermediary is introduced, that is the platform. The platform adds complications as well as potential benefits. Having mentioned the growth in the previous section, the current economic climate also brings even more relevancy to a study of especially the risks of crowdfunding. The reason being, that there is currently being observed decreasing to negative interest rates on bank deposits, not only in Denmark, but across Europe. Due to the state of the interest rates many households may not be sure where to place their savings, and this adds to the possibility that we will see more and more investors turning to new investment opportunities, here among crowdfunding. Through this paper we hope to provide knowledge which will help Danish crowdfunding investors make smarter decisions when investing, or at least help them to get a better overview of the associated risks which investments through crowdfunding platforms bring with them.

1.2. Problem Statement

Crowdfunding is an emerging field within finance with different advantages and disadvantages compared to traditional funding operations. We wish to investigate the main risk-factors and opportunities which are associated with investments through crowdfunding platforms, in a Danish context. The research and inquiries in the paper will guide investors to make more informed decisions when investing.

- What is the economic rationale behind crowdfunding investments, and what decisive risk-factors are investors impacted by when investing through Danish crowdfunding platforms?

To approach this question, we wish to analyze the following components:

- What does the market look like, and what characterize the involved parties?
- What underlying factors have contributed to the emergence of crowdfunding, and how does crowdfunding differ from traditional funding opportunities?
- What are the most prevalent internal and external risks involved in participating in the crowdfunding marketplace as an investor, and how do these risks impact the investor?

1.3. Methods and Limitations

1.3.1. Research Design

The purpose of this paper is to produce a set of guidelines that aid retail investors' decision making and help them make more informed decisions when investing into this emerging field of finance. The aim is therefore partly to use existing financial theory to obtain a holistic understanding of main factors that influence the outcome of investment decisions, but also to put this understanding into context of real-life cases in order to provide recommendations aimed at retail investors.

In order to produce this paper on a new field of investment options, aspects of both inductive and deductive research approaches are utilized.

Inductive approach is used on topics where little to no existing literature has been found, which is the case for crowdfunding platforms generally. Analyzing interviews and observations from chosen Danish crowdfunding platforms, patterns are determined to theorize on risks associated with the organization and legislation concerning crowdfunding platforms. The induced theories about platform risks are then partly validated by comparing proposed risks to actual platform defaults from abroad where investors lost all or most of their stake, to see if the theorized risks are reflected in the default cases.

Deductive approach is used by testing selected financial theories we would expect to hold also in the context of crowdfunding. From financial theories on which risks should drive returns, we formulate expectations that are then tested on observations from the data we have acquired. Based on the observations, we tentatively confirm or reject whether investors are compensated by the risks we would expect them to be compensated for. Because we deduce it on a case basis, the confirmed risk premia should not be generalized to every crowdfunding platform. However, it is of interest that we investigate risk premia that investors should expect.

We utilize real life cases to empirically test to which extent existing theory on financial markets can be applied on Danish crowdfunding platforms and where anomalies emerge. The use of real-life cases is likewise ideal for the inductive part of our analysis. It allows for observation of patterns to be facilitated and from these patterns, theories can be developed.

1.3.2. Data collection and analysis

Both qualitative and quantitative data have been gathered in order to perform our analysis.

Qualitative data has been collected in the shape of primary data as well as secondary data. The primary data, interview with representatives from Lendino and Flex Funding, is partly collected to obtain new information that is otherwise not accessible, but also to get a new and more direct presentation of information first-hand. By revisiting existing information through an interview, more sincere and perhaps updated information is obtained to supplement the existing understanding of credit assessment processes, work processes etc. Interviews are also an effective way to obtain insights from experts on where the most relevant issues are found within a certain field, and thus help in the prioritizing and mapping of subjects to investigate. Semi-structured interviews are chosen as method of interviewing to explore predetermined subjects based on theory and observations, and at the same time maintain the opportunity of discovering new characteristics of crowdfunding. This is done by letting the interviewee answer freely and let our own unplanned questions be asked. The interviews are recorded and transcribed to ensure reliability, making it possible to revisit the interviews and put them into context of new information and understanding that emerges throughout the preparation and writing process.

Secondary data is also collected both in the shape of qualitative and quantitative data. Qualitative data, mainly from websites, is gathered in order to understand the work processes of crowdfunding platforms and develop theories on platform risks from an inductive approach. Quantitative data has been gathered too and put into context of existing financial theories from a deductive approach to see whether the data patterns differ from expected results. Because the quantitative data is from secondary sources in the shape of websites, the results are dependent on the correctness of the data presented, i.e. all data is presented and not manipulated. However, the platforms where the data has been harvested from are relatively big and well-established platforms where there is no significant reason to believe data should be manipulated.

1.3.3. Limitations

Four limitations to this paper are prominent.

Firstly, being an emerging field of finance, there is a lack of previous studies in the research area, which takes the investor perspective. This makes it hard to evaluate and discuss findings against the findings of existing literature.

Secondly, the cases are limited numerically and in depth due to a lack of data available. Ideally, complete books of ongoing and completed investments should be obtained to test financial expectations against the data. The one case where a loan book of completed loans is available is of

limited size making the result non-significant in a pure statistical sense, although we think tentative interpretation of the available data is justifiable.

Thirdly, the cases themselves, the legislation and organization of the crowdfunding platforms is within a Danish context. Although the results are mostly generalizable to a wider context, the evaluations of good legislation and good organizational structure will inevitably be affected by the Danish context of legislation and normative viewpoints of organizational structure. Presumably, other legislations and norms concerning organizational structure may provide just as good or better guidelines regarding the arrangement of good crowdfunding platforms.

Finally, the analysis is made from the viewpoint of a retail investor investing available capital. Although the findings are predominantly directly applicable to other investors, there are issues regarding especially tax that are not directly relevant to other investors, just like issues regarding concentration risk and the cost of obtaining information arguably diminish in importance as the overall amount of investment increases.

2. The Crowdfunding Marketplace

2.1. Introduction to Crowdfunding

Crowdlending and crowd equity are subcategories of crowdfunding. The Oxford Learner's Dictionary defines crowdfunding as: "*The practice of funding a project or an activity by raising many small amounts of money from a large number of people, usually using the internet*" (Oxford Learner's Dictionaries, 2020).

Gleasure & Feller (2016) break down crowdfunding into four separate categories, being:

i) **Crowdlending**: investing in return for repayment at some agreed upon rate of interest.
ii) **Crowd equity:** investing in return for equity/securities.
iii) Crowd patronage: investing in return for benefits from a proposed product/service.
iv) Crowd charity: investing without expectation of additional material or financial returns.

Following, the crowd lender is exclusively interested in making financial gains from the funding process in the shape of some agreed upon interest payment on the principal. The crowd equity investor is also interested in making financial gains from the funding process, but in a different way. The crowd equity investor is funding a project or a company in order to obtain equity that over time may payoff dividends or be sold at a profit.

Throughout this paper, an underlying assumption will be made that both the crowd lender and the crowd equity investor wish to maximize expected return based on a given level of risk appetite.

2.1.1. How does Crowdlending Work?

Crowdlending connects borrowers to lenders via a crowdlending platform. The crowdlending platform is a mediator between the borrower and the lender and is practically administrating the cash and information flows between borrowers and lenders.

A graphical illustration of the crowdlending process is summarized in the Figure 1.

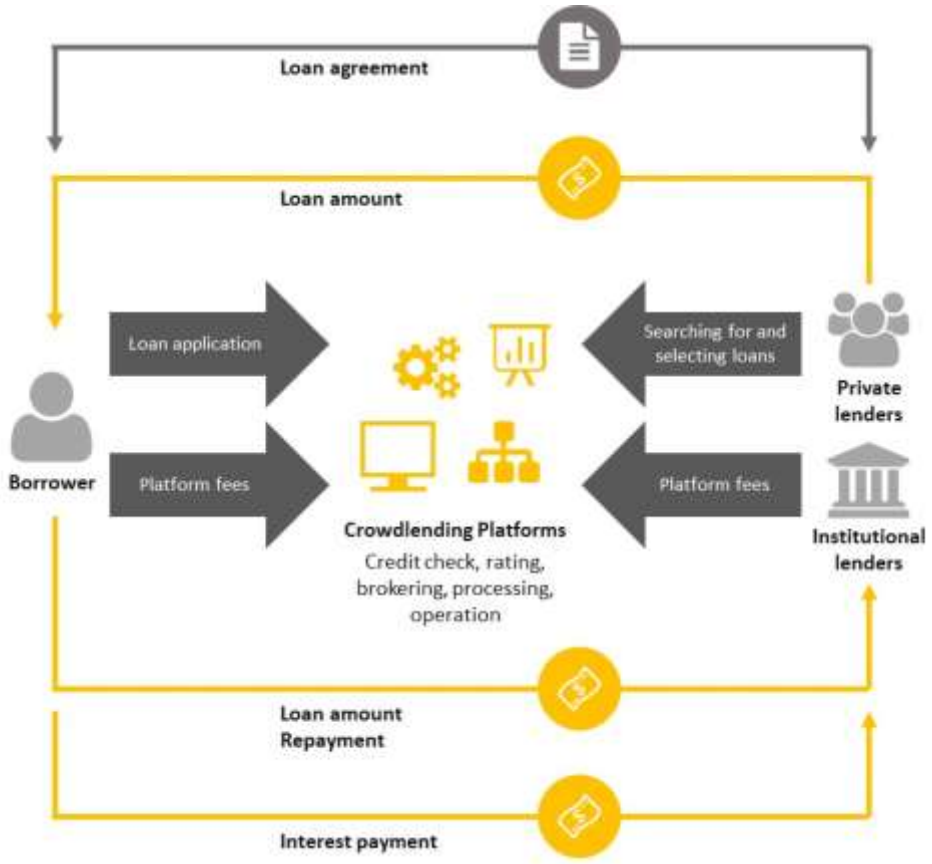


Figure 1: Crowdfunding flow. Reproduced from (Dietrich, Amrein, von der Heyde, Heuermann, & Rüdisühli, 2019)

As a marketplace for borrowers and lenders, the platform is required to set fourth and arrange information about available loans as efficient as possible. This includes providing feasible search criteria and filters that enable investors to compare and choose available loans, investigate historical loan performance, set up automatic investment commands etc.

In Appendix 1 is provided a screen short of some of the filtration options available to investors on the primary market of the Danish crowdlending marketplace Flex Funding.

The crowdlending platform is also approving borrowers and lenders using the platform but does not guarantee the borrower's ability to pay. In contrast to the lender, the financial position of the crowdlending platform should not directly be affected by defaulting borrowers apart from perhaps some fees they would otherwise earn depending on the specific fee structure of the platform.

2.1.2. How does Crowd Equity Work?

"Crowd equity funding is a type of crowdfunding that allows companies to obtain seed or other capital through small equity investments from a large range in investors via an online portal" (Nehme, 2017).

Where crowdlending connects borrowers and lenders and is therefore focused on debt, crowd equity is focused on the issuance of equity capital. Analogous to the appeal of crowdlending on small and medium sized enterprises, crowd equity is a way to remedy a potential shortfall of capital for small and medium sized enterprises (Nehme, 2017).

It is important to underline that an implied characteristic of crowd equity funding is that it is not a stock emission on a stock exchange but instead on a web-based platform made for the purpose.

Just like crowdlending, crowd equity is very much a product of Web 2.0 (Han, 2011) and a crowd equity campaign may be run independently on a website from an individual company or start-up that needs risk capital, or it may be run on a crowd equity platform that gathers and promotes several crowd equity projects at the same time. Analogous to the problems regarding information asymmetries that exist within crowdlending, crowd equity platforms also have a prominent task in reducing asymmetric information (John, Saadi, & Zhu, 2015) in order to retain both investors and fundraisers in the long run. Among other things, a successful crowd equity campaign should therefore include a professional prospectus, revenue and expenditure budget, information about the team behind the company, and financial reports.

The crowd equity platforms may or may not offer the crowd equity investors the opportunity to redeem ownership shares directly to the platform. This is an important functionality because the ownership shares otherwise tend to be highly illiquid since the equity will rarely ever be admitted to trading on a public stock exchange. By this illiquid nature, crowd equity tends to carry substantial liquidity risk which affects especially short holding periods. Not excluding other forms of illiquidity costs, two types of illiquidity costs that a crowd equity platform may try to reduce are search cost and compensation for private information. This will further be explored in section 4.7.

2.1.3. Volume

Throughout the 2000s, and especially in the past 5 to 10 years, the crowdfunding market has been growing quite rapidly. By 2025 the worldwide crowdfunding market size is projected to be at $28.8 billion (Statista, 2020), compared to 2018, where the market had an estimated size of $10.2 billion (Statista, 2020). The rapid expansion seen within the worldwide crowdfunding industry is also visible within a Danish context, as can be seen from Figure 2.

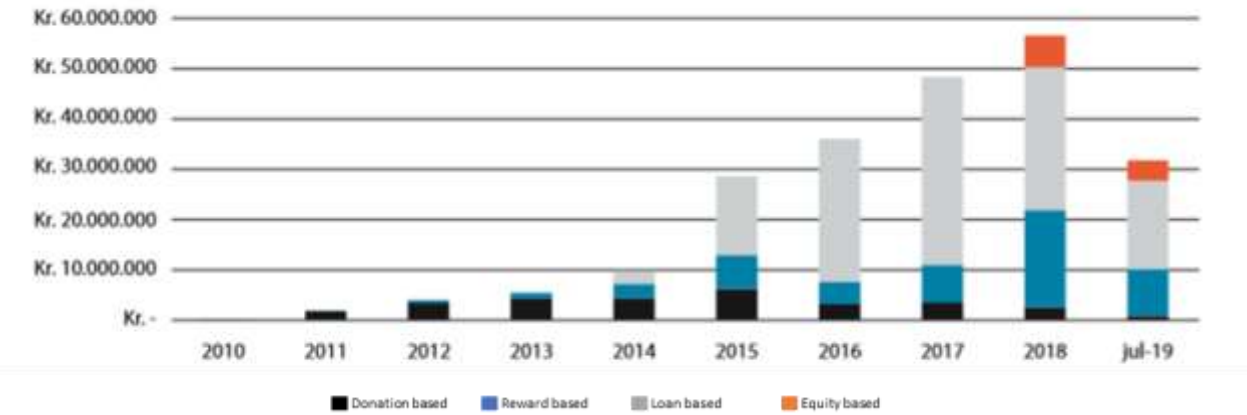


Figure 2: Danish crowdfunding development. (Roed Nielsen, 2019)

As shown in the above figure, the development within a Danish crowdfunding context, has shown enormous growth. On average, from 2011 to 2018 there has been 48 percent growth. (Roed Nielsen, 2019). Especially the loan based crowdfunding segment [crowdlending] has seen a steep rise in popularity. Although the crowdlending industry has grown quite rapidly over the past couple of years, it is still a very negligible part of the total composition of debt, which is also seen in other countries (OECD , 2019).

Currently in Denmark, there are about 23 crowdfunding platforms, with 321 projects added during 2019, and a total amount of $5,283,464 being raised during the year (The Crowdfunding Center, 2020).

2.2. Crowdfunding Market Drivers

2.2.1. Market development

There have been several factors, which have enabled the rapid growth within crowdfunding to happen, and we will examine some of the most important in the following section.

1) Decreasing interest rates

Throughout the mid-2000s and up until today, governments around the world have been consistently decreasing interest rates in an effort to stimulate the economy. As can be seen by Figure 3 below, there has been a clear tendency for the interest rate in European countries to decrease throughout the 2000s.

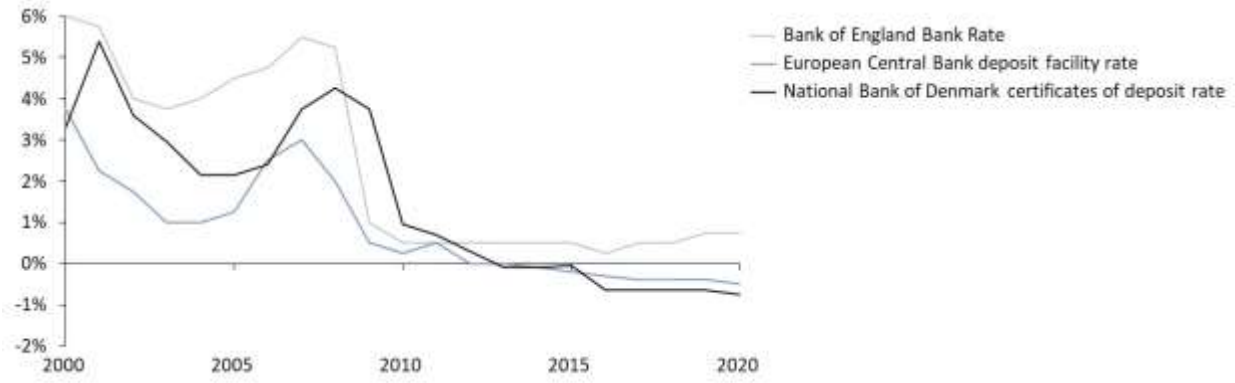


Figure 16: European Banks interest rates. Own creation, based on sources: (Danmarks national bank, 2020), (Bank of England, 2020), (European Central Bank, 2020).

The low yield environment which has been experienced within Europe, has reflected a decrease in the yields provided by investments in fixed income instruments, or by having savings in a bank account (Orca Money, 2017; Roed Nielsen, 2019). The low yields obtained within the mentioned areas, has pushed yield seeking investors towards alternative investments, such as investments in crowdfunding.

2) Technology improvements

Over the past 20 years, the technological development has been quite significant, especially with the growth seen in smart phones, where usage has increased very quickly in Denmark. The share of households who owns a smartphone has gone from 11% in 2011 to 88% in 2019 (Danmarks Statistik, 2020). Furthermore, people with internet access, has gone from ~7% globally to ~50% (The World Bank, 2020). This development has not only meant, that more people manage their finances online, but it has also become a lot easier to create the core aspect of crowdfunding, that is connecting investors and parties seeking funding. The technological advances have also allowed for crowdfunding segments such as the loan-based platforms to disrupt the traditional bank-lending market (Barnes, 2015). The traditional banks have historically been categorized by a market form of monopolistic competition due to the high barriers of entry, brand loyalty and high switching costs (Havrylchyk, Mariotto, Rahim, & Verdier, 2016). However, the technological advances have helped lowering the barriers of entry. This is similar to what has been seen in other markets over the past decade, such as Uber disrupting the Taxi market and AirBnB the rental/hotel market.

The underlying service provided by the P2P lending platforms, to borrowers, is essentially the same as what is offered by a traditional bank loan. However, the crowdlending platforms are able to differentiate themselves from the traditional banks in two important ways: 1) the user experience, where the borrower from the comfort of their own home, can go online and obtain the loan. 2) The speed at which the loan is provided is much faster, which also relates to a positive user experience. (Orca Money, 2017).
Haldane (2016) suggests that the new FinTech lending platforms could diversify the intermediation between savers and borrowers, which could make the financial markets more stable, efficient, and provide greater access to financial services.

3) Marks of financial crises and mistrust

The financial recession in the early 2000s, the European financial crisis in 2008, and violations of the public's trust, such as the Panama Papers case from 2016, have all contributed to a general public mistrust in many of the larger financial institutions (Roed Nielsen, 2019). This can also be seen from the Edelman's trust barometer, which surveys the populations trust in different sectors. The financial services sector is clearly the least trusted category (see Appendix 2), and has been so for many years running (Edelman, 2019). This lack of trust in the traditional financial institutions, could have led mistrusting borrowers to seek alternative options, such as crowdfunding platforms (Havrylchyk, Mariotto, Rahim, & Verdier, 2016; Orca Money, 2017; Blaseg & Koetter, 2015).

2.2.2. The Fixed Income Choice

This section will go through an important characteristic of crowdlending, the fixed income aspect of the individual loan.

In classical microeconomics, each consumer has two basic choices, to net invest all or some of current income and consume the rest in the current time period or net borrow the present value of some or all future income and consume it in the current time period together with current income. If no choice is made, the consumer must be consuming exactly all current income in the current time period.

If the consumer chooses to invest some or all current income, he should expect to consume additional goods and services in a future time period worth the present value of his investment plus interest. If the consumer choses to borrow the present value of some or all future income, he should expect to consume goods and services in a future time period that is reduced by the present value of his loan plus interest.

The planning of postponing or forward consumption is ideally done with knowledge of the real risk-free interest rate where the risk-free interest rate from one period to another is typically known but not the inflation rate. An illustration of this tradeoff between present and future consumption with certain knowledge of the real interest rate in a two-period decision is provided below.

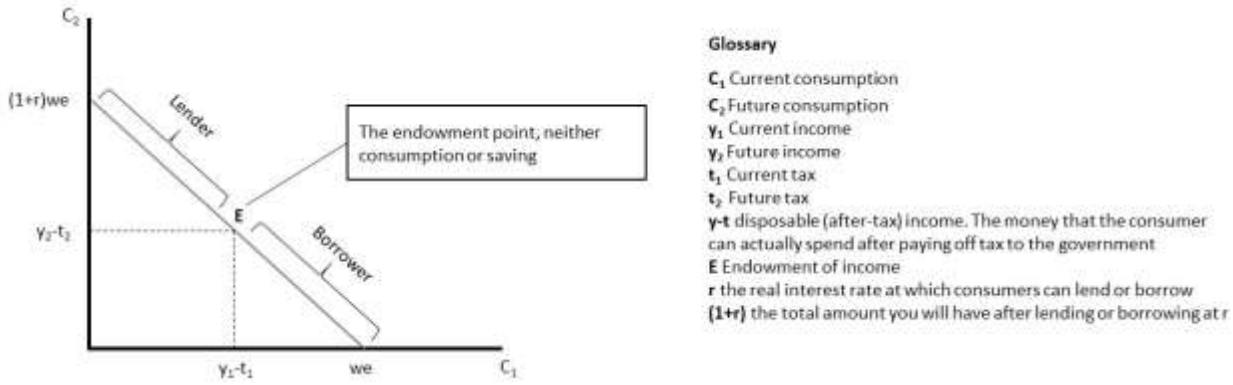


Figure 4: Present Consumption versus Future Consumption, Reproduced from (Williamson, 2008)

Although such trade-off decision might be useful to many retail investors, the investment possibility does not take on such a shape in current years where nominal risk-free interest rates are zero to negative and risk-free real interest rates are negative. Although a negative real interest rate does not scrap the simple idea of delaying or especially forwarding consumption to maximize utility derived from the consumption, it certainly makes risk-free investing less appealing, from a behavioral finance point of view more than anything. For example, the behavioral phenomenon of myopic loss aversion (Thaler, Tversky, Kahneman, & Schwartz, 1997), as illustrated below, is the phenomenon of humans not only being loss averse but is suffering unproportionally great pain from small and frequently recognized financial losses relative to experiencing the same financial loss but infrequently recognized. On the contrary, unproportionally great satisfaction is experienced when small financial gains are recognized frequently relative to experiencing the same financial gain but infrequently recognized. However, the positive utility of frequent and even relatively small gains is not as strong as the negative utility of frequent losses of same magnitude.

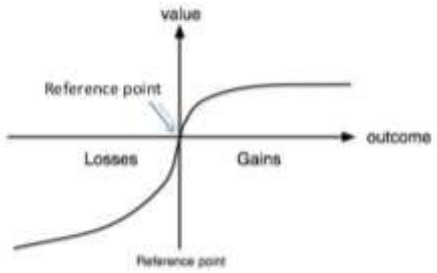


Figure 5: Myopic loss aversion. (Ackert & Deaves, 2009)

One could argue, that negative risk-free interest rates exactly produces a situation where the retail investor knows his wealth is losing buying power daily and thus, if receptible to myopic loss aversion, is suffering unproportionally great pain from small and frequently recognized financial losses. On the contrary, fixed income by regular interest payments may be especially appealing to investors that are receptible to myopic loss aversion since it either produces a range of small but frequently observed financial gains or a one-off financial loss in case the borrower defaults. Analogous to the pay-off diagram of traditional corporate bonds, the pay-off diagram of crowdlending loans are illustrated below:

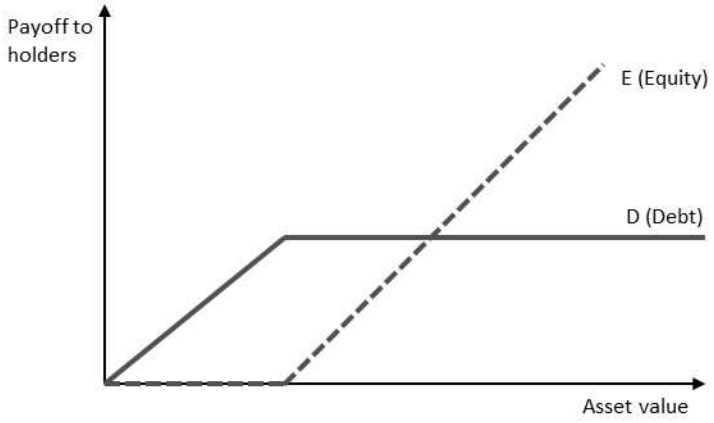


Figure 6: Debt and Equity Payoff. Reproduced from (Oshiro & Saruwatari, 2005)

It is seen that, the debt payoff is positive but limited to the interest payment if the borrower does not go bankrupt, while a recovery rate of 0-100% is the payoff in case of borrower defaulting. Compared to the certain accrual of negative interest, the pay-off diagram of the corporate debt may result in greater average utility for the myopic loss averse investor, even if the expected value of the corporate bond should be zero or slightly negative with basis in the negative risk-free interest rate. This difference in utility is all based on the investor's perception of the gains or losses rather than the actual economic value.

Although the decision process of consuming now or in the future becomes considerably more complicated when a non-risk-free interest rate is introduced, and therefore the trade-off illustrated at the beginning of this section is no longer applicable. The option of a risky fixed-income interest rate may not only be relevant to investors receptible to myopic loss aversion, but also consumers facing a binary choice decision. A consumer might cope with a consumption decision as a binary decision based on mental accounting (Heath & Soll, 1996). Primo the consumption period, the investor may prefer to put aside a mental account of a certain amount of money that will be invested and used for a certain type of consumption, for instance a holiday. According to the phenomenon of mental accounting (Heath & Soll, 1996) the funds set aside for holiday are not to be mixed with any other consumption category since the mental accounts then do not add up. So, based on the investment made at an appropriate return primo the consumption period, the consumer will close the mental account ultimo the consumption period with an expensive dream voyage if the investment turns out well or must close the mental account by going on a cheap holiday if the investment fails. Again, this investing strategy is behaviorally based rather than based on a strict financial rationale.

There may be more rational reasons besides the behavioral oriented ones why a fixed income choice may benefit retail investors. One such reason could be diversification. Even though some argue that any investor should just buy and potentially lever, one and only one, theoretical market portfolio with a market beta deciding expected return (Lintner, 1965; Sharpe, 1964), many other scholars and financial experts have found that many other factors drives the returns and riskiness of assets (Fama & French, 1992; Pástor & Stambaugh, 2003). In short, the optimal asset allocation is unclear even from a pure theoretical point of view. The retail investor may face several other challenges besides academic disputes when putting together a portfolio, such as regional and legal restrictions of some index funds, tax disadvantages or practically finding, maintaining, and balancing the theoretically correct asset choices. One way to obtain some of the diversification effects between equity and bonds for the “do-it-yourself” investor could be through investing in crowdlending loans representing different business sectors and risk levels.

Although the correlation between different categories of equity and different categories of bonds is in constant motion, rough estimates suggest that the correlation between equity and high yield bonds in a European context is 0.62 (Dankel & Andersen, 2015). As most crowdfunded loans to businesses should be categorized as high yield bonds, it is a relevant diversification opportunity to consider to an otherwise equity-based investment portfolio. However, as the crowdfunding phenomenon grows, so should the

availability of loans with different properties be expected to expand. Even within a Danish context, Flex Funding has already funded a three-year municipal bond from the Faroese municipal, Vágs Kommuna, worth 29 mDKK at an interest rate of 0,6% p.a. (Flex Funding , 2020). A diversification option rarely offered to retail investors before.

2.2.3. Why not stick with the banks?

As has been mentioned previously the classical way for businesses to take loans, has been going through banks, or other similar financial intermediaries. Although the concept of businesses taking loans through a collection of people is not a new concept, as outlined so far, the technological development has allowed for crowdfunding platforms to become popular. However, this does not explain why businesses end up taking the loan through these platforms rather than going through the bank. A stigma which has become associated with crowdlending, is that all the borrowers, have tried to get financing through a bank, but have been rejected as they have been deemed too risky (Jørgensen, 2018). Although this may be true in some cases, it is not the general truth about the loan applicants for crowdlending. Furthermore, following Havrylchyk (2018) as the crowdlending platforms enter a lending market which historically has been dominated by large banks, there are high barriers to entry, as well as high switching costs. In a pursuit to get established in the lending market, the crowdlending platforms are forced to pursue the market expansion strategy towards the riskier borrowers who cannot be served by the traditional banks. However, it is also recognized by Havrylchyk (2018), that this is not viable as a long-term strategy, as it would be too risky only accepting loans from the applicants who presumably have higher credit risk.

Through our interviews with Flex Funding and Lendino, we discovered several reasons why not all companies today choose to go to the bank for loans. Below the two main reasons for the shift in borrower behavior will be presented.

The first reason why a lot of the companies apply for loans with the crowdlending platforms is because of the amount of work and documentation needed to apply for a traditional bank loan. According to Kristian Frederiksen of Lendino (2020): “When the customers come to us, they actually tell us, that they have been in talks with the bank. But it takes too much time, as it is too bureaucratic, and the amount of documentation which they need to provide the bank is too extensive. It is like they get strangled before the process is done.” Kristian Frederiksen (2020), further goes on to explain that when the applicants apply with Lendino they can have an estimate ready for them within a week or so. On their website Lendino also states that filling out the loan application can be done online in as little as 15 minutes

(Lendino , 2020). This sentiment is also supported by Jacob Rasmussen of Flex Funding (2020): "… I generally think that among borrowers there has been a dislike against the banks, which we see among many of our borrowers, who frankly are tired of the banks… there are some who does not want to have anything to do with the banks, or as little as possible, as they think the banks interfere too much…" From this the first reason why, borrowers shift to the crowdlending platforms can be inferred. It has become too strenuous and tedious for many businesses to take the loans through the banks, or at least a quicker and less resource demanding option is now available through the crowdlending platforms.

The second reason we discovered through our interviews, for the companies coming to the crowdlending platforms instead of going to a traditional bank has to do with regulation. As will be explored further in chapters 3.1 and 4.2, the crowdlending platforms are not subject to the same degree and form of regulation as the traditional banks. As described by Rasmussen (2020): "They are doing a lot of book-management at the banks currently, so we are also being contacted by advisors who are sitting in banks with their healthy clients… because they cannot have concentrated risk on the banks' balance." Regulations prohibits banks from being exposed in too large of a degree to one sector. The reason for this can be found with basis in portfolio theory (Joseph, 2013). Under the Basel III regulations, it is stressed, that analysis is done with regards to the concentration of exposure in one's portfolio to specific industries or nations (Basel Committee on Banking Supervision, 2010). If a bank's loan portfolio is excessively exposed towards a specific sector or industry it can be quite dangerous, as history has proven that specific downturns are not an uncommon occurrence, and some sectors are quite cyclical. Furthermore, some sectors are also correlated, that is some sectors are connected in such a way, that if one sector experiences a downturn, there could be a lagging impact on connected sectors (Joseph, 2013). While the banks are subject to these regulations, the crowdlending platforms are not (Rasmussen, 2020). When a bank experience overexposure to a certain sector, they have cut some of the borrowers in their portfolio they would typically cut the least profitable or most risky borrowers in that sector of the portfolio. However, this does not mean that these customers are not credit worthy, and they have also already been approved through the credit check process of the bank in many cases (Rasmussen, 2020).

Hereby, having now the second reason why companies choose to apply with the crowdlending platforms being, that bank regulations can force companies to search for alternative financing options such as crowdlending.

Albeit having now presented two of the reasons why some companies apply with the crowdlending platforms for loans. It is important to note that the interviewed platform representatives also recognized that some of the customers who come to the crowdlending platforms, are customers who could not qualify for loans with the banks (Rasmussen, 2020). Furthermore, as said by Kristian Frederiksen (2020): "It may be that we have not existed for that long, but that also makes us hungrier for acquiring customers, and we may be willing to stretch to get the customer on our books". This could serve as evidence that the crowdlending platforms to some extent follow the market expansion strategy pursuing a riskier group of customers. However, it is important to note that it will not be all applicants with the crowdlending platforms who fall in this group, and some may not have a credit risk which would not be tolerable for a traditional bank.

2.2.4. Looking Forward

Given the recent trend and developments, not just within the crowdfunding space, as the world is getting more technological advanced and globalized every day, there is no indication that crowdfunding will not continue to become a more prevalent funding source.

Albeit the steady growth of crowdfunding in Denmark, it is still not a very commonly known form of funding for many entrepreneurs and citizens, nor as an investment opportunity. Furthermore, the general lack of knowledge can also scare investors away, as they may not have much trust in the system due to the lack of knowledge (Roed Nielsen, 2019). Therefore, a big challenge that crowdfunding faces currently, is that the general public needs to become more aware of its existence, and what it entails.

The potential for Danish crowdfunding to keep growing, should however not be underestimated, as the Danish culture has always been characterized by a willingness to co-operate (Roed Nielsen, 2019). The potential is also recognized by the Danish government, who writes about the potential for crowdfunding to challenge the existing dominant forms of funding in their *Strategy for Denmark's Digital Growth* (Danish Ministry of Industry, Business and Financial Affairs , 2018). Especially within crowd equity there is room for growth in Denmark. Even though Denmark has followed the general trend of growth in crowdfunding, like that of other Nordic countries, the growth within crowd equity in Denmark has not kept up compared to countries such as Sweden and Finland (Roed Nielsen, 2019). The reason for this is very likely due to tight interpretation of EU regulations, MiFID, in Denmark (Dansk Erhverv , 2019).

According to Statista (2019), we should [overall] expect to see crowdfunding continue its growth within Denmark (see Figure 7). From 2017 till 2023 there is an expected compounded annual growth rate of 13% in transaction value within the Danish crowdfunding market.

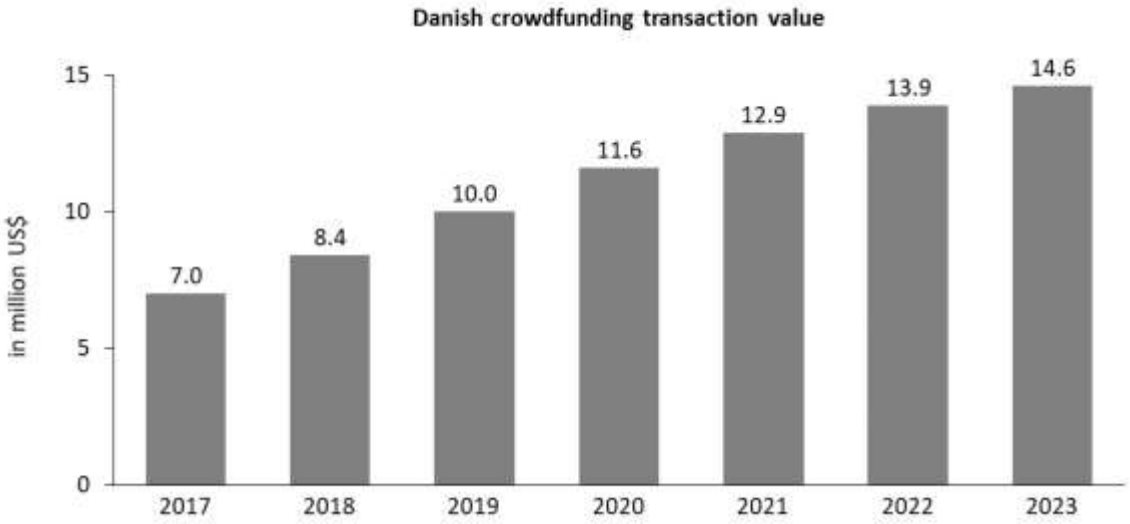


Figure 7: Danish Crowdfunding Transaction Value. Reproduced from (Statista, 2019)

Besides the growth in transaction value, a similar trend is expected to be seen within number of funding campaigns, which is expected to go from 2,100 in 2017 to 3,900 in 2023 (Statista, 2019). That is an 86% increase over the 6-year period.

3. Theoretical Considerations within Crowdfunding

3.1 Transaction Cost Theory

Transaction costs of any good or service influence the total price at which supply and demand meet. All else being equal, a downward shift in the supply curve results in a greater quantity of trade at a lower price, and an upward shift in supply result in a reduced quantity of trade at a higher price (Perloff, 2012).

As shown by Figure 8, the closer transaction costs are to zero, the less of a welfare loss is inflicted on both the supply and demand side and less total deadweight loss is observed.

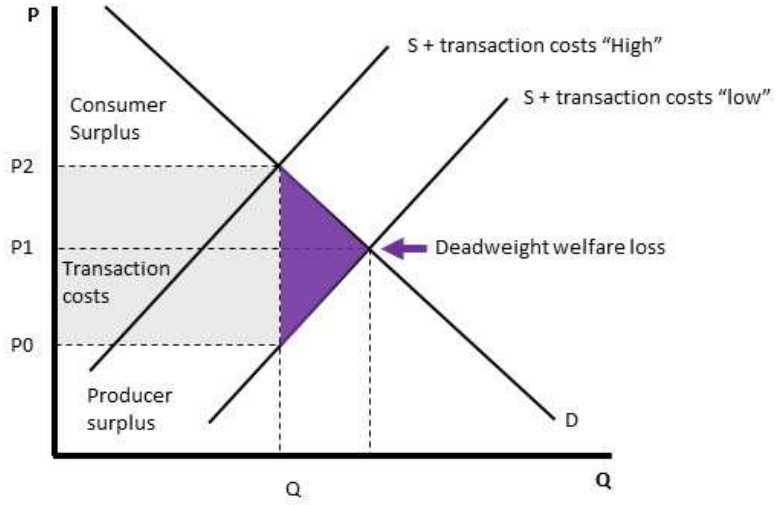


Figure 8: Supply and Demand curve with Transaction costs. Reproduced from (Perloff J. , 2016)

We wish to investigate possible effect of crowdfunding on the transaction costs related to the funding process compared to the transaction costs related to the funding process of traditional funding, such as bank loans. This section will begin with an introduction of relevant themes within transaction cost theory that subsequently will be applied in the context of crowdfunding.

3.1.1. Transaction Cost Review

Transaction costs are typically seen and measured in size relative to the good or service being traded. That is transaction cost is seen as a fixed proportion of whatever is being traded and is assumed to disappear in the transaction itself (Dahlman, 1979). Like costs in general, more real resources can be consumed when transaction costs decrease, all else being equal.

Transaction costs are not negative by nature if transaction costs are necessary to facilitate the trade of goods and services that either provides greater utility than alternative good or services, or where the total cost would be even greater despite lower transaction costs. For instance, buying a suboptimal product just to avoid payment fees related to the optimal product. As a result, transaction costs should not be seen as a phenomenon that does not create value or is not productive per se. Instead, transaction costs have similarities with a cost such as transportation, that may be a productive cost if there is a net increase in the joint value of the resources contingent on the transportation cost (Dahlman, 1979).

Like transportation costs, it is preferable for both the overall welfare of society as well as for the individual in the market that transaction costs are diminished all else being equal. Yet still transaction

costs are often a necessity justified as better resource allocation adds more value than the added transaction cost. North (1987) identifies four main variables that decides transaction costs within an economy as a whole and heavily influence economic growth by halting the transaction of goods and services.

The first variable is the cost of measuring the value of the goods and services being exchanged (North D. C., 1987). This variable revolves around imperfect information about what exactly is being traded and what the cost and value of the trade is. Even in a world where this measurement can be done perfectly, the acquisition of needed information to do the measurement is resource consuming in respect to time, among other costs. In the real world, information is typically imperfect, resulting in some level of measurement error. This measurement error contributes risk regarding the outcome of the transaction which is a further measurement cost.

The second variable is the exchange process resulting from the size of the market (North D. C., 1987). In impersonal, and especially anonymous exchanges, there is nothing stopping parties from taking advantage of each other in such a way that that cumulative value of the exchange is reduced.

If the parties are trading with each other on a recurring basis and know each other's identity, taking advantage of each other is a suboptimal strategy for both parties, as they will both lose all or much of the value of future exchanges, since the trust between the parties will be broken. Alternatively, the defrauded counterparty may inflict costs to his counterparty outside the market or inform the counterparty's other potential trading partners about unreasonable behavior that has occurred. To facilitate large markets with impersonal exchanges, this sort of transaction cost has to be countered with specific contractual agreements although this in itself still is a residual cost of the impersonal market. For example, the regulations and requirements that is necessary to make any official stock exchange work.

A third variable of the transaction costs in the economy is the cost of enforcement (North D. C., 1987). The enforcement cost is legal and collection costs associated with enforcing trades that for one reason or another is not completed according to the agreed conditions, or the perceived conditions by one or both parties. Even in a world where involved parties are neither prone to opportunistic or deceptive practices, enforcement costs will inevitably exist as a result of errors in the measurement process of the good or service according to variable 1. Meaning the perceptions of the traded goods could differ between the parties involved in the transaction.

A fourth variable of transaction costs is ideological attitudes (North D. C., 1987). This variable is by nature more diffuse and harder to measure since the cost of trading in according with one's own convictions is highly personal and somewhat unstable depending on the situation. Among other things, ideological attitudes are influenced by social background, education, trends in society, political leaders etc. In order to avoid the negative utility caused by acting against one's own convictions, actors are willing to pay a premium to complete the trade of otherwise identical good or services with an appropriate business partner or method of transaction, that aligns with personal ideological attitudes. Therefore, the emergence of phenomena such as crowdfunding and crypto currencies may have ideological aspects beside pure economical aspects.

Dahlman (1979) is narrower in his study of different types of transaction costs in that all three presented types of transaction costs originate from lack of information, those being search cost, information cost and bargaining cost. Search cost is the cost of spending time and other resources searching for alternative trading opportunities. While information cost is the cost of comparing the found trading alternatives to the one that is already known and measured. If information were perfectly precise, free, and immediately obtainable, the optimal trade would always be reached. However, since both search and information are costly. The expected cost of information related to finding the otherwise optimal transaction often lead to sub-optimal or simply repeated transactions. This is the case when the expected cost of required information exceeds the expected benefit. Lastly, the expected benefit of bargaining the conditions of the trade is costly, measured in time and other resources why the expected cost of bargain may exceed expected benefit.

North (1992) expands on his earlier work on transaction costs by adding the dimensions of institutions and organizations to the transaction costs related to the exchange process. In the impersonal marketspace, contractual regulations provided by institutions are vital for efficient and dynamic trading activity (North D. C., 1987). Regulative institutions provide formal legislation and enforcement while trade associations may provide self-imposed codes of conduct. As a result, the institutions that regulate a specific market is of vital importance to what transaction costs may occur and the magnitude of these. High regulation may cause relatively large transaction costs regarding the exchange process. On the other hand, high regulation can reduce transaction costs regarding measurement and perhaps enforcement. This is especially the case if the good or service is relatively standardized. While institutions provide the rules of the marketplace, businesses create the specific opportunity set that is provided within the regulations (North D. , 1992). Businesses create heterogeneous goods and services

that fall under different constraints imposed by the regulative institutions. This allows for different transactions cost structures i.e. products related to relatively high/low cost of exchange process or relatively high/low cost of measurement or even relatively high/low transaction costs regarding ideological attitudes. If the businesses offer their goods and services within the framework of the regulatory institutions, the businesses may change the composition of transaction costs on a direct level whereas institutions may change transaction costs via regulation of the businesses.

3.1.2. Transaction Cost Theory in Crowdfunding

Based on the review of transaction costs, this section will discuss how transaction costs differ between traditional funding methods, such as banks, and funding via crowdfunding and how the transaction costs within crowdfunding relate to investor's investment decision.

Bottiglia (2016) proposes that crowdfunding has two advantages regarding transaction costs, those being traditional operating cost and regulatory costs.

Evidence suggest that crowdlending platforms in the UK and the USA have been able to reduce operating costs compared to high-street banks. Arnold & Jeffery (2014) found that the crowdlending platforms Zopa and Lending Club were able to offer better interest rates to both borrower and lender on comparable loans based on overall less traditional operating costs. The savings related to areas such as fixed costs concerning physical branches, and even smaller charge-off rates on otherwise comparably rated loans, suggesting a superior credit assessment processes. The authors admit though that superior credit assessment processes based on data analysis methods is not a competitive advantage that should last in the long run. This seems to be a right conclusion as data analysis methods should not be considered as neither rare or imperfectly imitable (Barney, 1991) and therefore competitors, at least those not going out of business, should be expected to catch up on such competitive advantage in the medium to long run. It is therefore doubtful whether an advantage regarding credit assessment processes should be expected even from the best crowdlending platforms today compared to traditional banks, but the possibility exists in the short run if not for longer. An example from consumer finance of valuable data points that may not be available to traditional banks for regulatory reasons, or that borrowers are reluctant to gain access to, is social media data. Although we do not know of examples from a Danish context of social media data being analyzed as a part of the credit assessment process, the micro financing company Social Lender is a specialized "mobile first" lending solution that is specialized in credit assessments primarily based on the applicants social media accounts, namely

Facebook, Twitter and LinkedIn (Social Lender , 2020). It does not seem unreasonable, that “mobile first” lenders are able to gain access to valuable data at the tip of the lender’s finger, that traditional banks are prevented to use. Behavioral patterns derived from the borrower’s social media accounts may not only be relevant in the context of consumer loans, but also car loans and even mortgages.

Regulatory costs may differ between crowdfunding platforms and traditional banks. The transactional costs regarding the exchange process (North D. C., 1987) may differ if traditional banks are subject to burdensome external or internal regulations regarding the contractual agreements, that crowdfunding platforms are exempt from. Another situation is where the measuring and documentation process of the value of the services being exchanged (North D. C., 1987) is more burdensome for traditional banks compared to crowdfunding platforms. Consumer protection regulations may cause such cost related to the legal requirements of the contract. Both costs regarding the exchange process and process of measuring the value are productive transaction costs if they reduce the transaction cost of enforcement (North D. C., 1987) relatively more. Therefore, transaction costs may in fact be lower in total for traditional banks compared to less regulated crowdfunding platforms. Put differently, as long as the regulatory costs prevent other and more severe costs from occurring, they are well spent. One area where the regulatory costs of crowdfunding platforms should have a clear advantage compared to the regulatory costs of traditional banks is with respect to capital requirements imposed by regulatory institutions. Capital requirements impose limitations through requirements to the value weighted size of the equity of the traditional bank and therefore constrain the return on equity. Crowdfunding platforms are not subject to this as the individual investors possess the risk related to the debt or equity issued. However, crowdfunding platforms are subject to lighter capital requirement which will be outlined in chapter 4.2.

As different businesses create goods and services that fall under different constrains imposed by regulatory institutions (North D. , 1992), the transaction costs of tradition banks and crowdfunding platforms are difficult to compare. The transactions costs both regarding operating cost and regulatory cost are different from each other rather than smaller or bigger due to different regulatory environments with advantages and disadvantages.

The transaction costs regarding information are arguably more inefficient in the context of crowdfunding platforms compared to traditional banks. Search, information and bargaining cost (Dahlman, 1979) is centralized in traditional banks where few people obtain the needed information, bargain the price and make the decision in person. Alternatively, a few specialized people program the

algorithm in case of fully automated credit assessment processes. Crowdfunding platforms may also obtain the same information and bargain the price, but the decision-making process is decentralized to the individual investors who themselves decide whether they want to invest in the specific loan or equity offered. This decision process, if done properly, requires that each investor at least capture the information provided by the crowdfunding platform and perhaps do further information search on his own. As a result, hundreds or thousands of investors may end up spending time and resources regarding information accumulation where only a few people spend time and resources on acquiring the needed information in the credit assessment process of a traditional bank. The same is true for monitoring costs (Funk, 2019), where a crowd of individual investors need to monitor the investments regarding reinvestment of payments, the proceedings regarding defaulted investments etc. On the contrary, the cost of monitoring is centralized to occupy the attention of only a few employees in traditional banks. On the other hand, this idea of each investor obtaining and analyzing data on his own is perhaps a result of the habitual thinking crowdfunding is disrupting. Crowdfunding is very much a product of Web 2.0 (Han, 2011), where users participate in content creation in real time. A network of investors may for instance obtain and analyze data and share knowledge online, or a network of investors across borders may monitor local investment projects and share knowledge online. In doing so, each investor participating in this network of investors online may only contribute rarely with own analysis but gain relatively easy access to the information and analysis provided by other investors in that network. Thus, crowdfunding gets combined with crowd knowledge. Parallel to the emergence of crowdfunding, countless data sharing, and discussion-oriented fora have emerged online in the shape of dedicated websites and discussion fora only focused on crowdfunding. These facilitate knowledge sharing along with innumerable Facebook groups and groups on mobile-first apps such as Whatsapp and Telegram. Also, offline traditional conferences are arranged such as a yearly p2p conference in Riga, Latvia (P2P Conference, 2020). On this basis, the transaction costs of obtaining and analyzing data may in fact be or become decentralized in a highly efficient way via new forms of knowledge-sharing networks.

The transaction costs regarding ideological attitudes (North D. C., 1987) is difficult to measure but perhaps easy to underestimate in relation to crowdfunding. Although ideological attitudes should not play an important role among professional investors, neither in traditional banks nor crowdfunding. Ideological transactional cost or utility derived from the transactional process of the investment should be expected to vary sizable among retail investors. The individual may experience any positive or negative psychological side effects from the method of transacting, which the individual investor is willing to pay a premium or demand a discount for. A retail investor may have any rational or irrational

conviction, for instance that public funding of debt and equities is a more democratic or fair method of funding. As a result, the investor may prefer to engage in one form of transaction over another based on a personal ethical system, where the investor may see either crowdfunding platforms or traditional banks in a bad view (Bottiglia, 2016). Historical financial crisis may tend to cause bad reputation associated with traditional banks, as a result, some individuals may hold the ideological attitude that the process itself of crowdfunding is worth some premium because it creates an alternative to traditional lending institutions.

3.1.3. Sub Conclusion on Transaction costs

There are several different transaction costs such measuring cost, regulation cost, cost of enforcement, search cost and bargaining cost together with a more individual cost of ideological cost. Crowdfunding changes the cost structure of investing rather than definitively under- or overperform traditional ways of funding. Some evidence suggest that crowdfunding platforms may have a competitive advantage when it comes to big data analysis and use that advantage to make better credit assessment. A such advantage should only be temporary, if it existing at all. Lower regulatory cost of crowdfunding platforms should decrease transaction costs of burdensome external or internal regulations. However, regulatory costs are not by definition non-productive, and regulation may in fact reduce overall transaction costs by reducing enforcement cost, search cost or bargaining cost. Whether regulatory costs are destructive or productive therefore depends on the need for it. Crowdfunding change the cost structure more than anything by ideally decentralizing information and monitoring cost to a huge network of stake holders whereas traditional banks are more centralized and dependent on fewer but on average more specialized individuals. It is possible that crowd knowledge of Web 2.0 is reducing transaction and monitoring costs, but further research should be conducted.

3.2 Principal-Agent Problems in Crowdfunding

In the following section we will examine some of the principal-agent problems in crowdfunding. Traditional funding usually involves two parties, a “funder” and a “funded party”. When looking at crowdfunding, a third party is introduced, that is the platform through which the investment is made. We wish to explore the effect of the additional party in the context of the agency theory. The section will begin with an introduction, and review of central themes of the principal-agent problem.

3.2.1 Review of Principal-Agent Theory

According to Ross (1973): "an agency relationship has arisen between two (or more) parties when one, designated as the agent, acts for, or on behalf, or as a representative for the other, designated as the principal, in a particular domain of decision problems."

However, for a meaningful principal-agent problem to be created between the parties two factors must be present. First, there must be a misalignment of interest between the two parties. That is the principal and agent each have their own interests and objectives. Secondly, there must be some hidden or private information between the parties (Thomsen & Conyon, 2019; Laffont & Martimort, 2002). If there were no misalignment of interest, the principal would simply be able to leave the agent unobserved. Without the presence of hidden information, the principal would only need to structure the contract to cover each realization of the hidden information *ex post* (Shah, 2014). The presence of private information, also known as information asymmetry, tend to affect the principal-agent relationships in two ways, first it can lead to adverse selection, and secondly it can create moral hazard (Thomsen & Conyon, 2019). In general, it can be useful to sperate the two concepts on two sides of an event, that is the decision of the principal. Adverse selection tends to occur before (*ex ante*) the decision by the principal. Moral hazard tends to occur after (*ex post)* the decision of the principal (Thomsen & Conyon, 2019).

The concept of adverse selection was first developed in regards to studies of the insurance industry, where high-risk individuals were more inclined to take out policies than low-risk individuals (Spence & Zeckhauser, 1971). Adverse selection occurs due to the fact that different agents, have different characteristics. Because the agents have different characteristics, they will not all respond to an offered contract in the same manner, i.e. some agents will accept the contract, while others will reject the contract (Hendrikse, 2003).

The second information problem, moral hazard, relates to the activities of an agent. As with adverse selection, the concept of moral hazard also has its origins in studies in the insurance industry (Pauly, 1968). Moral hazard occurs because the activities and decisions of an agent is not fully observable by the principal, i.e. information asymmetry exists (Laffont & Martimort, 2002).

To help reduce the risks associated with information problems, a number of efforts can be employed, from both the principal and agent side.

Beginning with possible measures to mitigate adverse selection, two main actions are relevant to consider. The first being signaling, which is done by the party with the superior information. The second being screening, done by the party which has the lesser amount of information (Hendrikse, 2003).

When the better informed party decides to engage in signaling, it is often done because said person, possess some characteristic, which is desirable for the other party. By engaging in signaling, the amount of hidden information is reduced, and the less informed party will be enabled to make a more informed choice (Hendrikse, 2003). However, in order for the signaling to be effective, the high-quality party will have to invest an inefficient high level of resources in the signaling (Hendrikse, 2003). Therefore, there is also a cost associated with engaging in signaling, however, the cost should not exceed the added value from the signaling.

The option the lesser informed party have to mitigate adverse selection is to conduct screening. Screening is actions done to generate additional information about the characteristics of the more superior informed party. If the screening by the lesser informed party is successful, and additional information is generated, the discovered information is able to be incorporated in the contract between the two parties (Hendrikse, 2003). As the case with signaling, conducting the screening, is a costly action, and therefore, the lesser informed party try to get additional information at the lowest cost possible, where the best option is voluntary disclosure by the superior informed party (Hendrikse, 2003). Screening takes shape in relation to what industry it is conducted within. For example screening within the human resource context is to screen applicants through cognitive or aptitude tests before prior to job interviews (Thomsen & Conyon, 2019).

As there are options to mitigate adverse selection, there are also efforts which can be employed in order to mitigate the issue of moral hazard. The main ways to do so are by aligning incentives, monitoring, or benefiting from repeated interactions (Thomsen & Conyon, 2019; Hendrikse, 2003).

The first way in which the principal can mitigate the moral hazard which stems from the hidden actions of an agent, is by constructing the contract between the parties in such a way, that the agent acts in the favor of the principal (Thomsen & Conyon, 2019). The incentives offered by the principal need not always be economical but can take multiple forms. In fact, according to Arrow (1968), complete reliance on economic incentives does not generally lead to the optimal allocation of wealth. As with all other types of efforts, there is a cost to offering incentives. By offering incentives there is a shift in the disposition of the created wealth. However, by creating the right incentives, the end goal is that the increased effort can increase the total wealth to such an extent that it somewhat off-sets the offered incentives (Zweifel & Manning, 2000).

The second measure which can be taken by principals to generate additional knowledge relating to the hidden actions of the agent, is to implement a form of monitoring of the agent's actions. Similar to the earlier touched upon measures, agent monitoring adds additional costs, which the principal needs to be

aware of (Hendrikse, 2003).

The last way in which the principal can uncover information about the hidden actions of an agent, is by having the principal-agent relationship repeat over time. However, it should be noted, that the principal should be careful about incorporating too much of the learned information into the contract between the parties. Doing so can have a serious impact on the actions of the agent, if the contract varies too much continually based on the learned actions (Hendrikse, 2003).

3.2.2. Principal-agent relationship in crowdfunding

Following the definition at the beginning of the previous section, it is also quite evident, that whenever a firm or an individual seeks a project to be funded from external capital, they will be engaging with another individual or firm in order to secure said funding. It will also be quite evident, that the interests and objectives of the involved parties will usually not be aligned initially. E.g. where the party seeking funding, will seek to obtain the cheapest funding possible, the funding party would like to see the greatest return possible for themselves. Hereby, the creation of a principal-agent relationship arises, where the funding party is the principal, and the funded party will be the agent. Furthermore, the issue of information asymmetry will also be present. The party seeking funding will have superior information in regard to their own ability to provide the required return, and the amount of effort which they will have to put forth towards creating value for the principal. With all these variables present, it is quite evident that issues such as those described in the previous section; adverse selection and moral hazard will be prone to occur.

The information asymmetry between a lender and a borrower has played a key role in the traditional credit markets as explored by Gorton & Whinston (2003).

In fact, the problem of adverse selection has for centuries been an issue for many of the traditional financial institutions when having to provide funding, and especially debt funding which historically has been the most sought after type of funding. Whenever providing loans, banks have for centuries tried their absolute best to separate the borrowers with good characteristics, from those with bad characteristics, i.e. good- from bad borrowers. However, it is impossible for the bank to accomplish this to perfection ex ante. A subset of the bad borrowers will have unrealistic expectations, some will be gamblers, and some wish to use the resources for their own consumption. Due to this behavior of the bad borrowers, banks will have to add a risk premium to the risk-free rate when providing loans. This will in return make the good borrowers less likely to accepting the conditions of loan, however the bad borrowers will not be discouraged by this risk premium. Consequently, a situation of adverse selection

can occur. Not only will this relationship be exposed to ex ante adverse selection problems, it is also exposed to ex post moral hazard issues. Once the money has been issued to the borrower, it is very difficult for the bank to observe what exactly the borrower does with the borrowed funds. The banks are for example exposed to the risk of the borrowing company's managers funneling the money to personal consumption, or pursuing extraordinary risky strategies with the borrowed funds (Thomsen & Conyon, 2019).

Following the previous example, from a context which most people are very familiar with, i.e. banks, we will now look at the principal-agent problems which exists within crowdfunding. Many of the issues in regard to adverse selection and moral hazard seen in the above bank example, will also be applicable in a crowdfunding context. However, the first thing which is essential to establish, is how the principal-agent relationship within crowdfunding differs from that of the traditional bank and its borrowers. Figure 9 shows the principal-agent relationship which can be observed in the traditional bank-borrower context.

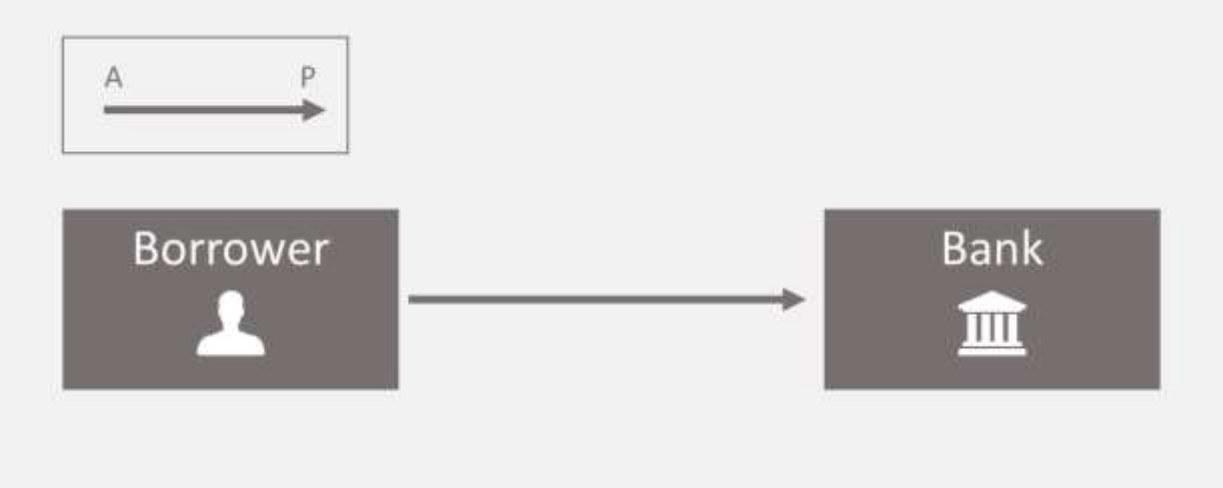


Figure 9: Principal-Agent relationship Traditional Funding. Own production.

Where the relationship within crowdfunding has a fundamental change, compared to the relationship seen in Figure 9, is that an additional party is introduced (see Figure 10).

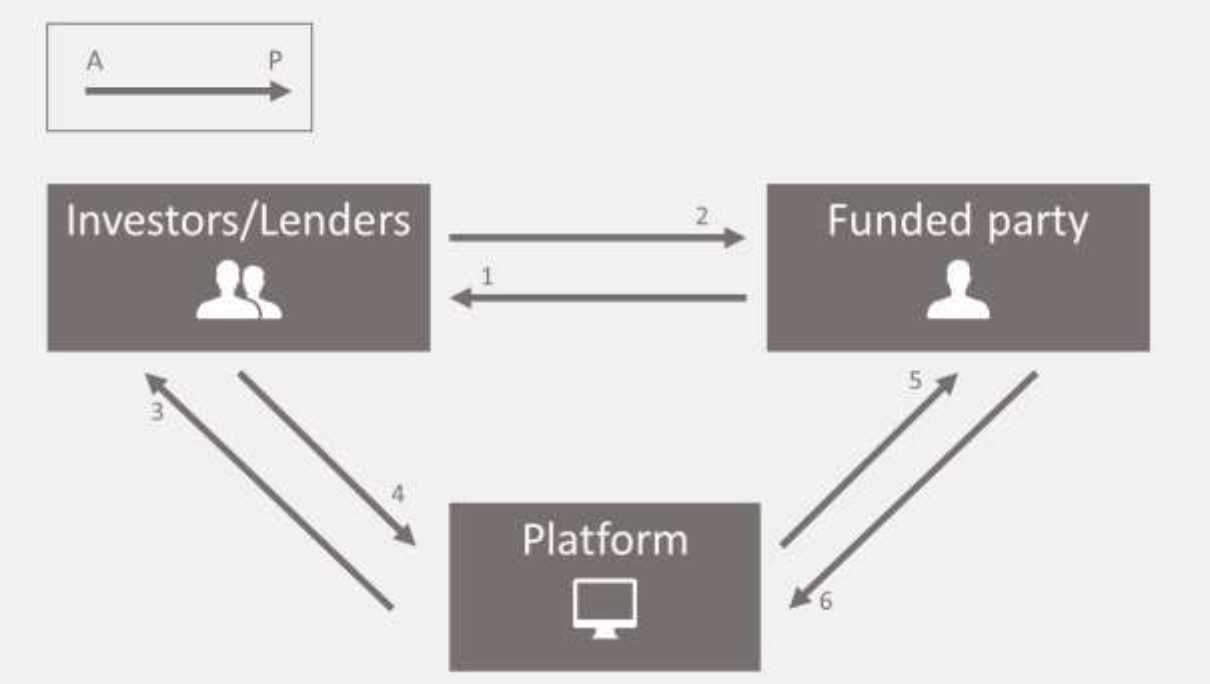


Figure 10: Principal-Agent Relationship in Crowdfunding. Reproduced from (Funk, 2019)

Compared to the traditional relationship of a lender and a borrower, an intermediary is now introduced, that is the crowdfunding platform. As more actors are introduced, more principal-agent relationships will be created, and as can be seen above in the situation of crowdfunding, a total of six principal-agent relationships will be created. Following the increase in relationships, there will also be additional potential between the parties for information problems to occur due to information asymmetry (Funk, 2019). The six principal-agent relationships, and the potential conflicts within each will now be explored further following Figure 10.

Relationship one is the one where the lender/investor is the principal and the funded party is the agent. The potential for information problems is quite evident here, as the funded party will have more information about their project, than the investor, both ex ante and ex post the contract is established, i.e. the investment is made. If the funded party fails to provide adequate or misleading project descriptions, it could very well lead to adverse selection by the crowd. Furthermore, there is also the potential for moral hazard. If the investors are not able to properly monitor the funded party, he or she could take actions which are not aligned with the interest of the investor, or in the extreme case the funded party use the provided funds for personal gains. As discussed in the review section, both parties can engage in measures to counteract the potential information problems. The funded party could engage in signaling, by making sure that extensive project information is available and providing

frequent updates on the project. The investors could benefit from engaging in screening of the funded party, by inquiring about additional project information, e.g. a business plan, and by making sure that the provided information is truthful and reliable. Lastly, if the two parties have engaged in previous contracts the investor will have learned some information about funded party which will help decrease the information asymmetry.

The second relationship to be examined will again be between the investor and the funded party. However, where the funded party before took the role of the agent, it is also a principal towards the investor, who takes the role as agent in this relationship. The funded party does not have the ability to choose their crowd, and therefore the risk of adverse selection appears. The funded party cannot be sure to attract the investors of his preference or reliable investors. Furthermore, the investor could be someone whom the funded party would not like associated with their project. If investors with values that are not aligned with those of the project represent the funded party's project, it could potential be very harmful for the project. Furthermore, the potential for moral hazard is also present. There is a risk, that the investor, who in the investing process will learn ample information about the funded party's project, could steal the idea from the funded party. To mitigate the potential adverse selection, the funded party could engage in signaling, e.g. release descriptive data, in order to attract the appropriate investors. To avoid the theft of their idea, the funded party should make sure to limit the information released to be only the necessary, however striking the balance is very difficult. Alternatively, they could conduct screening of investors, by having them disclose their full identity before sensitive information is released, yet the danger is still eminent.

Turning to relationship three, which is between the investor and the platform, where the investor assumes the role of principal and the platform is the agent. The role of the platform is to pre-select the range of projects for the investor to invest in and are responsible for the due diligence of these projects. The potential of adverse selection is created as poor due diligence by the platform could lead them to offer the investors an inferior selection of projects, and the investor could lose out on more profitable or more interesting projects. One way to mitigate the risk of adverse selection is by the platform signaling their quality by consistently offering the optimal pre-selection of projects for investors to engage in (Funk, 2019). Another way this case of adverse selection could be mitigated, is by interference of the funded party, who should choose the most experienced and skilled platform, to review their projects (Kortleben & Vollmar, 2012).

Relationship four is the platform in the role of the principal, and the investor in the role of the agent. This principal-agent relationship is quite similar to relationship number two and incorporates similar risks. Like the funded party could not ensure, that the optimally desirable investors are attracted, neither can the platform. By not attracting the appropriate investors, the reputation of the platform could be harmed. The most efficient way for platforms to avoid this risk of adverse selection is by conducting thorough screening of potential investors.

The fifth relationship is made up with the funded party as the principal and the platform as the agent. Here the potential for adverse selection also exists, as the funded party needs to select the platform which is most suitable for their project. Specifically, the platform should be capable of ensuring the funded party with ample number of investors for the project to be funded. Again, several actions can be taken to avoid this adverse selection. First, the funded party can screen the platforms, by performing research on the different options they have. The platforms can also engage in signaling by releasing information about the platform's investors preference or similar. Lastly, through repeated relationships, successful or unsuccessful, the funded party will be able to gain information about the relevancy of a platform.

The sixth, and last relationship is with the platform as the principal, and the funded party as the agent. Again, the potential for adverse selection is present, as the platform is in danger of choosing the inferior agents (i.e. funded parties). Besides the potential of adverse selection, the platform is also exposed to moral hazard. There is no guarantee for the platform, that the funded party will be willing or able to follow the platforms guidelines on for example the number of updates which needs to be provided. To mitigate the potential of adverse selection, the key for the platform, is to conduct extremely thorough screening of fund seeking parties. The effectiveness of this screening will very much depend on the skill of the platform staff. Furthermore, the funded parties could engage in signaling by providing information, which helps the platforms to assess the proposed projects. To deal with the potential moral hazard, the most effective measure for the platform would be to monitor the funded parties, and making sure that they are following any guidelines the platform may have (Funk, 2019). As previously discussed, a repeated relationship can also help decrease the information asymmetry and provide the platform with additional information about the parties seeking funding.

3.2.3. Sub Conclusion on Principal-Agent Problems

Although crowdfunding quickly has gained a massive following, not only internationally, but also in Denmark. This section has explored some of the potential agency issues which are associated with

crowdfunding. The principal-agent relationship which can be observed within crowdfunding differs from other classical types of funding, in especially one major way: an additional intermediary party is introduced, that is the platform. The introduction of the additional party creates additional principal-agent relationships. As the typical crowdfunding transaction involves parties who prior to the transaction do not know each other, there is a high likelihood that information asymmetry exits. Furthermore, interests between these parties are not always aligned within these relationships. Therefore, the potential of information problems such as adverse selection and moral hazard occurs. The additional relationships which are observed within crowdfunding therefore also creates increased risk for information problems. The different parties can engage in measures, such as signaling or screening, in order to decrease the effect or magnitude of the potential risks which is created by the information problems. However, engaging in these measures are not without a cost, and therefore these costs would have to be offset by the potential return (Funk, 2019). The total cost is a function of the combined costs associated with efforts to avoid risks in each of the principal-agent relationships, and therefore the more relationships which a party participates in, the more potential for costs exists. As crowdfunding has more parties, and therefore principal-agent relationships, than other types of traditional funding, there is a higher potential for agency costs in the crowdfunding engagements, which the investor would have to make up by the potential return of their investment.

3.3. Risks associated with the Underlying Crowdfunding Instrument

When investing in crowdfunding, whether it is crowdlending or crowd equity, albeit packaged in a new digital way, what one is investing in is still either a debt or an equity instrument. This paper focuses on the risks that are associated with investing through the crowdfunding platforms, and not as much the underlying instrument in which one is investing. However, it is still vital that the investor is aware that the risks highlighted in the latter parts of this paper are not the only risks to consider when investing. Thus, the following chapter will briefly outline some of the characteristics and risks associated with the underlying debt or equity instrument.

3.3.1. Debt investment

When investing in crowdlending loans the two major categories, are personal loans, and there are P2B loans, which are business loans. The major focus of this paper will be the P2B loans, which are also the most common crowdlending loans in Denmark. When investing in a business crowdlending loan, it is comparable to a classical corporate bond investment. Although the P2B loans are by far the most popular crowdlending loans, governmental institutions have also been observed to apply for loans. This

has been seen on the platform Flex Funding, where a municipality in the Faroe Islands have applied and been approved for loan. In this case, the comparable bond would be a municipal bond. One key difference between bonds and crowdlending investments that should be noted, is that the crowdlending investments are on a much smaller scale, being able to invest amounts of hundreds and thousands of DKK. The borrowing party in crowdlending would in a bond context be the issuer, while the investing party can also be referred to as the bondholder. The issuing party is obligated to provide one or multiple future cash flows to the investing party, and return the capital at maturity (Chorafas, 2005). When buying bonds, the bondholder becomes a creditor of the company. Only being a creditor, however, also means that they do not have any voting power, and hence no direct control over the policies and decisions of the company, as this control lies with the equity owners, i.e. shareholders. However, even though the bondholders do not have any direct control, they take on a smaller risk compared to the shareholders, as the interest owed on the bonds, must be paid before any income is available for the shareholders. Furthermore, another key upside for bondholders is that in case of liquidation, the bondholders will have prior claim on the assets of the company (Chorafas, 2005). However, while the bondholders take on less risk than shareholders, they also have limited upside on their returns. The bondholders will be paid their interest and principal, but it is only the equity holders who will participate in any potential upside which may be above this. This can be illustrated through the Black-Scholes model (Black & Scholes, 1973; Merton, 1973), where the debt of a firm can be described as a short put option on the value of the firm's assets, as can be seen by the payoff diagram in section 2.2.2. (Figure 6). The payoff diagram illustrates that once the debt has been repaid, there is no further potential for upside returns. Equity owners do not see any returns until the debt is repaid, but after this, they have unlimited upside.

Corporate bonds come in a number of different forms, and the debt can be either secured or unsecured. Secured debt is when there is some form of collateral pledged to ensure payment of the debt. The debt can be secured with either real- or personal property. Debt without any collateral pledged, is called unsecured debt, and is often referred to as debenture bonds. Although the debt may not be secured by a specific pledge of property, this does not mean that the bondholder has no claim on property or earnings of the issuing company. Bondholders of unsecured debt, will still have the claim of general creditors on all assets of the issuing company, not pledged specifically to secure other debt (Fabozzi, 2007).

As a bond investor there are a number of risks which one should be very cautious of. These are related to areas such as interest rate risk, call and prepayment risk, yield curve risk, reinvestment risk, credit risk, liquidity risk, exchange-rate risk, volatility risk, inflation risk, event risk, sovereign risk, and environmental, social, and governance (ESG). For the purpose of this paper however, we will only touch upon the most relevant of these.

The first risk which will be discussed is the credit risk. The credit risk can be separated in three different parts; 1) default risk, 2) credit spread risk, and 3) downgrade risk.

The default risk associated with bonds is the risk that the issuing party may fail to meet the terms of the obligation, in regards to timely payment of interest and principal. The percentage of a population of bonds, which are expected to default is called the *default rate*. However, even if a default occurs this does not mean, that the bondholder will lose the total amount of their investment. It can be expected that the bondholder will be able to recover a certain percentage of their investment. This is called the *recovery rate*. If the default- and recovery rates are known, an investor can calculate the expected loss due to defaults (Fabozzi, 2007).

Even if a bond does not default, an investor may still be concerned that the market value of the bond will decline if the bond is not held until maturity. This can be categorized as credit spread risk and can basically be referred to as the market risk. The risk denotes cases, where there is a yield difference between a risk-free bond and a bond with an associated credit risk, such as corporate bonds (Chorafas, 2005).

The last of the risks which falls on the umbrella of credit risks, is the downgrade risk. One of the most common tools used for gauging the default risk of companies is the credit rating associated with the issue. For corporate bonds, the rating is assigned by rating agencies such as Standard and Poor's and Moody's. The credit rating indicates the default risk associated with a specific bond issue or issuer. The rating symbols or characters are simplified representations of much more complex ideas, in effect they are summary opinions. Once a credit rating is assigned the rating agencies continually monitor the credit quality of the issuer and can reassign a different rating at any time. A downgrade in the credit rating of a company can cause an increase in the credit spread, and thereby decline in the price of the price of the issue. This is referred to as the downgrade risk (Fabozzi, 2007).

If an investor decides that they would like to sell their bond prior to the maturity date, there will be a risk associated with the ability to do so without the price of the bond being substantially affected. This risk is known as liquidity risk. All else being equal, an issuance with lower liquidity should provide a

higher yield. The amount of liquidity risk also depends greatly on the type of bond issuance. For example, government debt tends to have less liquidity risk compared to other types of corporate bonds. The most common way for measuring liquidity risk is by looking at the bid-ask spread. Typically, during periods of financial distress, the spread will widen for corporate bonds, due to the fact that investors often prefer higher quality government debt during these periods (Nordby, 2019). Liquidity risk in a crowdfunding specific context, will also be examined closer in section 4.7 of the paper.

Another risk associated with investment in bonds is inflation risk, also known as purchasing power risk. Inflation risk stems from a decline in the purchasing power of the cash flows associated with the bond due to inflation, which is measured in relationship to purchasing power. This risk can be mitigated by for example buying inflation protected bonds (Fabozzi, 2007).

Sometimes the ability of the issuer to make the stipulated interest and principal payments can be altered quite dramatically and unexpectedly, due to factors such as a natural disaster or industrial incident, a takeover or corporate restructuring, or a regulatory change. These are known as event risks. The first factor, a natural disaster, impairs the company's ability to honor its stipulated payments, and this is a type of the before mentioned downgrade risk. Although downgrade risk typically pertains to one entity, the event risk from a natural disaster will usually affect more than one issuer. Another prominent example of this, at the time of writing, is the Covid-19 pandemic. The pandemic has impaired many companies cash flow generation, which in turn creates a risk for bond holders not being paid according to the agreement.

Similarly, the second factor relating to corporate takeovers and restructuring, also has the potential to result in a downgrade, and can furthermore impact other issuers. A good example of this is the leveraged buyout (LBO) of RJR Nabisco, which happened in the fall of 1988. After the LBO the entire industrial sector of the bond market suffered, as participants withdrew, new issues were postponed, and secondary market activity came to a standstill, all as a result of the initial LBO bid announcement (Fabozzi, 2007).

The last factor is the regulatory event risk, which can present itself in numerous ways. An example of this can be that changes in regulation requires a regulated entity to divest itself from certain types of investments. When doing so, the flood of divested securities on the market will negatively impact the price of similar securities (Fabozzi, 2007).

If an investor chooses to invest in a bond issued by a foreign entity or government, the bondholder will also become subject to sovereign risk. This risk entails that, as a result of actions taken by the foreign

government, a default could occur, or even in the absence of default, an adverse price change could occur. Sovereign risk can be split into two parts. First, the foreign government can become unwilling to pay their obligated payments. This could happen in two ways: The foreign government may simply repudiate their debt, or the foreign government may become unable to meet the required payments due to unfavorable economic conditions in the given country. Historically however, most defaults on governmental debt has been due to the government's inability to pay rather than the government being unwilling to pay its obligations (Fabozzi, 2007). This is currently not very prevalent in a crowdfunding context but has the potential to be so in the future. As seen on Flex Funding's platform, there are already governmental loans being crowdfunded. With crowdfunding becoming more well-known and growing in popularity, it is likely that more government loans may be investable through the platforms in future.

The last risk which will be touch upon is an area which has received increased attention since the financial crisis of 2007-2008. Since then, investors have to a larger extent begun to incorporate non-economic factors such as environmental, social, and governance (ESG) analysis in their investment decisions. The popularization of this trend can in parts be credited to the perceived notion, that financial reporting does not disclose all substantial risks for investors. This notion gained popularity in the 1970s within stocks, but as earlier mentioned, got a massive revival in use after the 2007-2008 financial crisis. Today, the phenomenon has gained traction beyond the equities world, and is very common within real estate and fixed assets investments. Although the majority of analysts focus on credit risk, as the major driver of return on debt instruments, a growing body of research also shows that ESG factors have an influence on bond returns. In the United Nations supported report, Principles for Responsible Investments (2013), there are shown ESG factors which may affect credit risk of an issuer. Some of the ESG factors which have been found to affect credit risk can be seen in the below table (Nordby, 2019).

Environmental	Social	Governance
Energy resources	Health and safety	Transparency
Pollution	Human Rights	Compensation Structures
Renewable Natural resources	Diversity	Board Diversity

Table 1: ESG factors. Reproduced from (Nordby, 2019)

Some of the risks such as credit and liquidity risk, will also be discussed in greater detail, and placed in a crowdfunding context, in subsequent parts of this paper.

3.3.2 Equity Investment

When investing in crowd equity, the crowdfunding investor invests in the equity of companies. Although most elements of investment in equity generally speaking are the same as investing crowd equity, there are also differences that investors need to consider before investing in crowd equity. This section will outline central elements of equity investment and, where relevant, mention specific characteristics regarding crowd equity.

In practice, one may split crowd equity up into two main categories.

The first category of crowd equity platforms is investing in initial offered equity of relatively young and growth-focused businesses where the investor receives full voting shares in the company once the fundraising campaign is finished. While future dividends are certainly a possible outcome from this kind of crow equity investments, the primary goal is typically capital gains from a future acquisition of the company or an IPO on a public stock exchange in the future. At the time of writing, no crowdfunding platform specialized in this sort of crowd equity is currently operating in a Danish context. To visit an example of such crowd equity platform in a European context, one could explore the website Seedrs.com.

The second category of crowd equity is equity funding of real estate projects. It is similar to the first category of crowd equity in the way that investors buy shares in a stock company. But this investment is based on the popularity of real estate projects, and way different risk and return profiles are associated. This category of crowd equity is typically provided by separate platforms quite different from Seedrs.com, or similar crowd equity platforms for small to medium-sized growth companies. In a Danish context, Brickshare.dk is an example of crowd equity real estate investing while European examples can be found at Brickstarter.com or Reinvest24.com

Aside from the more specific mechanisms and risks related to crowd equity, that will be explained throughout this paper, there are general mechanisms and risks related to equity investments, that the investor should keep in mind.
When an investor chooses to invest in equity, they buy one or more shares, also known as stocks, of the ownership of a corporation, partnership or other legally defined company business structure (Dennison, 2018). Each share represents fractional ownership of a specific corporation and generally entitles the investor to a corresponding fraction of the voting power on shareholder's meetings, and of the

company's future earnings, whether the earnings are paid out or not. However, shares do not necessarily carry equal voting power or entitlement to receive dividends.

The most common way to differentiate between the voting power of common shares is to issue multiple classes of shares, i.e. Class A shares carrying ten votes, Class B shares carrying one vote, Class C shares without any voting power. Multiple classes of shares are a beneficial tool for the owners of a company who want to raise funds via emission but do not want to give up considerable voting power. Although crowd equity tends to cause very broad and dispersed ownership of the issuing company's shareholders, shares funded via crowd equity tend to carry voting rights. For example, all shares issued on Seedrs.com are voting shares (Seedrs, 2020). Arguably, this dispersion of shareholders weakens their bargaining position in case of an acquisition later in the company's lifespan.

Dividends may be legally confined to some equity owners until a certain threshold is reached after which common stockholders can receive dividends. Such equity owners are holding preferred shares and have a priority claim on the company's assets over common stockholders. Typically, priority claims related to preferred shares are a fixed amount, while preferred shares typically do not carry voting rights but often a conversion right to common shares (Dennison, 2018).

Going back to Figure 6 illustrating the Black-Scholes model (Black & Scholes, 1973; Merton, 1973), the plain equity investment can be described as a call option on the company's assets, where the strike price of the call option equals the face value of the company's debt, meaning the shareholders are only benefiting from the residual value of the company's assets once the company's debt is subtracted (Dennison, 2018). On the contrary, if the value of the company's assets does not exceed the face value of the debt, the company is worthless to the shareholders. Once the face value of the debt is subtracted, the upside of the call option is unlimited. This unlimited upside is of course highly relevant in the valuation of any share of equity; however, it is arguable more relevant to crowd equity shares than most other. The reason being that crowd equity is generally used to fund risky small to medium-sized growth companies where the risk of the company defaulting is relatively high, but where the potential upside of the often new and innovative products, or markets, is also relatively big. Combined with an often low entry point for investors, often similar to 100 DKK (Seedrs, 2020), and the pay-off diagram may excite certain investors willing to take on high risk.

Among other options such as corporate bonds or loans, shares are issued by companies to raise equity funding for ongoing operations, research and development or to fund acquisitions (Strumeyer &

Swammy, 2017). Issuing new shares do not entail regular payments of interest and principal as it is the case with crowd borrowing or ordinary corporate bonds and loans. Instead issuing new shares dilute the existing owner's fractional ownership and thus their share of future cash flows and frequently voting power. It is therefore by no means a free lunch. In fact, existing owners will usually have to increase their stakes on the company by utilizing their pre-emptive right to buy the new shares at a discounted price compared to fair value. Alternatively, they effectively lose wealth by letting other investors dilute their ownership at a discount. This pressure towards existing shareholders to invest more in a company that issues new stock is mostly only a minor annoyance if the company is listed on a public stock exchange. If the company is listed on a public stock exchange the new shares can be sold at a fair market price right after the emission or, in regards to larger publicly listed companies, also the pre-emptive rights can be sold at a fair value, and thus compensate existing shareholders for any dilution of ownership (Brealey, Myers, & Allen, 2017).

The crowd equity investor needs to be careful when he signs up for an equity campaign on a crowd equity platform. Not only the decline but also the growth of the business may cause headaches. If the company value declines, the equity investor will tend to suffer a loss of wealth from a declining value of the shares. If the crowd equity funded company does well and grow the business, it will usually need to raise more capital in order to finance the assets needed to capture the growth. Especially if the business is dependent on tangible assets such as property, plant, and equipment, or if the business is operating at either a loss or is not producing sufficient profits to fund an optimum growth rate. If the company is already leveraged at a suitable level, new equity must be raised. Since the crowd equity investor also face the issue of buying the new shares or watch his fractional ownership become diluted at a discount, the crowed equity investor may end up investing a greater fraction of his wealth in the company than he feels comfortable doing.

Shares of companies listed on public stock exchanges are easy, fast, and cheap to sell at fair market value. The crowd equity investor might have a harder time selling his unwanted shares of a company, or at least he might have to face considerable transaction costs in the shape of search cost, information cost and bargaining cost (Dahlman, 1979), when a public stock exchange does not facilitate an efficient marketplace**.** Crowd equity platforms are still in their early days, so this issue of illiquidity is probably going to decrease as overall volume increases on the platforms. A crowd equity platform such as Seedrs already facilitates a rather active secondary market (Seedrs, 2020), where indicative market values are

provided to support the decision making of less sophisticated investors. Issues regarding liquidity will be revisited in chapter 4.7.

The perhaps most important element of investor protection on traditional stock markets facilitated through a public stock exchange is the protection against what commonly referred to as insider trading. Insider trading is when internal and private information is used to achieve superior rates of return at the expense of the counterpart who naturally does not have access to the same internal and private information. Insider trading is illegal throughout the European Union based on the Market Abuse Regulation (MAR) that in a Danish context is implemented through Markedsmisbrugsforordningen in which article 14 criminalize insider trading, attempt at it directly or indirectly, or to pass on insider information in the context of regulated markets. Insider trading is a threat on any equity market why heavy legislation is needed in the first place. But in the context of crowd equity secondary markets, investors should probably be extra cautious about being on the wrong side of insider trading since it is questionable to which extent the individual crowd equity platform is seen as a regulated market and to which extent insider trading is effectively monitored and preventable.

The second of the two main categories are real estate-oriented crowd equity. Because rental properties have become a popular investment object in the realm of Danish crowd equity, we want to briefly outline some of the issues investors need to know about residential apartments as investment objects, as these are the most commonly observed projects on platforms such as Brickshare.

Fundamentally, crowd equity funded rental properties are unlisted stock companies that can be valued with a discounted cash flow model based on future expected cash flows derived from operations and perhaps resale of the property after a certain number of years. However, to judge the risk of the cash flows, the investor needs to consider several risks and dynamics. One way of observing the risks is to divide them into six categories, being business risk, management risk, liquidity risk, legislative risk, inflation risk, interest rate risk, environmental risk and financial risk (Goddard & Marcum, 2012).

Business risk is the risk of the business - rental of apartments - not performing as foreseen. This lack of performance can originate from both income or expenditures and have very negative effects on the financial statements. Sources of problems is inexhaustible but implies factors such as increased vacancy percentages, disappointing development in real wages and property prices, credit loss on tenants, unforeseen costs of maintenance etc. This risk is to some extent unsystematic, meaning it can be

diversified away, and partly it is arising from fluctuations in the economy that cannot be diversified away.

Management risk refers to the performance of the management and is closely related to the agent-principal theory as will be outlined in the chapter 3.2. If the management team underperforms, it will also influence the financial statements by creating or reinforcing most of the same issues that are stated as business risk, for instance increased vacancy percentage, increased maintenance cost arising from mismanagement and credit loss.

Liquidity risk is associated with a lack of market depth (Goddard & Marcum, 2012), meaning it is difficult to sell both the shares and the property itself without considerable discounts. This is generally associated with market downturns but is especially relevant in for real estate trades where transaction costs are high, and the asset is rather cyclical by nature.

Legislative risk refers to the possibility of unforeseen governmental interventions having a negative effect on the financial performance of the investment (Goddard & Marcum, 2012). New legislation has the potential to both increase costs or decrease income. For instance, by requiring unforeseen renovations and improvement of housing standards or by putting a legal cap on the rent.

Inflation risk refers to the fact that the price of some goods and services in the economy increases at a faster pace than others. In the context of rental apartments, the risk lies in the income increase during the investment holding period not keeping up with the increase in operating expenses (Goddard & Marcum, 2012 p. 123).

Interest rate risk is relevant both in regard to the capital value of the company as well as the financial statements. Rising interest rates generally decrease the value of assets by increasing the discounting rate of the cash flows. Rental properties are no exception. The profit and loss statement is directly affected by increasing interest rates if the leverage, that is commonly used, is with a variable interest rate. If a fixed interest rate loan is used as financing source, the expense is partly pushed forward to the next refinancing date. But partly will expectations to future inflation rates already have been included in the nominal interest rate offered according to the Fisher hypothesis (Fisher, 1930), increasing the cost of debt and, all else being equal, reducing operating profit.

Environment risk arises from the individual property and the environmental effect on, and interaction with, its surroundings environment (Goddard & Marcum, 2012). A specific list of environmental risks would be inexhaustible, but would include factors such as building materials, sewerage instalments,

aesthetic incorporation, noise and air pollution and the effect of weather and climate changes. A key factor is, that these risks are difficult to predict as the environment is dynamic and somewhat swiftly changing while buildings are not. A shift in preferred aesthetics or a changing landscape around the building may be enough to greatly influence the equilibrium price for the rent going forward, new requirements to building materials and pollution may increase cost alongside with floods and extreme weather.

Financial risk is the risk of the expected rate of return on the total funds invested in the property falls below the financing cost of the leverage applied (Goddard & Marcum, 2012). Financial risk therefore ties together business risk and interest rate risk. These factors influence the spread between the before tax internal rate of return on the property ($BTIRR_P$) and the before tax internal rate of return on the leverage ($BTIRR_D$). If $BTIRR_D$ exceeds $BTIRR_P$, the equity investors lose money from the leverage applied, which is often very significant.

The before tax internal rate of return of the equity ($BTIRR_{equity}$) is of utmost interest for the equity investors. It consists of the internal rate of return from the property itself $BTIRR_P$, which is dependent on business risk, added the spread between $BTIRR_P$ and $BTIRR_D$. The spread between $BTIRR_P$ and $BTIRR_D$ is multiplied by the leverage factor, $\frac{Debt}{Equity}$, to reach the equity rate of return.

This relationship is best expressed through the following Equation 3.1:

$$\textbf{(3.1)} \quad BTIRR_{equity} = BTIRR_P + (BTIRR_P - BTIRR_D) \cdot \frac{Debt}{Equity}$$

(Brueggeman & Fisher, 2010)

It is easy to see that if the property is financed solely through equity, there is no addition to $BTIRR_P$ and $BTIRR_{equity} = BTIRR_P$. Even in that case, it is not given that the internal rate of return of the funds invested in the property is a satisfying return on the equity employed. Nonetheless, the equation is important to tie together return from operations to financing cost. Therefore, crowd equity investors should consider sensitivity analysis on the leverage effect before investing.

4. Decisive Risk-Factors in Crowdfunding Investments

4.1. Introduction to Selected Danish Platforms

4.1.1. Lendino

Lendino.dk is a Danish crowdlending platform that specializes in loans to small Danish companies. The loan amount varies currently from 100,000 DKK to 2,000,000 DKK with maturities between 6 months and 5 years. The offered interest rates vary approximately from 4.25% to 12% (Lendino, 2020). The loans are divided into 5 risk categories, A+, A, B, C and C-. The minimum investment investors must make is 1,000 DKK per loan. The borrowing companies are a wide variety of different businesses.

Besides being a marketplace for loans between small Danish companies and unrelated investors, Lendino.dk also offer a rather unique solution to lenders such as entrepreneurs, local stores and associations that loan from their own established network but seek a framework to manage and document the transactions with (Lendino, 2020).

Only borrowers pay fees on Lendino. As of March 2020, the cost is an initial cost of 2-4% of the loan amount and further a 1-2.5% fee of remaining debt if the borrower choses to repay early:

Risk Category	Initial Cost	Fee at early repayment
A+	2%	1%
A	2%	1%
B	3%	1.5%
C	4%	2%
C-	4%	2.5%

Table 2: Lendino Cost and Fee Structure. Reproduced from (Lendino , 2020)

Lendino has been operating since 2014, but is yet to reach a financial break even, making a loss of 2,372,603 DKK in 2019 (Lendino, 2020), compared to a loss of the 864,314 DKK in 2018 (Lendino, 2019).

Lendino currently operates as a restricted licensed payment provider (Finanstilsynet , 2020). This has some implications which will be further touched upon in section 4.2.

As of March 2020, Lendino does not offer a secondary market where investors are able to sell their loans. However, in our interview with Kristian Frederiksen, it mentioned, that they are currently in the process of establishing a secondary market (Frederiksen, 2020).

4.1.2. Flex Funding

Flex Funding is a Danish crowdlending platform that specializes in loans to small Danish companies.

The loan amount varies currently from 200,000 DKK to 5,000,000 DKK with maturities between 6 months and 5 years. The offered interest rates vary approximately from 3.95% to 9.70% p.a. (Flex Funding , 2020). The loans are divided into 5 risk categories, A+, A, B, C and C- with expected losses individual to each loan but ranging from 0.3%, to 3.3%. The minimum investment investors must make is 200 DKK per loan (Flex Funding , 2020).

The borrowing companies are a very wide variety of different businesses from sushi restaurants, payment service provider and industrial bakery to an auto mechanic, a wholesale hardware store, and industrial companies within the metal industries. On the surface though, it seems like companies with considerable tangible assets are overrepresented and may indicate some level of specialization in the credit process (Flex Funding , 2020).

Both borrowers and lenders pay fees on Flex Funding.

As of March 2020, lenders pay 1 percentage point of the nominal interest rate to Flex Funding, meaning if the lender receives 10% interest per year nominally, only 9% is paid into the investors account. Furthermore, a 0.75% commission fee is paid to Flex Funding if a loan is sold on the secondary market, meaning if the investors sells a loan with an amount outstanding of 5,000 DKK, then 37.50 DKK is paid as commission fee (Flex Funding , 2020).

As of March 2020, borrowers pay a rather long list of fees in connection to registry, pledges, reminder fees etc. The initial fees of borrowing are 3% on loans from the minimum amount of 200.000 DKK to 1,999.999 DKK and 2% from 2,000,000 until a maximum amount of 15,000,000. A fixed fee of 2,500 DKK is paid at early repayment (Flex Funding , 2020).

Flex Funding has been operating since 2013, but the platform itself has produced increasingly big losses year by year since founding, reaching a 16,093,869 DKK loss in 2018 (Flex Funding, 2019) from 11,551,639 DKK loss in 2017 (Flex Funding , 2018). Flex Funding are currently operating as a fully licensed payment provider (Finanstilsynet , 2020).

As of March 2020, Flex Funding offers a secondary market where investors are able to sell loans at a premium or discount of one's own choosing. At the time of writing, the secondary market seems rather active with approximately 150 different outstanding loans for sale with different levels of premiums and discounts offered. The implications of Flex Funding's secondary market will be further explored in section 4.7.

4.1.3. Kameo

Kameo.dk is a multinational crowdlending platform that specializes in real estate loans, and loans to small companies with collateral in Sweden, Norway, and Denmark.

At the time of writing, the loan amount varies from 500,000 DKK to potentially 50,000,000 DKK with maturities between 3 months and 5 years. The offered interest rates vary approximately from 5% to 15% (Kameo, 2020). The loans are divided into 5 risk categories, A, B, C and D with expected losses individual to each loan but ranging from 0.1%, to 2.4%. The minimum investment investors must make is 500 DKK per loan (Kameo, 2020).

The borrowing companies are predominantly real estate developers seeking flexible funding for construction, renovation, or bridge loans. But also business loans with collateral in real estate or inventory is represented, and the loan to value varies from 25% LTV to 75% LTV (Kameo, 2020).

On Kameo, it is only the borrower who pays a fee. Borrowers are paying a undisclosed fee of 3-6% of the loan amount depending on the individual loan offer, together with fixed fees for delayed payments, early repayments and registration of pledges varying from 2,500 DKK to 10,000 DKK (Kameo, 2020).

Kameo has been operating in Sweden since 2014 and in Denmark since 2016. The company is yet to reach break-even in all three countries it operates in, and the Danish branch reached a loss of 11,537,103 DKK in 2019 (Kameo, 2020), from a loss of 7,244,746 in 2018 (Kameo, 2019).

Kameo is operating as a fully licensed payment provider (Finanstilsynet , 2020).

As of March 2020, Kameo does not offer a secondary market where investors are able to sell their loans.

4.1.4. Brickshare

Brickshare.dk is a Danish crowd equity platform that specializes in crowd funded acquisition and administration of rental apartments in Copenhagen Metropolitan Area. The acquisitions are made from a buy and hold strategy, where net income from the rental business is quarterly paid out as dividends if not special circumstances temporarily prohibit it (Brickshare , 2020).

At the time of writing, the value of the acquisition projects ranges from 2,000,000 DKK to 40,500,000 DKK, and includes from 1 to 26 apartments per project (Brickshare , 2020). The projects are separated from each other as separate stock companies where the shares are owned by the crowd equity investors. The advertised dividends range from 3% to 6% per year of the property value. The minimum investment investors must make is 5,000 DKK per investment (Brickshare , 2020).

On Brickshare.dk there are no lenders, only equity investors. The fees investors pay to Brickshare are a one off "placement fee" up to 4%, and fees for administration up to 1% per annum of the value of the rental property (Brickshare , 2020). The placement fee is triggered when the Brickshare team successfully completes an acquisition on behalf of the investors, while the administration fee is an ongoing cost paid to Brickshare to manage the properties, collect rents, advertising etc.

Brickshare.dk has been operating since 2016, and is operating at a loss of 6,797,332 DKK in 2018 (Brickshare , 2019), compared to a loss of 787,955 DKK in 2017 (Brickshare , 2018).

Brickshare operates as a licensed alternative investment fund (Finanstilsynet , 2020). The implications of this will be analyzed in the following section.

The shares of each individual stock company are valued at intrinsic value which Brickshare updates every two weeks. Brickshare does not facilitate a secondary market. However, Brickshare offers investors to redeem their equity shares in the individual projects directly to Brickshare with one-month notice. There is no direct cost associated with the redemption besides the perhaps conservative pricing offered by Brickshare. Nonetheless, the redemption option offers an exit-opportunity for investors (Brickshare , 2020).

4.2. Regulation Impact on Investors

This chapter will focus on key regulations of Danish crowdfunding platforms and how these regulations influence the platform risk of the four cases, Lendino, Flex Funding, Kameo and Brickshare.

We will be addressing the regulation of crowdfunding platforms in terms of capital requirements, depositor guarantee and organizational requirements. The chapter will then address some theoretical issues regarding the measurement of intrinsic value of crowd equity. Finally, an examination of the strength of the supervision will finish off this chapter.

Our four chosen platforms are regulated in three different ways.

Lendino is regulated as a payment institution with a restricted license in accordance with *Lov om betalinger (LB) §51 piece 1 cf. annex 1 point 3*. The platform is only allowed to facilitate transactions worth 3 mEUR or less within any running twelve-month period.

Both Flex Funding and Kameo are regulated as payment institution with "full" license in accordance with LB § 9 cf. annex 1 point 3. Consequently, the platforms are allowed to facilitate transactions worth an unlimited amount.

Finally, the crowd equity platform Brickshare is regulated as an administrator of alternative investment funds in accordance *with Lov om forvaltere af alternative investeringsfonde m.v. (FAIF) § 11, stk. 3*. It is worth noting that this classification is not generally true for all crowd equity platforms. It is not necessarily the case, when the platform issue equities but does not manage the crowdfunded investments afterwards.

4.2.1 Capital Requirement and Depositor Guarantee

We choose to investigate the capital requirements relevant to the platforms because the failure of a platform is going to cause inconvenience, economic cost or most likely both if an external administrator must take over the administration of the investments. The case of Kameo showcases the importance. As a major player in real estate crowdlending in Scandinavia, we would expect to see a clear wind-down agreement. In case Kameo goes bankrupt, no information about any wind-down agreement with a third party about administration was available. As a result, the specific consequences of the platform defaulting are uncertain. Given the scale and complexity of Kameo's business, the administration costs of a professional third party are by all means sizable.

We also choose to investigate whether a depositor guarantee is provided for the obvious reason that the investor's uninvested funds are at very high risk if the funds are included in the estate in liquidation compared to if the funds are separated from the bankrupt estate.

Lendino operating as a restricted licensed payment provider, is not subject to any legal capital requirement. Crowdlending platforms with restricted license could therefore be categorized as a riskier choice, compared to fully licensed platforms, who are subject to capital requirements. Fully licensed platforms will operate with some level of equity cushion, due to the capital requirements. In the case of Lendino however, chooses to operate with some equity buffer. This is evident from their latest financial statement (Lendino, 2020), where they have an equity post of 2,374,498 DKK (approx. 320,000 EUR).

Due to a change in legislation in 2016, also crowdlending platforms with a restricted license have to provide assurance regarding the safety of investors' uninvested funds in case of the platform defaulting (Jensen, 2016). Until 2016, the uninvested funds were not secured against the creditors of the platform, but now the funds must be deposited into an account in a separate financial institution or alternatively the funds can either be invested in "safe and liquid assets", probably government bonds, or be assured by an insurance according to LB §35 piece 2 to 4.

As crowdlending platforms with full license as payment providers, both Flex Funding and Kameo are subject to capital requirements. To be granted the license, they must provide initial equity of 125.000 EUR according to LB §12 piece 3, the allowed forms of equity is listed in LB §13.

In accordance with LB §32 piece 1, the platforms must maintain a capital base of the highest amount of the initial capital cf. LB §12 or either A) 10% of last year's fixed costs, B) a weighted average percentage of payments volume depending on the specific volume the payment institution carry out, or C) a weighted average percentage of net revenue depending on the specific net revenue earned. A-C must be calculated in accordance with annex 2 to LB. The capital base can be a mix of core capital and up to 25% supplementary capital, the specific making up of core capital and supplementary capital is regulated by LB §33.

On top of the stated capital requirements stated in LB §32 piece 1, the Danish Financial Supervisory Authority can increase or decrease the capital requirement by up to 20% accordance with LB §32 piece 4 if it is considered to be suitable to the specific institution in question. To judge whether the capital requirements need to be adjusted, the financial supervisory authority should consider factors such as the operational risks associated with the product, market risk and credit risk, the expected growth of the client's funds, the payments which the provider is expected to hold, and other operational activities offered by the company. This judgment is an ongoing process, meaning the minimum capital requirement may be changed within a reasonable time in accordance with *Bekendtgørelse om fastsættelse af kapitalkrav, opgørelse af kapitalgrundlag, regnskabsindberetninger og revisionens gennemførelse i betalingsinstitutter og e-pengeinstitutte §5 and §9.*
Payment providers with full license must provide assurance regarding the safety of investors' uninvested funds in the same way as platforms with restricted license as described above.

As a crowd equity platform that also manages the investor's crowdfunding assets, Brickshare is also subject to capital requirements in accordance with Bekendtgørelse af lov om forvaltere af alternative

investeringsfonde m.v. (FAIF) §16 piece 1-4. Following this, the initial capital base must be 125.000 mEUR or more. Hereafter it must be increased by 0.02 percent of the administrated investments that exceeds 250 mEUR, but only until the capital requirement reaches 10 mEUR. However, the ongoing capital base must never be less than 25% of last year's overhead costs.

The investor' uninvested funds will be guaranteed up to 100.000 EUR since Brickshare as administrator of an alternative investment fund is obliged to connect to a guarantee fund in accordance with FAIF §11 piece 2, namely "Garantiformuen". According to Bekendtgørelse om Garantiformuens dækning af indskydere og investorer (GDII) §1 point 4, the fund shall cover up to 100.000 EUR of uninvested funds according to GDII §5 piece 1. Regarding the investor's invested funds, the investor should note that each property project is a separate stock company. This segregation between the individual property and Brickshare makes the properties relatively resistant against the default of Brickshare. The reason is, that the individual property can continue business with a new administration team.

In short, the questions regarding capital requirement and depositor guarantee is summed up in the following table:

Company	Depositor Guarantee	Capital Requirements
Lendino	Yes	No legal requirement
Flex Funding	Yes	Initial and ongoing capital requirements
Kameo	Yes	Initial and ongoing capital requirements
Brickshare	Yes	Initial and ongoing capital requirements

Table 3: Depositor Guarantee and Capital requirement overview. Own production

4.2.2. The Protective Value of Capital Requirements

This subsection will make a simplified assessment of the protective value of the legal capital requirements, with Flex Funding (2018) used as a case. We want to see whether the equity cushion provides any sizable investor protection besides the fact that capital requirements increases the skin in the game for the owners of the platform.

According to LB §12, the capital base must consist of the highest amount of the following four possibilities: 1) the initial capital requirement, 2) 10% of last year's fixed costs, 3) 4% of 1/12 of the total amount of payment volume the platform has facilitated during last year, or 4) between 1.5% and 10% of

gross profit. However, option 4 cannot be determined since gross profit is negative in the case of Flex Funding.

The fixed costs of Flex Funding in 2017 was 3.33 mDKK (Flex Funding , 2018), resulting in a capital requirement of 0.333 mDKK for the year 2018 if option 2 is applied.

The total payment volume is not directly listed in the annual report. It is stated that loans worth 35 mDKK were funded during 2017, 34 mDKK was funded in 2016, and only 10 mDKK was funded in 2015. Based on this and knowing that the term of loans funded on Flex Funding is between 6 and 60 months, it is impossible that more than 280 mDKK in payment volume occurred during 2017. Such volume is required before option 3 yields a larger capital requirement than option 1.

Option 4 is not defined for negative gross profits.

Therefore, the capital requirement for Flex Funding must equal the initial capital of 125.000 EUR. However, all the crowdfunding platforms we have included as cases are far from reaching break even. In fact, Flex Funding had a loss for the year 2018 of 16.1 mDKK (approx. 2.16 mEUR) and 11.5 mDKK (approx. 1.54 mEUR) for the year 2017. Large losses compared to the legal capital requirement.

The legal capital requirement should therefore not be seen as worth much more than the fact that it keeps the owners of the platforms economically accountable for the well-being of the platform, since the legal capital requirements do not keep unprofitable platforms afloat for long. Although the capital requirement is a factor investors should be aware of, they should not neglect the actual financial health of the platform, its competitive position, management etc.

A similar picture, as just presented with the Flex Funding case, is seen in the case of Kameo as well. Most recently in March of 2020 the owners have had to provide additional capital of 10 mDKK (Kameo, 2020).

What can create further speculation regarding the viability of the capital requirements for the platforms, is the going concern related to some of the platforms. Two out of the four examined platforms have multiple times been given going concern warning by their auditors in their financial report. Kameo have had a going concern warning in their financial statements the past four years (Kameo, 2020; 2019; 2018; 2017). Similarly have Lendino been given a going concern in their financial statements in three out of the past five years (Lendino, 2019; 2018; 2016). Again, this could indicate that the capital requirements are not proportional to the negative net results which the platforms operate at.

4.2.3. Governmental and Organizational Requirements

This subsection will go through the formal governmental and organizational requirements Danish crowdfunding platforms are subject to. For a discussion and review relating to the leadership of the platforms, see chapter 4.3.

The members of the crowdfunding platforms' board of governors and directors both must satisfy requirements of being fit and proper for their job in accordance with LB §30 and FAIF §13. The fit and proper assessment is partly based on data such as criminal record and in-depth curriculum vitae (CV). The fit and proper is further determined by a questionnaire regarding the applicant's background as well as interviews and background check on earlier job positions, directorships, bankruptcy fillings etc. (Finans Danmark , 2020). The goal is to assess the applicant's relevant knowledge, experience, and reputation.

The organization must be able to implement and document an efficient organizational structure including reliable and safe procedures and administrative practices in accordance with LB §10 piece 1-3 and FAIF §27. These requirements are specified by the Danish Financial Supervisory Authority but include reliable and provable procedures regarding subjects such as accounting, risk management, IT infrastructures and prevention of money laundering and terrorist funding. Furthermore, the Financial Supervisory Authority must be able to perform its inspections without obstructions. Danish crowdfunding platforms are all subject to compulsory auditing in accordance with LB §34 and FAIF §61 piece 5.

4.2.4. Supervisory Authority

This subsection will outline some main points regarding the supervisory authority and its powers if Danish crowdfunding platforms do not conform to the regulations. The section will be based on crowdlending platforms. However, the powers of the supervisory authority in the context of crowd equity should largely be analogous to that of crowdlending.

In accordance with LB §130, The Danish Financial Supervisory Authority (Finanstilsynet) ensures that the crowdlending platforms respect relevant legislation originating from the European Union and Danish legislation, mainly Lov om Betalinger (LB). Finanstilsynet must ensure the examination of the crowdlending platforms and carry out regular inspections of the offices in accordance with LB §131. Including meetings with the management team of the crowdlending platforms and report on the legality of the business.

In accordance with LB §132, Finanstilsynet may enter the offices of the crowdlending platforms physically without court order to carry out inspections or obtaining information. The crowdlending platforms are obliged to hand over any information Finanstilsynet finds necessary to examine the business. Including both financial and non-financial data in both physical and digital form relating to the business.

If Finanstilsynet estimates that a crowdlending platform operating under a full license, or restricted license, no longer meet the requirements to qualify for their license, LB §135 empowers Finanstilsynet to revoke the license. Finanstilsynet may also revoke unused licenses.

If Finanstilsynet assess that a director or a member of the board of governors no longer is fit and proper in the sense of LB §30, they may stipulate a time limit in which the individual has to resign according to LB §134. The directive to resign must have a time limit and the resigning director or board member may put the legitimacy of the decision on trial.

4.2.5. Do Regulations Matter? Experiences from Abroad

Even though crowdfunding is still in its early days, especially in a Danish context, there are quite a few stories about unregulated crowdfunding platforms within the Eurozone that are said to have been organized as fraudulent Ponzi schemes from the beginning or that quickly succumbed to the temptation of defrauding investors.

On the 12th of January 2020, the young Estonian crowdlending platform Kuetzal OÜ announced that the wind-down process of the platform had been initiated because "[the] Company's reputation was harmed sufficiently for the past weeks, and Kuetzal management does not see a way to recover investor's activity, therefore we may not return to usual working process" (P2P Crowdlending, 2020). Although it was promised that investors ability to withdraw funds would continue to be executed, they allegedly had in fact been halted for weeks already and continued to be so (Wolf, 2019). What could harm the reputation of a crowdlending platform to such an extent that no way of recovering was possible? Possible factors were proposed in an article by Oscar Harrington (2019):

- Among other doubtful projects, a Russian petrol trading and transportation company that had been assigned a loan of 850.000 EUR was nowhere to be found physically. The images used in the lending application were computer generated.

- No evidence was found of employees or partners of the petrol company anywhere on LinkedIn or similar social medias. Furthermore, there was little information in public registers, indicating only 1 employee.
- The stated CEO of the Russian petrol company either had a sideline job as university professor in Canterbury, New Zealand, or the photo was duplicated.
- The stated owner of Kuetzal, the platform, was allegedly just a young front woman for the real owners.
- Banks were refusing to cooperate with Kuetzal due to concerns regarding anti money laundering regulations (Harrington, More questions emerge about Kuetzal, 2019).

Compared to the Danish regulations outlined, Kuetzal would probably - based on the allegations – have violated regulations such as fit and proper requirements, implementation and documentation of efficient organizational structure including reliable and safe procedures and administrative practices, anti-money laundering practices, audit by qualifies auditors. As well as breach of any kind of standards for good business practice.

On the 22nd of January, another Estonian crowdlending platform, Envestio SI OÜ, disappeared into a "404 Web Site not found" under very similar circumstances never to surface again (Gatev, 2020). The platform allegedly falsified investment projects, were led by unknown owners, and investors withdrawals were denied (Marwitz, 2020). While investors from many different European countries have started preparing lawsuits against Kuetzal and Envestio (European Crowdfunding Network , 2020), Estonian police is investigating the cases but does not seem all too optimistic about the prospects of recovering the money (Estonian Police and Border Guard Board, 2020).

As covid-19 spread across the European continent in the early spring of 2020 and halted much economic activity not only in Europa but all over the world, some Baltic crowdlending platforms warned that withdrawals were put on hold until the economies would open again.

One such platform was Grupeer SIA operating out of Latvia (Grupeer, 2020). However, what the platform tried to present as a responsible approach to the illiquidity issues caused by covid-19, was by investors seen as the final evidence that something was wrong with Grupeer, as critical crowdlending bloggers had started to suggest. Instead of funding business projects, as for instance Kuetzal and Envestio had done, Grupeer was both funding one-off construction work, as well as funding operating capital for different consumer lending companies across Eastern Europe. According to the investors'

ongoing investigations, Grupeer seemed to initially begin its business with good intentions. However, subsequently the platform began to top up the funding goals of different projects in order to raise capital for itself. Furthermore, they mixed up real loans on the platform with falsified loans based on information from real companies (Shkedi, 2020).

4.2.6. Sub Conclusion on regulations

Although the European Union is working on legislation that may be introduced across all member states and both improve and harmonize legislation, regulation of crowdfunding in the EU is still primarily based on national legislation. As the mentioned Baltic cases suggest, existing legislation is often inadequate. What the cases also suggest is, that investors should care about regulations, as it is not only tempting, but also easy for the management team behind a crowdfunding platform to defraud investors and enrich themselves with the investor's unseparated funds.

It is of utmost importance that investors make sure that the platforms are subject to adequate and efficient legislation that provides basic protection of investors as we suggest Danish legislation does. The Danish legislation requires a guarantee for depositor's uninvested funds, usually some minimum capital requirement, as well as requirements to the organizational structure and governance of the platform in order to ensure good business practices under inspection, and monitoring, from the Danish Financial Supervisory Authority. Investors should therefore investigate what legislation the platform operates under, and critically evaluate the effectiveness of this legislation. This is the case whether they evaluate a Danish, or foreign crowdfunding platform.

4.3. Governance and Leadership of Crowdfunding Platforms

Whenever engaging with any type of company, one of the risks that will almost always be prevalent is the risk of an improperly run company. The following chapter will investigate the potential risks that could be associated with the governance of the Danish crowdfunding platforms. This will be done by looking into who is running the crowdfunding platforms, both the leadership team, as well as the board. It is important to note, that we do not intend to establish what good or bad governance is. Rather, we want to analyze the composition and fit of the involved parties.

4.3.1 Governance Review

When discussing corporate governance, it is often done in in regards to large public firms, where shareholders, and other stakeholders, should have transparency into the way that the company is run, and being sure that it is done in a proper manner. So far none of the Danish crowdfunding platforms has

felt the need, nor the will, to enlist on any stock exchange. However, just because a company is private, it does not mean, that governance does not matter. While there are not any public shareholders that the company is accountable to, there are still stakeholders for whom the company should be responsible. Such as the company's workforce and customers (EY Reporting, 2019).

There are a lot of factors which contributes to the governance of a firm, however, it is recognized, that one of the most central parts of governance is the board of directors (Thomsen & Conyon, 2019; Boscia, Stefanelli, & Ventura, 2018). The board has multiple roles, but the three main can be boiled down to the three C's; control, consulting and contact (Thomsen & Conyon, 2019). It is recognized that in many tech-startups the consulting role, that is mentoring, may be more important than the control role (Fiegener, Brown, Dreux, & Dennis, 2000; Wasserman & Boeker, 2005).
As it was also mentioned in section 4.2. of the paper, there are government provided regulations about who can be a member of the board of directors for Danish crowdfunding platforms, with a license from Danish Financial Supervisory Authority. The assessment which the board members must pass is a so-called 'fit and proper' assessment. The fit and proper assessment will evaluate the applicant's professional and private competencies to serve in a leadership position. Some of the factors which goes into the assessment is the applicant's previous and current positions and board memberships, bankruptcy filings, independence, and criminal record. The fit and proper rules are established to ensure proper governance within firms in the financial sector (Finans Danmark , 2020).

4.3.2. Leadership of Selected Platforms

A closer examination will now be done of the board of directors and management teams of the four Danish platforms. It will be assumed for all members of the board of directors and management teams, that they have passed the fit and proper assessment. Therefore, we will not conclude on the fit or properness of any person. When looking at the board members, the column presented as experience within financial institutions, financial institutions are defined as banks, brokers, pension funds and credit providers.

Lendino

Lendino is currently led by CEO (Chief executive officer) Esben Bistrup Halvorsen, who was also one of the founders of the platform. Esben has ample experience in fintech firms, such as SimCorp, and has also conducted research in mathematics and computer science. Alongside him, Andreas Helgason Rex acts as CMO (Chief marketing officer). Andreas is responsible for PR, sales, and marketing, and mainly has his experience from IBM and NNIT where he has worked in areas such as financial analysis and controlling.

In addition, he is also acting as a member of the Danish Crowdfunding association. The last person in the Lendino management team is Nils Thygesen, who acts as CRO (Chief risk officer). Nils has more than 20 years' experience, at institutions such as Danske Bank and Finansbanken A/S, in credit and investment analysis, asset management and communication (Lendino, 2020).

Besides the management team, the board of Lendino is composed of the members seen in Table 4.

Name	Founder	management	Ownership	Gender	Education	Experience	Experience within financial institutions
Torben Nordal Clausen	No	No	15-19,99%	Man	MBA / Graduate Diploma (HD) in business administration	Operations management / Venture capital	Yes
Morten Schantz	No	No	5-9,99%	Man	Msc Computer Science / Msc Statistics	Entrepreneur / IT consultant	Yes
Andreas Helgason Rex	No	Yes	25-33,32%	Man	Bachelor of Business administration	Operational finance / investment management	No
Esben Bistrup Halvorsen	Yes	Yes	25-33,32%	Man	Ph.d. Mathematics / MBA	Entrepreneur / Software Development	No

Table 4: Lendino Board of Directors. Own production based on information from (Lendino, 2020; Linkedin, 2020; Virk, 2020)

Flex Funding

Henrik Vad, who founded Flex Funding in 2013, is still today the CEO of the platform. Henrik has a long background in the banking world, where he has held the roles as CEO of Skandiabanken, Executive Director in Saxo Bank and head of equities in Danske Bank. Serving as CTO (Chief technology officer) of Flex Funding is Mikkel Scheike. Mikkel has been IT project chief with Saxo.com, the largest Danish online bookstore, and also served as a freelance IT consultant. The last part of the Flex Funding management team is the CRO Jacob Rasmussen. Jacob has worked with risk management and credit-processes for more than 15 years, in positions such as chief of SEB's account management in Denmark, and chief credit officer for SEB credit cards (Flex Funding, 2020).

Alongside the Flex Funding management team, the board composition can be seen below in Table 5.

Name	Founder	Management	Ownership	Gender	Education	Experience	Experience within financial institutions
Henrik Vad	Yes	Yes	5-9.99%	Man	Law Degree	Banking (Management & Equity markets)	Yes
Martin Nymark	No	No	5-9,99%	Man	Academy Profession in Banking	Banking (Equity markets)	Yes
Hans Henrik Eriksen	No	No	-	Man	Msc Accounting	Accounting / Operational finance	No
Christian Lundgaard	No	No	10-14,99%	Man	Msc Economics	Operations management	No

Table 5: Flex Funding Board of Directors. Own production based on information from (Flex Funding, 2020; Linkedin, 2020; Virk, 2020)

Kameo

Acting as CEO of Kameo is founder Sebastian Martens Harung. Sebastian also serves as the managing director of Kameo Norway. Sebastian has a background in corporate finance within the Norwegian bank, DNB Markets, before founding Kameo. Serving as the managing director of Kameo Denmark is Jesper Johansen. Jesper has previously held positions within KMD, where he worked with business development and digital user experience. As CTO of Kameo serves Urban Stärner. Urban has worked for a number of years within the fintech industry and was one of the founders of Nordnet and Avanza Bank, both places where he also served as CTO. The COO (chief operating officer) for Kameo is Frode Sørensen. Frode comes with experience in areas such as office management and HR, having worked mainly in governmental institutions such as Oslo municipality (Kameo, 2020).

The composition of the board of directors for Kameo is as seen below in Table 6.

Name	Founder	Management	Ownership	Gender	Education	Experience	Experience within financial institutions
Svein S. Jacobsen	No	No	-	Man	Master of accounting / MBA	Operations management / Professionel board member	Yes
Geir B. Olsen	No	No	-	Man	Msc Finance	Banking (Investment banking & Equity markets) / Operational finance	Yes
Magnus Mivér	No	No	-	Man	Msc Economics	Banking (Investment banking & Debt markets)	Yes
Erik Skog	No	No	-	Man	Msc Economics	Banking (Investment banking & Equity markets)	Yes
Helge Lunde	Yes	No	-	Man	Msc Engineering	Banking (Equity markets) / operations management	Yes
Bjørn Braaten	No	No	20-24,99%	Man	Msc Engineering	Entrepreneur / operations management	Yes

Table 6: Kameo Board of Directors. Own production based on information from (Kameo, 2020; Linkedin, 2020; Virk, 2020)

Brickshare

Brickshare is led by CEO Thomas Midtgaard. Thomas has a background within corporate finance and M&A. He has held positions such as manager for strategic projects and Mergers and Acquisitions at GN Store Nord. Acting as COO of Brickshare is David Svante Hansen. David joined Brickshare in 2018, after having served as Head of Compliance at Banking Circle and working in fintech and compliance at the legal advisor to the government. The role of CTO is held by Jacob Avlund, who comes with many years of experience within software development. Among other roles, he was the team lead for the development of June at Danske Bank and runs his personal app-development firm. In the role of CIO (Chief investment officer) is Jens Christian Berner. Jens Christian comes with experience within procurement and real estate. He has held positions such as Head of Procurement at Nordea and Global Corporate Real Estate Director at Danske Bank (Brickshare, 2020).

The members of the board of directors for Brickshare, can be seen below in Table 7.

Name	Founder	Management	Ownership	Gender	Education	Experience	Experience within financial institutions
Troels Bülow-Olsen	No	No	-	Man	Master of Leadership / Graduate Diploma (HD) in business administration	Banking (CEO / Debt markets)	Yes
Kim Lautrup	No	No	5-9,99%	Man	Academy Profession in Real Estate	Property development / Operations management	Yes
Nina R. Lauritsen	No	No	-	Woman	Law degree / Graduate Diploma (HD) in business administration	Attorney / Legal advisor	Yes
Jakob de Linde	No	No	5-9,99%	Man	Msc Finance	Property development and investment	No
Johan Lorenzen	No	No	-	Man	Bs Software development / MBA	Entrepreneur / Venture Capital	Yes
Richard Breiter	No	No	-	Man	Msc Electrical Engineering / MBA	Hardware engineer / Venture Capital	No

Table 7: Brickshare Board of Directors. Own production based in information from (Brickshare, 2020; Linkedin, 2020; Virk, 2020)

4.3.3 Governance Evaluation

When examining the board of directors and leadership teams of the selected platforms, the general pattern which is seen is that the management team is mainly compromised of a mix of technological savvy people along with some managers who comes with experience from the world of finance, whether it is banks or credit institutions. This would also be the mix one could expect to find within these fintech companies, which as the name implies, is a mix of finance and technology. This is also the feeling which was gathered from the interviews conducted with both Lendino and Flex Funding, when touching upon the topic of governance; “it is a combination of finance and IT people. I would estimate that half of employees have a finance educational background, while the other half has an IT educational background” (Frederiksen, 2020). Something which is interesting to note however, is that two out of the four platforms, Lendino (Børsen, 2016) and Brickshare (Kirkegaard, 2019), have switched out the original founder and CEO, with new leaders after the platforms started to grow significantly. According to the study by Wasserman (2003), this often happens when new rounds of capital is raised or product development is completed, as it can also be seen in the cases of Lendino and Brickshare. Lendino fired their founder and CEO Asger Trier Bing when the new Partner and chairman of the board Torben Nordal Clausen joined. Similarly, Brickshare changed their CEO and founder Junaid Ahmad as Brickshare began to have proof of concept and expand their business.

Moving on to look at the board composition of the examined platforms, there are also some interesting things which can be noted. When looking at the background of the board members a clear pattern is evident. Many of the members have previous experience within the financial sector, 14 out of the 20 examined board members have experience working within a financial institution. Of these 14, 7 have previously worked in banking, while the remaining 7 have worked in other types of financial institutions. A common factor is also that the majority of the board members have previously held leadership positions and have many years of experience of doing so. This could support the argument earlier presented by Fiegener, Brown, Dreux, & Dennis (2000) and Wasserman & Boeker (2005), that especially in early tech firms, the main role of the board is to advise and not monitor. What further would support this is that all of the examined platforms are still in a growth phase, and they likely benefit from having experienced professionals advising them on how to best handle this growth. Albeit, the majority of the members having experience within financial institutions, a fairly good diversity is seen within the boards. When looking at the educational background 11 (55%) comes from a Business or economic background, 6 (30%) comes from a computer science or engineering background, and the last 3 comes from either law or real estate. The one area where there is not a whole lot of diversity is in regard to gender. Of the 20 examined board members there is only one female member. However, this does follow the general pattern seen in Danish board composition. As shown by the study the Schmidt and Toxvig (2019), the boards of especially small cap companies in Denmark are dominated by men. However as described by (Thomsen & Conyon, 2019), having gender diversity in boards can come with both advantages and disadvantages, and there are few concluding findings on whether a more diverse board leads to superior performance (Thomsen & Conyon, 2019).

Looking at the independence of the board members. Of the 20 examined members there are only 3 members from the management teams which are on the boards. Similarly, with the founders there are only 3 founders on the boards. One interesting thing to note however is, that of the four board members of Lendino, two of them are also serving as part of the management team. This could theoretically give concerns of agency problems, as one could raise questions with the difficulty of getting a suggestion coming from management approved, when 50% of the board of directors are also members of the management team. However, similar to gender diversity, there are no consensus in the literature on the effect of board independence (Thomsen & Conyon, 2019).

Another area where some concern could arise, is when loans which are associated with members of the board of directors are published on the platforms for investment. While interviewing both Lendino and Flex Funding, they disclosed that at the time of the interview, there were loans available for investment

in which the company had ties to board members. Both platforms however, also emphasized that 1) It was disclosed in the loan info that the company applying for the loan had affiliation to a board member, and 2) that the board member had not been involved in the approval process of the loan (Frederiksen, 2020; Rasmussen, 2020). As discussed here, the platforms do engage in measures to ensure transparency regarding these situations. However, as an investor it could be beneficial to keep in mind the potential added agency problems which could occur in these cases. The investor only knows that the company has affiliation to a board member and that the concerned board member was not involved in the approval and handling of the loan. However, there could be hidden agency issues within the approval, as the management team prefer keeping a good relationship with the involved board member and may not be fully impartial when handling the loan.

4.3.4. Governance Sub Conclusion

Having examined the governance, mainly related to the board and management composition of the selected platforms, a couple of things are evident. First, the platforms have allied themselves with boards who have ample experience in leadership roles, and especially with people who have experience working in financial institutions. It seems as the boards also serve in more of a mentoring role compared to a monitoring role for the platforms, and are there to help the companies grow. Some questions could be raised in regard to the gender diversity of the boards, and in the one case of Lendino, management independence. However, there are no significant empirical evidence which suggests that either of these factors have an effect on performance, and therefore they should not constitute any major risks. Where some worries could be present is the fact that the platforms do allow for companies with ties to board members to publish loans on the platforms. The platforms do however, have governance mechanisms in place for these events. Albeit, the platforms having governance measures in place, there could be found additional agency problems due to information asymmetry with these loans.

From the examined four platforms, we do not see governance risk to be a large risk factor. However, governance could become a severe risk factor, if a platform is not operating under proper legislation, such as described in section 4.2. The examined platforms are all subject to fit and proper assessments, which ensures proper leadership. If a platform is not subject to these regulations, paying attention to the management of the platform becomes increasingly important, in order to avoid incompetent management.

4.4. Platform credit assessment risk

In the following section, the potential risk associated with the platforms credit assessment capabilities will be explored. This section will mainly focus on the crowdlending part of crowdfunding, as this is the area in which the credit assessments are most thoroughly used. When investors go to the crowdlending platforms, one of the key indicators they are often presented with is the platform's own credit assessment of the parties seeking funding. But how much trust should the investor put in these credit ratings, and what risks are associated with the platform doing the credit assessment?

4.4.1. Potential issues for investors

When looking at the potential issues that the credit assessment practices of the platforms could have for investors, the largest risk is by far the fact that there could be a misalignment of incentives. In chapter 3.2, potential agency risks of crowdfunding were explored through use of principal-agent theory, and this is also a relevant starting point for this chapter. Beginning by looking at a traditional funding relationship, such as a bank giving a loan. In a traditional bank loan, the bank is lending its own capital (or capital on its books) to the lenders, and are therefore quite incentivized, to make sure that the screening (i.e. credit assessment) is done to a high standard. If the credit assessment is of a poor quality, the bank risks losing its capital. If the bank consistently performs bad credit assessment it will risk going out of business, due to the losses incurred. However, within the crowdlending relationship, the party doing the credit assessment, the platform, is not the party with capital at stake. The party putting capital at stake is the investor. Furthermore, there will also be a case of information asymmetry. The investor does not have the same amount of information as the platform is receiving from the party seeking funding. Therefore, the investor will have to rely on the platform to properly assess the data and convey it to the potential investors in a high-quality manner.

Furthermore, it is essential that crowdlending platforms are doing their credit assessments properly, in order to signal quality to potential investors. If the platforms are continually performing poor credit assessments, their website will lose credibility, and will likely be unable to attract investors. Therefore, it will also be in the interest of the platforms to conduct high quality credit assessments, and in this manner the incentives are somewhat aligned in the long run.

Most of the crowdlending websites operates in a similar way in regard to the output of their credit assessments. The output being a credit rating, normally expressed by a range letters, e.g. A, B, C, etc. The websites will use the credit rating to provide investors with an idea of the associated risk of investments in the particular credit class. For each credit rating there will be an associated expected loss

rate. By providing this, the platform provides the investors with an idea of the expected return, which can be expressed by the formula (Lendino, 2020):

$$\textbf{(4.1)} \quad Expected\ yearly\ yield(\%) = gross\ interest\ rate - expected\ loss$$

It is quite essential that any potential investor familiarizes themselves with the fact that the gross interest rate quoted for them on the platform is not the expected return on their investment. Doing so will leave out the risk element of the loan not being repaid. The importance of this fact obviously increases as you move upward in the risk categories, as these loans also tends to be riskier, and have a higher expected loss rate.

Many of the crowdfunding platforms also utilize reports from third-party credit rating agencies, in their assessment of potential borrowers. These used to be readily available only for larger companies, however, credit assessments in itself have become a business. Today many independent credit agencies, such as Dun & Bradstreet and Experian base their ratings mainly on factors such as a company's credit history, public information, sales figures, valuations and other financial statement information (Kallberg & Udell, 2003). Although studies, such as Kallberg & Udell (2003), show that these third-parties provide fairly high quality credit ratings, the quality of the ratings very much depend on the size of the business (Yoshino & Taghizadeh-Hesary, 2019). Furthermore, including another third-party removes the screening responsibility even further from the party putting capital at stake.

4.4.2. Review of selected platforms

The three selected crowdlending platforms, will now be evaluated in regard to the efforts they make in order to conduct credit assessments of the loans. Brickshare will not be evaluated, as they are a crowd equity website, and do not provide a credit rating for investments on their platform.

Lendino

Lendino uses the approach discussed in section 4.4.1. to group their credit classes by letters ranging from A+ to C- (See Table 8).

Credit rating	Assessed risk for default	Assessed yearly loss due to default
A+	Low	0.6%
A	Limited	1.5%
B	Moderate	2.3%
C	High	3.3%
C-	Significant	5.1%

Table 8: Lendino Expected Loss. Reproduced from (Lendino, 2020)

As can be seen from Table 8, Lendino gives an assessed risk for default for each of its credit ranks, as well as an assessed yearly loss to default. However, it should be noted that on Lendino's website, they also say that the estimated yearly loss rate, is estimated based on a diversified investor, which is defined as: "investors with at most 1% of their portfolio exposed to each borrower" (Lendino, 2020). Therefore, if an investor is exposed to more than 1% of each borrower, it is likely that the realized estimated yearly loss differs from the estimate provided by Lendino. Lendino has an internal credit-team, which reviews and assess each loan application individually, and based on their analysis a credit rating is assigned to the loan. The credit-team utilize an internal credit-rating model, supported by a qualitative credit assessment, which combined provides a suggestive interest rate. In support of the credit-rating model, and qualitative assessment, Lendino also utilize third-party credit data from Experian (Lendino, 2020).

Looking at the factors going into the quantitative part of the assessment. As a norm, the borrower is required to provide Lendino with financial statements, along with monthly balance sheets. However, it is not a requirement for the borrower to provide financial statements. Besides this, weight is put on the borrower's credit history. This is assessed by looking at whether the borrower can be found in the debtor-registrar, have over-due debt, or other forms of evidence suggesting poor ability to repay debt. Finally, it is required that the borrowing entity has a positive equity balance. The borrower can be exempt from the last requirement of a positive equity balance, if substantial loan-capital has been provided (Lendino, 2020).

There are also a number of factors which goes into the qualitative part of the assessment done by Lendino. These are listed on Lendino's website and are as follows; Business Model (E.g. industry, sensitivity to economic cyclicality, political risk, technological risk), type of incorporation and shareholder structure, credit history and research of publicly available information, clean audit

annotation, change of auditors, frequent address changes, separate finance function, unusual dispositions, and telephone or written interviews (Lendino, 2020; Frederiksen, 2020).

After the assessment of both the quantitative and qualitative information, Lendino's credit team assigns the borrower a credit rating, which potential investors can use to gauge the risk associated with the borrower.

Flex Funding

The next platform to be assessed will be Flex Funding. Where Lendino were quite open and provided quite a lot of information on their website about the credit rating practices, Flex Funding on the other hand, does not provide the investor with the same kind of information. Although it is quite evident, when looking at the loans available for investments on Flex Funding's website, that a credit rating system exists. Flex Funding does not provide a ton of information about the methodology on what the different credit ranks are, how they are given, or what kind of risk are associated with them. What is evident is that, similarly to Lendino, Flex Funding also categorize their credit ranks in a letter style, with the possible credit ranks being; A+, A, B, C, C- and New (Flex Funding , 2020). Flex Funding do provide an estimated loss on their loans; however this is listed for each individual loan, and expected loss for each risk class is not provided. Although there is not very much information provided on Flex Funding's website, a little more info about their credit rating methodology can be found when downloading their terms and conditions. In the terms and conditions Flex Funding describe the credit assessment process as: "a mix of traditional bank credit assessment, algorithms, along with external credit assessments" (Flex Funding , 2018). One of the most noteworthy things about Flex Funding's credit rankings, is that they have a "new" rank besides the lettered ranks. The reason for this is that Flex Funding, do not provide a credit ranking for borrowers who do not have credit history of at least two years (Flex Funding , 2018). If a borrower is placed in the "new" ranking, it will be associated with the following description: "The company does not have any [credit] risk ranking. There is not found any negative information about the company's ability to make timely payments. The development should be followed closely" (Flex Funding , 2018).

What Flex Funding provides however, that the other platforms do not, is access to an overview of loans closed for further funding. This will allow investors to compare their potential investments to other previously completed, and some ongoing, loans. This data will be further examined in latter parts of the paper.

Kameo

The final crowdlending platform to be reviewed is Kameo. Like the other two platforms, Kameo also uses letters to express their credit ranks, as can be seen from Table 9.

Credit rating	Minimum interest rate	Expected credit loss
A	5-7%	< 0.1%
B	6-8%	0.1-0.2%
C	8-11%	0.2-0.9%
D	11-13%	0.9-2.4%
E	13-15%	> 2.4%

Table 9: Kameo Expected Loss. Reproduced from (Kameo, 2020).

Similar to Lendino, Kameo provides an associated expected loss to each credit rank, which can help investors figure out what their expected return will be. Again however, it is important to note, that the expected credit loss estimate is given as a percentage with investments in 10 loans within a specific class, i.e. if you invest in 10 loans within credit rank D, you could expect a loss of 0.9-2.4% (Kameo, 2020).

Kameo's credit assessment process is a 4-step process, with the different parts being:

1. Initial screening
2. Loan application
3. Analysis
4. Approval

The first part of the process, the initial screening, consists of Kameo gathering electronic information, and the borrower is screened based on external credit reports from e.g. Experian and Bisnode. In this step, only borrowers with a satisfactory credit score will be approved.

Step number two, is the borrower finalizing the loan application. To do this, the borrower must provide Kameo with information such as: updated financial statements, bank-statements, project estimates and board and shareholder information.

Third step is the analysis part. Here Kameo goes through and analyzes the information provided by the loan application, external partners, and the interview with the borrower. The information is processed through Kameo's internal credit rating model. However, the most important factor is still the external credit ratings.

The fourth and final step is the approval. Here Kameo's credit-committee reviews the complete credit-analysis and approves the credit-rating as well as the interest rate. After this step, the loan is published on the platform (Kameo, 2020).

One of the most noteworthy parts about Kameo's credit-assessment process is the role of the external credit ratings. Only in special cases does Kameo provide a different credit rating than the one given by the external credit rating agencies, UC and Experian (Kameo, 2020).

4.4.3 Evaluation of Platforms

Having now looked at the practices of the three selected Danish crowdlending platforms, some of the potential issues with these practices will now be discussed.

To begin with, it can be concluded, that all of the platforms do have a credit-rating process in place and provide investors with an estimation of risk when selecting their loans (investments). Some of the platforms however, are more transparent on their platform in regards to the methodology used, to derive at the credit-rating, than others. Furthermore, the platforms earn their money on the spread between the interest rate offered to borrowers and the one offered to investors. This spread will be larger the more work the platforms have to do, such as conducting credit checks, as there is a cost associated with this work. Due to this additional cost, investors would prefer more transparency about the amount of work done to rate the loans, as this could decrease the amount of work they have to conduct themselves, in making judging the riskiness of a potential investment. If the platforms are not transparent with the methodology of how they derive at their credit-rating, the investor will not be able to place as much trust in the rating as they would be if the methodology was known (Giddens, 1990). Therefore, the investor would have to do more research on the borrower in order to gauge the riskiness of the investment. Although the investor themselves will have to do the work, the website have already done the credit check, and therefore they have incurred a cost which they will have to regain through the spread between the investor's and borrower's interest rates. Assuming the investor deems the platform's methodology trustworthy, the total cost for investors investing through platforms with little to no description of credit rating methodology will be larger than if the platform chooses to disclose their credit rating methodology.

Having already talked a great deal about information asymmetry, this problem also manifests itself in another way. The platforms, who are conducting the credit assessments, both collect and receive a lot of information about the potential borrower, when conducting assessments. It is not a lot of this

information, which is transferred to the potential investor. The investor will often get information such as the financial statements, background information, any potential previous bankruptcies, and whether the platform has approved the tax and financial material received. However, this leaves a gap in the information which the investor, putting capital at risk, has and what the platform has. This leaves the investor to trust, that the platform utilizes the information they have received to as good, or better, ability than the investors could have done themselves. If the investors were to go and obtain the information themselves, there would be two problems associated with this. Firstly, the investor may not be able to gain access to all the information, as the borrower is not obliged to disclose the same amount of information to the investors, as the platform requires. The platform potentially also has access to resources that investors may not, due to e.g. capital constraints. Secondly, and following the first point, if the investors were to go collect the information which the platform possesses, the cost associated with doing so may be so large, that the investment no longer make sense, from a cost perspective.

All the examined platforms have an easily understandable system by using letters ranging from A, being the least risky, to E, being the riskiest. For most investors, this classification would make sense intuitively, as it is a logical descending order for quality. However, something which is observed in Flex Funding's credit rating system, is that they have the ranking called "New", given to borrowers who has less than two years credit history. Using this approach, a lot of responsibility falls upon the investor to analyze the credit risk associated with the loan, as the loan could potentially be anywhere on the A through C- spectrum, which Flex Funding operates with. In this case, it could be argued, that part of the provision fee (1%) taken by Flex Funding is adding little to no value for loans categorized as "new", as they are just assigned the "new" rating and no further credit assessment is done. Still, the same 1% fee is paid by the investor. The investor would also have to conduct additional work to get an idea of the riskiness associated with the loan. Therefore, it would seem, that the costs associated with "new" rated loans would be higher than other loans, with similar risk. Flex Funding would therefore have to offset this in the interest rate offered to investors, for this investment to make sense.

Furthermore, where both Lendino and Kameo, provide an expected loss for all of their credit classes, Flex Funding do not provide a similar overall expectation for investors. Again, this increases information asymmetry. By doing so, the investor does not have a method for estimating their potential return for investments in a specific class.

All of the selected platforms have another thing in common, that is they all utilize external third-party credit rating agencies in deriving at their credit-rating. As it was discussed in the first part of this section,

a large part of the problem with the credit-assessment risk in regard to crowdfunding revolves around incentive. As the platform itself does not have any capital directly at risk, they may not be as incentivized to conduct as thorough assessments as if they themselves had capital at stake. As all of the platforms are utilizing third-party credit-rating agencies, they are moving the responsibility of the assessment even further away from the party with capital at risk. However, assuming that the third-party credit assessments are accurate, which studies such as Kallberg & Udell (2003) suggests, using these can actually be cost effective for investors as it is often less costly than the platforms themselves conducting the credit check. The platforms vary in the amount to which they place emphasis on the third-party credit checks. A platform like Kameo explicitly states that they place a lot of weight on these. In this case questions could be raised, whether it would be cheaper for the investor to obtain the third-party credit report by themselves than giving Kameo a fee for providing this. In this case the investor would have to trust that the additional analysis done by Kameo is value adding enough that it makes up for the cost associated with it. Even if the investor does trust the analysis, the incentive problem would still be present. However, it should be noted, that according to Yoshino & Taghizadeh-Hesary (2019), the ability to conduct credit assessments of smaller enterprises, which is most commonly seen within crowdlending, is worse than that of larger enterprises. This is mainly due to lower quality of financial documents and business plans. Therefore, relying too much on external credit assessments may not be wise when dealing with smaller companies.

There will of course be counter arguments with the above presented, which have been based on principal-agent theory. The platforms themselves, have an incentive to provide high quality credit assessments. The main reason for doing so is that by providing investors with accurate and well indicating credit ratings, the platforms will signal their quality to investors. By doing so, investors will gain trust in the platform and will be more likely to become a repeat investor on the platform. Furthermore, by providing consistent credit assessments, the platform will also be able to attract new customers who would be drawn in by the promise of high-quality credit assessments. As this will reduce the risk for the investor. In this manner the incentives for the platform and the investor should be aligned. However, the incentives may not be perfectly aligned. That is, the marginal cost for providing high quality credit assessments, and transparency, for the platform may be higher than what the investor is willing to pay for the high-quality assessment. If this is the case the incentive issue will still be present, and the platform could potentially make gains from spending less resources on conducting credit assessments.

The last area which could be perceived to have effect on the platforms ability to conduct credit assessments is the lifetime of the platform. It is not inconceivable, that the longer a platform has existed, the better and more accurately they will be able to conduct credit assessments. With time passing, not only will the platforms gain experience in conducting credit assessments, they will also accumulate data which can help them evaluate and adjust their methodology if need be. This was also recognized by Jacob Rasmussen of Flex Funding during our interview. He stated that in the beginning they did make some mistakes, when assessing potential borrowers (Rasmussen, 2020). Using lifetime as measure for risk, should however only be used as a proxy, as there are other factors such as prior experience, and education of employees which could be deemed even more important. With that being said, the evaluated platforms were all established in 2013 and early 2014. Therefore, the incremental differences between the platforms that may have been gained by experience over time, are in this case so small that they would not constitute a major risk factor. However, if you would look at one of the evaluated platforms versus a brand-new platform. It would be reasonable to assume that there would be a greater risk in trusting the credit rating of the newly started platform compared to the more experienced, as they have greater experience and data to help their credit assessment.

4.4.4. Credit Assessment in Crowd Equity

So far in this section, the main focus has been in regard to crowdlending platforms. The reason being, that these most commonly are the platforms which provide a credit-rating. This makes sense, as equity investments are not debt investments, and are therefore not credit dependent. However, the examined crowd equity platform, Brickshare, do actually provide their investment opportunities with a rating. Albeit, this is not a credit rating as the ones discussed in the previous sections. The assessment done by Brickshare is called an “Risk/yield profile”, and ranges from 1 to 7 (Brickshare, 2019). The assigned risk category is not one of the “key” prospect details as seen with the crowdlending investments. That is, on the crowdlending platforms one of the first indicators which is seen when browsing through the different investment opportunities is the credit-rating. However, on Brickshare you must download the detailed investor information report for each investment opportunity to see the rating. The reason for this is probably that what the risk/yield profile essentially says, is that there is a risk return trade-off. I.e. the higher the listed yield, the more risk is associated with the investment. This is something which is well established in financial literature (Jarrow, 1978; Carr, 2010; Campbell & Viceira, 2005). Ultimately, when engaging in crowd equity investments, the best risk indicator is the offered yield.

4.4.5. Sub Conclusion on Credit Assessment Risks

This section has looked at the risks that are associated with the credit assessments, performed by the crowdfunding platforms. The beginning of the section explored some of the potential issues which can lead to increased risk for investors, when having the platforms conducting the credit assessment of borrowers. The majority of the risk associated with having the platforms act as credit assessors, is that the platforms themselves do not have any capital at stake. It is only the investor who has capital at stake. This can potentially create an incentive misalignment. All of the examined platforms also rely on third-party credit ratings in their credit assessment, which pushes the responsibility even further from the party with capital at stake. Furthermore, information asymmetry remains a problem, as the platform collects and receives a lot more information than what is available for the investors. This is observed on all the examined platforms. This leaves the investor with a choice of whether to trust the platform in their ability or engage in costly efforts to affirm the credit assessment. From the examination of the platforms, it is also evident that the information asymmetry extends beyond provided information on the borrower. There is also variance in the amount of information which the platforms provide on their credit assessment methodology, and losses associated with credit classes. The less information provided on methodology by the platform, the higher the risk or cost for the investor will become. In spite of the apparent problems associated with information asymmetry, the platforms and the investors do have somewhat aligned incentives. It will be in the best interest of the platform to signal high quality credit assessments, as this could potentially retain and attract new investors to the platform. However, a total alignment of incentives is most likely not present, which creates the opportunity for opportunistic behavior. Furthermore, when evaluating the risk perspective of a platform, its lifespan should also be considered, as it would be reasonable to assume, that the platform's credit assessment abilities will become better and more accurate over time.

In conclusion, the largest risk for investors with relation to credit assessment, is the fact that the information asymmetry remains large. In some cases, it may be so large that the investor cannot estimate a realistic expected return, without taking on additional costs.

4.5. Taxation Impact on Investors

This section aims to examine any prominent tax inefficiencies investors should be aware of when investing in crowdfunding. The information provided in this section is solely derived from a Danish context. Meaning investors who are required to file taxes in other countries, may be subject to different regulations. All tax rates and tax brackets, in the following section, are based on figures for the year

2020. Furthermore, investment of available capital is assumed, not pension funds or other savings with special tax regulation.

4.5.1. Retail Investors' Income Arising from Crowdlending

On lending oriented crowdfunding platforms such as Lendino, Kameo and Flex Funding, the income is partly generated from interest payments, and to a smaller extent capital gains.

Interest income received from lending is taxable income on a global income basis according to Statsskatteloven (SL) §4 letter e. That is interest income is taxed in Denmark, regardless of country of origin. The interest income arising from crowdlending contributes to the net sum of interest income and interest expenses. The net sum is included in the natural person's capital income according to Personskatteloven (PSL) §4 point 1.

The income tax is, according to PSL §5, the sum of the basic tax rate of 12.14% in accordance with PSL §6, the top tax rate of 15% in accordance with PSL §7 and the municipality tax rate in accordance with PSL §8 c. Depending on the investor's specific circumstances, the total tax rate on positive net capital income is approximately 38% for net capital income of 45,800 DKK or less. In practice a capped rate of 42%, plus optional church tax, is applied for positive net capital income that exceed 45,800 DKK in accordance with PSL §19 piece 2. If the net capital income is negative and more than 50,000 DKK, an approximate deduction rate of 25.6%, according to PSL §26 piece 1, becomes the effective tax rate. This is the case since income from crowdlending is offset in negative net capital income. However, for negative interest income of less than 50,000 DKK, an approximate 33.6% deduction rate, according to PSL §11 piece 1 and 2, is the effective tax rate on income from crowdlending.

Although this does not imply a specific risk to crowdlending compared to income from lending in general, the retail investor should note that income from net positive capital income in the low and high bracket is taxed at respectively approximately 38% and 42%. In a realistic scenario where an investor may have a mortgage loan, car loan, etc. and thereby has net negative capital income, that does not exceed 49,999 DKK, the effective tax rate of interest income becomes approximately 33.6%.

For married couples, the taxable amounts within each tax brackets are cumulative. That is, both parties income contributes to a common income.

Although capital net gains are not taxed according to SL §5 letter a, net capital gains arising from debt are included in the taxable income according to Kursgevinstloven (KGL) § 1 piece 1. However, a 2,000 DKK a year triviality limit exists, according to KGL §14 piece 1. Meaning net capital gains or losses arising

from crowdlending is neither taxed nor tax-deductible before the triviality limit of 2,000 DKK is exceeded. If the limit is exceeded, the whole amount is taxed or tax-deductible. The 2,000 DKK limit also includes debt in foreign currency, and some stock investments regulated by KGL §§ 22-23.

Capital gains and losses arising from debt investments are taxed or tax-deducible once the amount has been realized according to KGL § 25 piece 1. Because crowdlending loans are not traded on a regulated market, losses may be relatively slow to be acknowledged. The loss will not be recognized until the borrower is officially adjudged bankrupt. Furthermore, the loss may not be realized via resale at a symbolic price if no secondary market exists.

Again, capital gains and losses are not a specific risk regarding crowdlending compared to lending in general. However, the triviality limit and the waiting time before capital losses are acknowledged tax-deductible add inefficiencies to crowdlending. Firstly, the investor's money is idle while the bankruptcy process is ongoing. By this, the investor is missing out on the opportunity cost of the capital. Second, because we are specifically dealing with loans that are funded via a crowd of individual investors, often investing no more than 200-500 DKK, the triviality limit becomes relevant. In worst case scenario, retail investors could pay 38-42% tax on interest income while having a 0% deduction rate on losses. This is the case, if realized losses within a single tax year does not exceed 2,000 DKK plus any capital gains. Because it is generally difficult to predict how fast the individual bankruptcy processes will proceed, even the smallest retail investor should not invest less than 2,000 DKK in each loan. By doing so the investor can avoid this tax inefficiency. For investors with fewer funds, this may harm diversification opportunities. In cases where a secondary market exists, and loans are traded, with premiums or discounts, investors should be attentive about the triviality limit. The triviality limit can also be an opportunity for a small tax-free capital gain if loans are bought at a discounted price, but the discount does not exceed 2,000 DKK.

For bigger retail investors that, as a matter of course, will exceed the triviality limit in one direction or the other, tax inefficiencies may arise. This is because there is found an asymmetry between the tax rate for positive net capital income (38% - 42%), and negative net capital income (33.6% - 25.6%) according to KGL §4 point 2. In risky investments, such as crowdlending often is, defaults are largely unpredictable. Shifting years of net positive capital income and net negative capital income are reducing the expected long run return. This is the case because deduction rates for capital losses are smaller than tax rates for capital gains.

4.5.2. Retail Investors' Income Arising from Crowd Equity

At for instance Brickshare, each crowd funded residential building is a stock company on its own that the crowd equity funders have shares in. It is very difficult to imagine a situation where these shares are not unquoted securities, although it theoretically can change as the business grows.

Dividends received from equity is taxable on a global income basis according to SL §4 letter e. Capital gains on equity is taxable based on Aktieavancebeskatningsloven (ABL) §1 piece 1 and ABL §12.

Income from shares is included in the retail investor's taxable equity income as it is realized, according to ABL §23 piece 1. In accordance with PSL §4A, equity income is earned whenever dividends are paid out or the investor sells shares. If shares in the same company is acquired at different times, the acquisition price become the average price according to ABL §26 in accordance with ABL §24 piece 1. The realized gain or loss is then the difference between selling price and the average acquisitions price according to ABL §26 piece 2. Realized losses on shares that are unquoted is not only used to off-set realized gains on equity like quoted shares but is tax-deductible in the overall taxable income according to ABL §13 piece 1.

The tax rates are identical across Danish municipalities as equity taxes are paid only to the state in accordance with PSL §8a. Equity income of no more than 55,300 DKK is taxed at a rate of 27%, while equity income exceeding 55,300 DKK is taxed at 42%. Married couples may share their equity income between them, so they pay 27% tax on the cumulative first 110,600 DKK of equity income according to PSL §8A piece 4.

The tax regulations for crowd equity is therefore not different than for unquoted securities. Yet, unquoted securities and dividend paying securities imply some tax implications that will now be discussed.

Crowd equity is for now mostly seen in context of funding and acquisition of residential apartments. The crowd equity investors receive dividends several times a year, together with capital appreciation or depreciation of the residential apartments.

In a Danish tax environment, dividends are generally inefficient compared cumulative capital appreciation. Put informally, when equity income is not realized on an ongoing basis, the investors earns the after-tax expected return of the deferred tax each year. Therefore, the more tax which is deferred, the more extra return the investor will earn on average, compared to realizing the income each year.

It is an advantage related to unquoted shares that potential capital losses are directly deductible in personal income as opposed to future equity income. The deduction rate follows the same threshold as presented for positive equity income. However, it is often much more difficult to obtain a fair market price for unquoted shares than for quoted shares. Besides transaction costs as those discussed in chapter 3.1 such as search cost, information cost and bargaining cost (Dahlman, 1979), the individual investor selling unquoted shares will often face a big bid-ask spread no matter how much time is spend on searching and bargaining. Therefore, some level of loss must be expected compared to the fair price when the crowd equity investor wants to sell his investment.

4.5.3. Sub Conclusion on Taxation Impact

Crowdlending is taxed as capital income. For retail investors, capital income is taxed according to the following four brackets:

	Net Negative Capital Income		Net Positive Capital Income	
Amount	< -49,999 DKK	-1 to -49,999 DKK	1 to 45,800 DKK	45,800 DKK <
General Deduction Rate / Tax Rate	25.6%	33.6%	38%	42%

Table 10: Crowdlending Capital Income Taxation. Own production

For married couples, the taxable amounts within each tax brackets are cumulative. That is, both parties income contributes to a common income.

Crowd equity is taxed as equity income. For retail investors, equity income is taxed according to the following three brackets:

	Negative Realized Equity Income		Positive Realized Equity Income	
Amount	< -55,300	-1 to -55,300	1 to 55,300 DKK	55,300 <
General Deduction Rate / Tax Rate	42%	27%	27%	42%
Note:	Deduction in personal income if non-listed equity. Otherwise future equity income			

Table 11: Crowd Equity Taxation. Own Production

Again, for married couples, the taxable amounts within each tax brackets are cumulative. That is, both parties income contributes to a common income.

The investor should carefully consider the tax brackets when investing as it might be more tax efficient to invest in either capital income producing assets, or equity income producing assets depending on the investor's specific situation. For retail investors investing in crowdlending, there is a 2,000 DKK triviality limit on net capital gains/losses arising from premia or discounts during the year, meaning interest income is not included in the triviality limit. The retail investor should therefore be careful when investing less than 2,000 DKK in an individual loan, as there is a risk of not getting any deduction if the loan defaults. The crowd equity investor should prefer equity income that is not taxed on an ongoing basis, as it is less tax efficient than accumulative equity income. Furthermore, the investor should consider the advantage and disadvantage of unlisted shares. The main advantage being, that losses are deductible in personal income. The main disadvantage being illiquidity.

4.6. Concentration Risks

Even though Basel regulations are not directly related to crowdfunding, investors are well advised to consider a core theme from the regulations, concentration risks. The Basel Committee has defined concentrations risks as:

"A risk concentration is any single exposure or group of exposures with the potential to produce losses large enough to threaten a bank's health or ability to maintain its core operations." (Basel Committee on Banking Supervision, 2006).
If "bank's" is substituted with "investor's" and "core operations" is substituted with "wealth", the definition of concentration risks becomes highly relevant to other investors, not necessarily in the context of maintaining core operations, but in the context of realizing individual financial goals.

It has never been easier and cheaper to diversify globally and across asset classes. Today, individual retail investors have access to global exposure. This exposure is possible via relatively cheap ETFs of stocks, government bonds, corporate bonds etc. Many investors probably still have some level of home country bias (Anders Karlsson, 2007), but it has never been easier or cheaper to counter concentration risk.

Within the field of crowdfunding, concentration risk often become a risk that the investor is not compensated to take on. This is a concern for the investor, as a concentrated portfolio can constitute a risk. The portfolio is perhaps administrated through a crowdfunding platform, who may carry concentration risk by the nature of its loan book. Also, the individual crowdfunding project is often

associated with minor entities. The minor entities, are often more likely to carry entity specific concentration risk than larger entities (Dhaliwala, Judd, Serfling, & Shaikh, 2016).

Concentration risk may arise from any exposure, or group of exposure, that have the potential to produce substantial losses. For instance, concentration risks can be separated into categories such as credit risk, market risk, liquidity risk and operational risk (Hibbeln, 2010). The crowdlending investor should have a natural interest in concentration risk in the form of credit risk which can be divided into name concentration, sector concentration and credit contagion (Hibbeln, 2010).

Name concentration risk is the risk of the investor holding exposure to one firm that is relatively large compared to the investor's portfolio. Name concentration risk implies that the investor is exposed to idiosyncratic risk, that he is not compensated for holding. Therefore, the default risk of one, or a few, individual firms threatens the investor's welfare. As a result, crowdfunding investors should make sure to only invest fractions of their wealth in each investment. Regardless of how alluring an investment opportunity seems.

Sector concentration refers to significant exposures to groups of entities whose default probabilities are driven by common underlying factors such as geographical location, national specific macroeconomics or industry sector (Hibbeln, 2010). The sector concentration makes this group of investments correlate in such a way that they may fall like domino pieces as they are tied to the same underlying factors, and perhaps even share some level of credit contagion.

Credit contagion is direct business connection between firms such that the well-being of firm A to a significant extend directly affects the financial well-being of firm B. The investor, who is invested in both firms, will experience direct correlation between the financial performance of the investments. Concentration risk within crowdfunding is especially prevalent, as crowdfunding platforms tend to steer its investors towards a specific sector, geography, or perhaps even both.

4.6.1. Sub conclusion on Concentration Risk

Many platforms tend to focus on specific geographical areas or business sectors, which can lead to concentration risk for investors. This tend to result in portfolios less diversified than what can be obtained by investing in equity and bond ETFs.

As a result of sector concentration risk and credit contagion, the crowdfunding investor must remember to diversify globally and across sectors and industries. This is difficult to do well. Realistically, crowdfunding should therefore only take up a smaller proportion of the investor's portfolio.

Furthermore, the investor should be aware of his increasing dependence on the platforms themselves as he increases the number of investments made through them.

4.7 Liquidity Risk Impact for Investors

4.7.1. Theory of Liquidity on Secondary Markets

Of the crowdfunding platforms we have examined, it is currently only Flex Funding who operates with a secondary market. However, both Lendino and Kameo plan to implement secondary markets (Frederiksen, 2020; Firla-Holme, 2019), and Brickshare offer investors to redeem their investments on a monthly basis. But what value do secondary markets add to crowdfunding platforms and why should crowdfunding investors, all else being equal, prefer platforms with liquid secondary markets? Furthermore, what should investors be aware off when trading on secondary markets? This section will explore the mechanisms of liquidity in the context of crowdfunding. It will then be put in context of the secondary market offered by Flex Funding.

Secondary markets are marketplaces offered by crowdfunding platforms to their investors. Through these, investors may buy or sell parts of crowdfunding debt or equity to, or from, other investors. To a large extent, secondary markets work as normal exchanges, where securities are traded after the initial public offering. Therefore, secondary markets provide an option to investors. If investors do not want to buy or sell shares second hand, one should think that they may simply choose to ignore secondary markets. As it will be explained, secondary markets should theoretically impact crowdfunding investors, whether they use it or not.

Following section 3.1. on transaction costs, investors should demand compensation in terms of return when they are facing various transaction related costs, such as the ones described in 3.1. If two investments have the exact same cash flows, investors should prefer the investment with less transaction costs all else being equal.

The most direct example of transaction costs is direct trading costs such as commissions and bid-ask spreads. All else being equal, if an investor is investing in an asset with higher direct trading costs compared to the alternative, the investor should demand a compensation for this cost. Such compensation could be either a discount on the acquisition price, or larger expected future cash flows.

However, it is not enough to get a compensation equal to the extra direct trading cost that occurs at time zero, when the investment is bought. The investor should demand a compensation equal to the additional trading cost, plus the expected trading cost per unit of time until maturity. The expected

trading cost per unit of time is the product of the asset's transaction cost multiplied by the frequency of asset sales (Mendelson, Amihud, & Pedersen, 2013). Besides direct trading costs, it is worth remembering that transaction costs also include costs such as search and information costs. As explained in section 3.1, search and information costs can be significant within crowdfunding. The investor should be compensated for these transaction costs as well.

What further affects the value of liquidity, is the trading magnitude effect on market prices and market depth. Investors may face different levels of direct liquidity costs depending on the liquidity of the security. This difference is caused by the effect of trading magnitude, that influences market prices according to the market depth. All else being equal, if there are few buyers and sellers, i.e. low market depth, liquidity costs will be high. If there are many buyers and sellers, i.e. large market depth, liquidity costs will be low (Mendelson, Amihud, & Pedersen, 2013).

Transaction costs are therefore split into a fixed and a variable component (Mendelson, Amihud, & Pedersen, 2013). The fixed component consists of commission together with other relevant transaction costs such as information costs. While, the variable component consists of the marginal price that securities can be bought or sold for, when no buyers or sellers are in the market at the initial price, i.e. increasing bid-ask spread. On highly liquid markets such as blue-chip stock markets, even huge amounts of securities may be traded at once without effecting the equilibrium price. Contrary, a considerable price effect should be expected on most crowdfunding platforms. Alternatively, the investor should expect high transaction costs in terms of time and attention spend on selling the securities over a longer period.

Mendelson, Amihud & Pedersen (2013) found that investor's demanded illiquidity premium is not a linear function of expected trading cost per unit of time. Rather, it is a concave function of time due to the clientele effect. The clientele effect is the market mechanism where assets with low liquidity in equilibrium is hold by more long-term investors. The least liquid assets are in equilibrium bought by long-term investors. This is due to; the long-term investors having the least expected transaction costs per unit of time. As they tend to trade less often, if ever, and therefore face the least amount of transaction costs. Consequently, the long-term investors are able to outbid the short-term investors who face higher expected trading cost per unit of time.

Following Mendelson, Amihud & Pedersen (2013) a liquidity premium, in excess of the direct initial trading costs, exist between otherwise identical 6 months US treasury bills and 6 months US treasury

notes. Where bills are highly liquid throughout the six-month period, notes are only tradable in a short period after being issued. Chen, Lesmond & Wei (2007) found similar results on corporate bonds where less liquid corporate bonds carry greater liquidity premium in excess of direct trading costs. However, Chen, Lesmond & Wei (2007) also found that the yield spread between bonds of different credit ratings were not only explained through greater risk adjusted default premiums. The yield spread was also explained by an increasing liquidity premium, where more risky bonds are less liquid. This effect is partly caused by increasing transaction costs in terms of asymmetric information that tends to create bigger bid-ask spreads.

It must be expected that asymmetric information (John, Saadi, & Zhu, 2015) plays a big role in secondary markets within crowdfunding. Chen, Lesmond & Wei (2007) found an increasing bid-ask spread on corporate bonds, traded on public exchanges. This was found although strict requirements for the corporations to publish material information exist. The risk of information asymmetry seems much greater within crowdfunding, as borrowers are generally not subject to equivalent requirements regarding publication of material information. Since neither sellers or buyers can distinguish between counterparts with or without private information, both buyers and sellers have to adjust their prices accordingly. Therefore, the bid-ask spread should be expected to be bigger on the secondary markets of crowdfunding platforms, compared to publicly traded assets.

4.7.2. Secondary Market – The Flex Funding Case

At the time of writing, Flex Funding is the only of our chosen crowdfunding platforms, that offer a secondary market. Therefore, the theory reviewed above will be applied in the context of Flex Funding's secondary market. All figures, and investment cases are based on available loans at the time of writing, 26/03/2020.

Beside the bid-ask spread, a 0.75% commission fee is paid when selling a loan on Flex Funding's secondary market (Flex Funding , 2020), while the buyer does not pay any commission. Typical of secondary markets on crowdfunding platforms, no bid prices are visible on the secondary market. Only offered asking prices are available that investors may choose to accept.

Flex Funding's secondary market seems reasonable active with 156 different loans, each with between 1 and 135 loan parts, available for investment. 1% discount is the greatest discount available at present time and 3% is the biggest premium any seller demands. The maturities offered is anything between 1 and 60 months (Flex Funding, 2020).

As theory suggest, the risk of trading with a more well-informed counter party seems to be observable on Flex Funding's secondary market. Suggesting, that buyers demand a premium for the risk of trading with sellers, who are in possession of private information. An example of this is seen in the case "Ejendomsselskabet Miklagaard ApS" (Appendix 3) that is being funded on the primary market with 8.5% interest rate, 48 months annuity-based repayment schedule and an advised expected loss of 1.35%. Meanwhile on the secondary market, the newly funded case "Curryway" (Appendix 4), which is yet to reach the first repayment date, has an identical repayment schedule and advised expected loss. This loan is offering a 9% interest rate and is offered at a discount of -0.25%, but unsold. No public information about expected performance or non-performance of the loan, is available. If Flex Funding is making correct credit assessment, and information is complete, the yield on the loans should be similar. Or if a mismatch in interest rates is observed, investors should prefer the highest interest available, other factors being equal, which is not observed.

Only representing a snapshot in time, the comparison should be interpreted with cautiously. However, Flex Funding's secondary market may resemble Akerlof's (1970) market for used cars. As soon as the car is bought on the primary market, a compensation for private information is demanded on the secondary market. The same compensation for potential private information should be observed in all markets, where private information may exist. Such possibility exists within crowdfunding markets.

However, at the time of submitting this paper, the effect seems to have vanished. This does not imply, that we can reject that a compensation for private information exists. Other factors may overshadow the unwillingness to trade with a potentially better-informed counterpart. One such factor could be the lack of alternatives. If the demand for crowdfunding investments exceed the supply on primary markets, investors might be willing to accept the risk of trading against a counterpart with more information. Furthermore, the compensation for information asymmetry could materialize itself in a lower premium just as well as an actual discount.

In general, the investor should know how the crowdfunding platform is regulating their secondary markets. Especially the rules regarding new material information concerning the health of the borrowing companies. Also, the investor should investigate whether the crowdfunding platform suspends trading of loan parts of defaulting loans, or if the platform lets the secondary market trade on a laissez-faire basis. The latter obviously increases buyers' expected cost of sellers' private information. A market trading on a laissez-faire basis gives seller's trading opportunities. If a seller is more well-informed than

the buyer, the seller can greatly reduce the overall expected loss of investments. This can be obtained by trading on private information and selling nonperforming loans to less informed buyers.

Regardless of the specific cost of trading, theory (Mendelson, Amihud, & Pedersen, 2013) suggest that investors will prefer an option of trading loan parts on a secondary market, compared to not having such option. By contrast, one should expect that investors demand a premium for not having the option of trading on the secondary market. In this light, it should be expected that the yield on Lendino's loans should be shifted downwards, when Lendino implement a secondary market, which according to Kristian Frederiksen is expected to happen during 2020 (Frederiksen, 2020).

In accordance with the clientele effect (Mendelson, Amihud, & Pedersen, 2013), the least liquid assets should in equilibrium be hold by long term investors. This is because long term investors demand the smallest illiquidity premium. This implies that, if a secondary market is implemented, the customer base of a platform should shift to some extent. The platforms should able to offer borrowers better interest rates by attracting investors, who demand a smaller liquidity premium. Investors with the least preference for liquidity, should in equilibrium seek towards platforms that offers the highest liquidity premium, in theory the platforms without a secondary market.

4.7.3. Liquidity Risk in Crowdfunding Markets

This section will examine the risk of diminishing liquidity in the crowdfunding markets from an investor's standpoint. Specifically, it will be discussed what investors might expect during periods of relatively stable economic expansions, and how those expectations may lead to disappointment if the economy is suddenly hit by severe difficulties. This could be due to events resulting in market unrests, such as the Covid-19 Pandemic.

From a risk point of view, investors should worry about lack of liquidity as it may increase the time, effort and trading costs relating to selling assets. If an asset becomes less liquid, one should expect a buyer to demand a greater liquidity premium. Thus, a lower equilibrium price is reached in the market for a certain group of assets that become less liquid (Demsetz, 1968).

Bao, Pan & Wang (2011) found this to be true during the great financial crisis lasting from approximately 2007-2009. Using monthly yield of corporate bond data from 2003 to 2009, they found that liquidity premia increased dramatically in 2008 together with credit risk premia. Increasing liquidity premia where most prominent for A through AAA rated corporate bonds, overshadowing the increase in credit risk premia. Whereas the increase in liquidity premia where less prominent, but clearly positive, for

corporate “junk bonds”, where most of the increase in monthly yield was explained by increasing default risk premia. The authors underline however, that their results should not be interpreted in the way that junk bonds are liquid and not sensitive to decreasing market liquidity. Because generally junk bonds are less liquid than investment-grade bonds. Junk bonds are simply even more sensitive to overall credit conditions why credit risk overshadows liquidity during downturns (Bao, Pan, & Wang, 2011).

So how much did the liquidity decrease as regards to Covid-19? At the time of writing, it is too early to say with certainty, but some provisional results may be inferred already. Some crowdfunding platforms publish precise data about the trading volume on their primary, and especially secondary markets. Unfortunately, the Danish crowdfunding platforms do not provide such data. However, during our interview with Jacob Rasmussen from Flex Funding, he stated that a clear trend had formed on their secondary market during March 2020, where the Covid-19 crisis began to leave its mark on the various financial markets. Before Covid-19, demand for loans surpassed the supply from the primary market to such an extent, that loans nearly exclusively were sold at a premium on the secondary market. During March, this picture turned around so that loans more and more commonly were sold at a discount (Rasmussen, 2020). Whether the discounts are a result of increased credit risk, decreased liquidity on the secondary market or a combination of both is hard to say. But the discounts found on even freshly issued loans could indicate liquidity affecting the prices, as sellers outnumber the buyers.

As data related to volume is sparse on the Danish platforms, obtaining data outside the Danish borders can be helpful for the analysis. Mintos.com, the biggest crowdlending platform in Continental Europe, who effectively provides business loans to various non-banking lending companies, has a larger degree of data availability. The data presented in Table 12, is the trading volume of the secondary market, on Mintos, so far for the year 2020:

Month / EUR	Premium	Premium %	Par	Par %	Discount	Discount %	Total EUR
April	38,769	0.28%	1,727,602	12.37%	12,198,071	87.35%	13,964,442
March	334,649	1.56%	8,099,783	37.87%	12,952,992	60.56%	21,387,424
February	874,705	3.60%	13,718,898	56.50%	9,688,354	39.90%	24,281,957
January	1,211,577	4.95%	14,577,950	59.53%	8,700,095	35.53%	24,489,622

Table 12: Trading Volume Secondary Market. Own production based on (Mintos, 2020)

An overall trend in the loan volume traded from one investor to another on the secondary market, is observable. 96% less loan volume is sold at a premium, and 40% more loan volume is sold at a discounted price. It is also worth noting, that the total trading volume (total EUR) is experiencing a

considerable decline. This decline in trading volume on the secondary market is not the full picture of the total funding volume in the early 2020 on Mintos. The primary market has shown an even bigger decline in volume. The monthly change in funding volumes, in Table 13, show a radical change from January 2020 compared to the following three months.

Month / EUR	Cumulated Volume	Monthly Volume	% Monthly Change in Funding Volume
April – 2020	5,189,309,023	44,789,802	-71.71%
March – 2020	5,144,519,221	158,299,278	-50.11%
February – 2020	4,986,219,943	317,289,936	-0.02%
January – 2020	4,668,930,007	317,361,328	15,61%

Table 13: Funding Volume Primary Market. Own production based on (Mintos, 2020)

The funding volume on the primary market show an 85% decrease from the month of January to the month of April. It is probably not a coincidence, that Mintos on the 31st of March announced the introduction of a 0.85% seller's fee on trades made on the secondary market (Mintos, 2020). Such transaction cost may slow down the sell-off on the secondary market. However, it is an additional cost for the investor.

What further goes to show that the increased trading volume of discounted loans on the secondary market is caused by fleeing investors selling loans at a deep discount, is the development on the primary market. The reason being, that the interest rates offered on the primary market have been surging, as can be seen from Figure 11, while the volume has been strongly decreasing (Table 13).

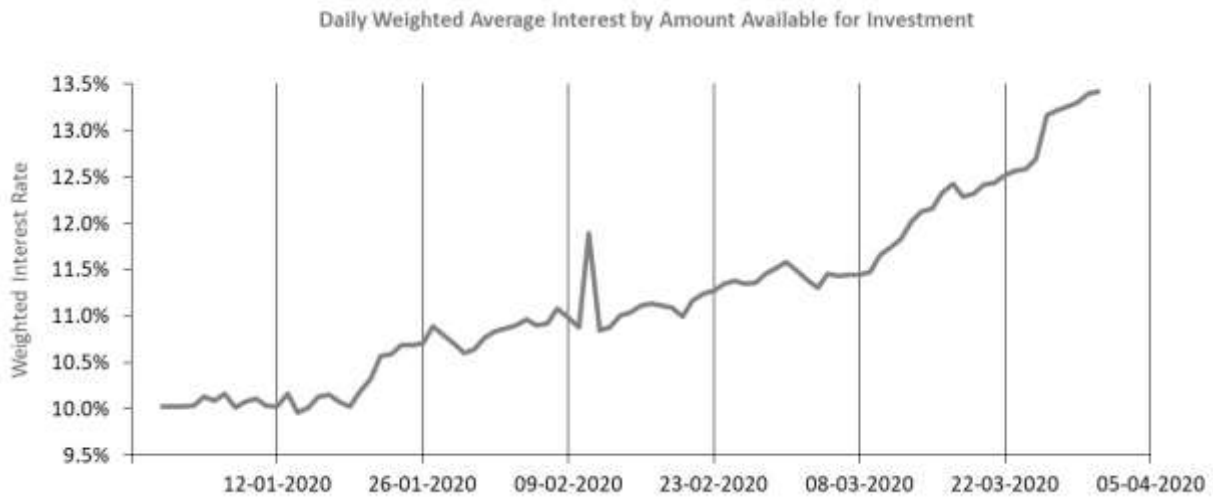


Figure 11: Weighted Average Interest Rate Offered on the Primary Market at Mintos.com. Own production based on (Mintos, 2020)

Combining the sharply decreased funding volume observed on the primary and increased volume of discounted loans sold on the secondary market, considerable reduction in aggregated investor demand has occurred. The timing of these market developments matches the outbreak of Covid-19 in Europe. Few, if any, investors heading for the exit had probably expected this situation. The unfortunate result seems to be investors heading for the exit while involuntarily having to outbid increasing interest rates offered on the primary market.

Of course, some, or most, of the increase in interest rates showcased above is caused by increased default risks. However, as Bao, Pan & Wang (2011) argued, high yield bonds are by no mean immune to increasing liquidity premia once volumes decrease. Bao, Pan & Wang (2011) found this result from the 2008-2009 financial crisis. We also expect their results to be largely true in the context of an event such as Covid19. As a result, some of the increasing yields observed on Mintos, or as reported during the interview with Flex Funding (Rasmussen, 2020), should be ascribed to a sudden change in liquidity.

Investors demanding the smallest liquidity premium might see decreased liquidity as an opportunity to reap some extra yield by buying loans at a discount. For the investors holding assets, sudden change towards less liquidity of their assets is bad news. As it has been shown, crowdlending loans have the potential to become illiquid in times of economic crisis. In such case, investors might end up selling loans at much larger discount in times of crisis, than they would have been able to do during normal economic conditions. Both the financial crisis of 08-09 and Covid19 were unpredictable events. Therefore, the

investor should never be too confident in the liquidity, or the market value, of the assets. In an uncertain world, change in liquidity is always therefore an underlying risk to crowdfunding investors.

4.7.4. The Spillover Effect on The Platforms

Crowdfunding platforms make money by facilitating the commerce of debt or equity. Crowdfunding platforms typically also administrates and facilitates the exchange of cash flows between investors and their investment projects. Although good quality platforms should have a proper wind-down agreement in place in case of the platform shutting down, investors should typically expect some inconvenience or monetary costs, if the administration task must be transferred to some third party. Therefore, investors should care about the financial and operational health of crowdfunding platforms.

Aside from the more eye-catching cases of allegedly fraudulent activities being revealed by Covid-19 as described in the section 4.2.5, also law-abiding crowdfunding platforms may head for financial challenges once a crisis like Covid-19 puts pressure on operational processes and funding volume. As this can force the platforms to perform deep cost cutting, including the layoff of staff. Although we at time of writing, have not yet seen any Danish regulated crowdfunding platforms communicating about serious challenges in relation to Covid-19. The well-advised investor should know that there is a spillover effect from low funding volume to platform risk. One risk is, that crowdfunding platforms may cease operations if it is no longer financially viable. Another risk is that the quality of the work conducted by the platform decreases if staff is laid off or other cost cuts related to operations are implemented. Following the concepts from section 4.6., the spillover effect further suggest that it is wise to diversify across platforms.

4.7.5. Sub Conclusion on Liquidity Risk

Investors should demand a premium for illiquidity. All else being equal, the investor should require a larger expected return when the option of liquidating investments is not offered. If a platform such as Lendino implement a secondary market, theory suggest a downward shift in expected return, because the liquidity of the investments increases. As a result of heterogeneous preferences among investors, a such change could potentially change the investor base of the platform.

The risk arising from asymmetric information (John, Saadi, & Zhu, 2015) is another phenomenon that should be reflected in the prices found on secondary markets. The risk of trading with a more well-informed counterpart should lead to a discount on secondary market. However, we were not able to confirm this on the examined platforms. This could be due to other factors such as imbalances between supply and demand overshadowing the premium.

Investors should expect increased illiquidity cost in times of recessions, meaning it becomes more costly to sell investments. The discounts needed to sell the investments increase by more than is explained by increased default risk. Jacob Rasmussen from Flex Funding (2020) confirmed that he had the same impression from their active secondary market. Analyzing data from the biggest crowdlending platform in Continental Europe, Mintos.com, we found clear evidence for greatly reduced liquidity. Trends in trading activity on the secondary market, combined with decreased funding volume and upward shifting interest rates offered on the primary market were observed. The combined result indicates considerable discounts being offered on the secondary market. It is not possible to separate the effect of illiquidity clearly from the effect of increased default risk. However, theory suggests that a liquidity premium in excess of increased default risk is included in the prices.

Finally, investors should realize the spillover effect from illiquidity to the health and performance of the administrating crowdfunding platform. Since crowdfunding platforms earn money on commission, they may become destabilized by the reduced funding volume. This destabilization potentially reduces the operational quality of the platform or even force it to cease operations. Both results may inflict costs or inconvenience for the investor.

4.8. Data Analysis of Completed Loans of Flex Funding

This section will examine the kind of risk premia an investor would expect to get on their investments. The analysis will be based on data from Flex Funding's platform, as they are currently the only platform to provide extensive data on their loans. The findings are therefore also subject to Flex Funding ability to provide correct estimates for estimated losses.

From the data, we expect to see a positive default risk premium. The default risk premium implies that, on average, we expect higher expected returns on more risky loans than less risky loans, even after estimated loss is subtracted from the interest payments (French & Fama, 1993). We would also expect to observe a positive term premium, meaning long term bonds should yields higher returns than short term bonds all else being equal. Lastly, as have been discussed earlier, there are more uncertainty, and therefore more risk, related to smaller businesses, compared to larger (Yoshino & Taghizadeh-Hesary, 2019; Molyneux, 2017). Therefore, we would also expect to be able to see signs of a small firm premium from the data.

Of the 265 observations (Appendix 5), we have excluded a few of them, these are Vágs Kommuna and the 22 borrowers that have been assigned the credit rating "NY" (new). The reason for the exclusion of

Vágs Kommuna is twofold. Firstly, it is a municipal loan and therefore subject to a different credit assessment process than corporate loans. Secondly, with a very low interest rate (0.6%) and estimated loss (0.4%) it is an outlier with clearly its own premises, even compared to the other A+ loans with considerable higher interest rates, ranging from 5.68% to 6.04%. The reason for excluding the loans rated "NY" is that, as mentioned earlier in this paper, Flex Funding does not provide a credit rank for borrowers who do not have credit history of at least two years. Therefore, the estimated loss are just pro forma rates without the same underlying credit assessments, and up until February of 2017, there were not even provided an expected loss for this category.

4.8.1. Default Risk Premium

As expected, it is observable from the observations that investors should achieve a higher average return by accepting more risk all else being equal, as is also visible from Figure 12.

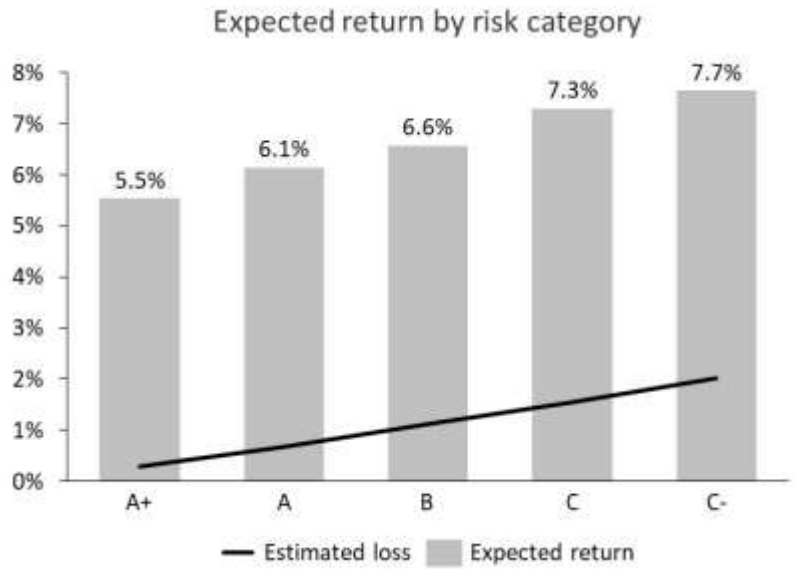


Figure 12: Expected Return by Risk Category, Own production based on (Flex Funding , 2020)

Credit Class	Number of loans	Average interest rate	Average expected loss	Average expected return
A+	5	4.96%	0.30%	5.53%
A	27	6.81%	0.67%	6.14%
B	91	7.70%	1.13%	6.57%
C	94	8.82%	1.54%	7.29%
C-	25	9.67%	2.02%	7.65%

Table 14: Descriptive Loan Statistics, Own Production based on (Flex Funding , 2020)

Flex Funding estimates that loans with the smallest expected loss, A+, should yield an annualized expected return of 5.53% while the loans with the highest expected loss, C-, should yield an annualized expected return of 7.65%. Although the A+ risk category is only represented by five observations, they are seemingly representative for the risk category, as the estimated losses are identical on all of them and the dispersion of the interest rates is rather small ranging from 5.68% to 6.04%.

4.8.2. Term premium

Having looked at the default risk premium, we will now look at the term premium of the examined Flex Funding data, or the lack thereof.

The theory of term premium is based in the expectations hypothesis, and has been used frequently within the study of bond markets (Rudebusch & Swanson, 2008; Tzavalis, 2004; Adrian, Crump, & Moench, 2013). According to the expectation hypothesis the expected return on holding a long term bond till maturity is the same the same as the expected return from rolling over a series of short-term bonds with a total maturity equivalent to that of the long-term bond. Albeit the expectations hypothesis gives an intuitively and straight forward interpretation of the yield curve, it does not take the interest rate into consideration. The only way the nominal return from a long-term bond is known is when calculated until maturity, which provides a risk for investors. Therefore, it is reasonable to think, that the investors would require compensation for such risk, and this is what is referred to as the "term-premium" (Kim & Orphanides, 2007). The investors with Flex Funding will also be exposed to this risk, as they have the option to sell their investment before maturity, through Flex Funding's secondary market. The magnitude of term premium required by investors for holding long-term bonds, can be dependent on the amount of risk, and the price of the risk. Either, which has potential to change over time due to variable fundamentals. For example, the degree of systematic risk could change due to varying perceptions of uncertainty regarding inflation or monetary policy. Furthermore, the economic cycle could also affect the amount of required compensation, as investors may be more risk-averse in recessions than in booms (Kim & Orphanides, 2007).

From the above section it would be expected that when examining the completed loans portfolio of Flex Funding, you should be able to find a positive correlation between the loan term, and the offered interest rate. That is as the loan term is longer the interest rate of the loan should also increase, all else being equal.

Turning to the completed loan portfolio of Flex Funding, to examine whether the investors are compensated for investing in loans with a longer term period. We choose to focus on the loans in the C and B groups as these are the largest sample groups. Furthermore, to ensure that the loans are comparable, the loans are filtered such that the type of securities, credit rating and estimated loss is the same. For both credit classes the loans are filtered such that we examine the loans which has limited security of the owner, and no other securities as collateral. For the B Credit rating, the loans examined are filtered such that only the loans with an estimated loss of 1% are examined. For credit rating C, it is only loans with an estimated loss of 1.35%. Again, the filter is applied to obtain comparable loans for the purpose of examining whether a term premium is present, and at the same time get the largest sample size. Two credit classes are examined to prevent any findings to be specific for a single credit class. The loans in credit rating A+, A, and C- are not examined as the sample size is too small to get any meaningful results. The data for each credit class will of course also be analyzed separately, as the loans would not be comparable across credit classes. Lastly regarding the data for the loans in credit class C, one outliner loan is removed from the sample to avoid the series being distorted by the loan. The interest rate of the outlier was 11.25%, compared to an average of 8.81%. The loan would therefore distort the data points, especially the points within the same term.

Beginning by looking at the sample data for the B rated loans, where there is a sample size of 38 (n=38). In the sample there are found 6 different term periods that is: 6, 12, 24, 36, 48 and 60 months, and the average interest rates are as in the Table 15 below.

Loan term (months)	Number of loans	Average interest rate
6	2	7.35%
12	3	7.82%
24	6	7.46%
36	14	7.76%
48	4	7.59%
60	9	7.79%

Table 15: Credit Class B Comparable Loan Statistics. Own production based on data from (Flex Funding , 2020)

To examine whether there is any indication whether the investors with Flex Funding are being compensated with a term premium or not, we want to see if there is relationship between the interest rate and the term of the loans. In order to do so, a scatterplot of the loans is created. On the scatter plot

are also shown the average interest rate for the given terms (6, 12, 24 etc.) as well as a trendline for the loan series. The scatterplot can be seen below in Figure 13.

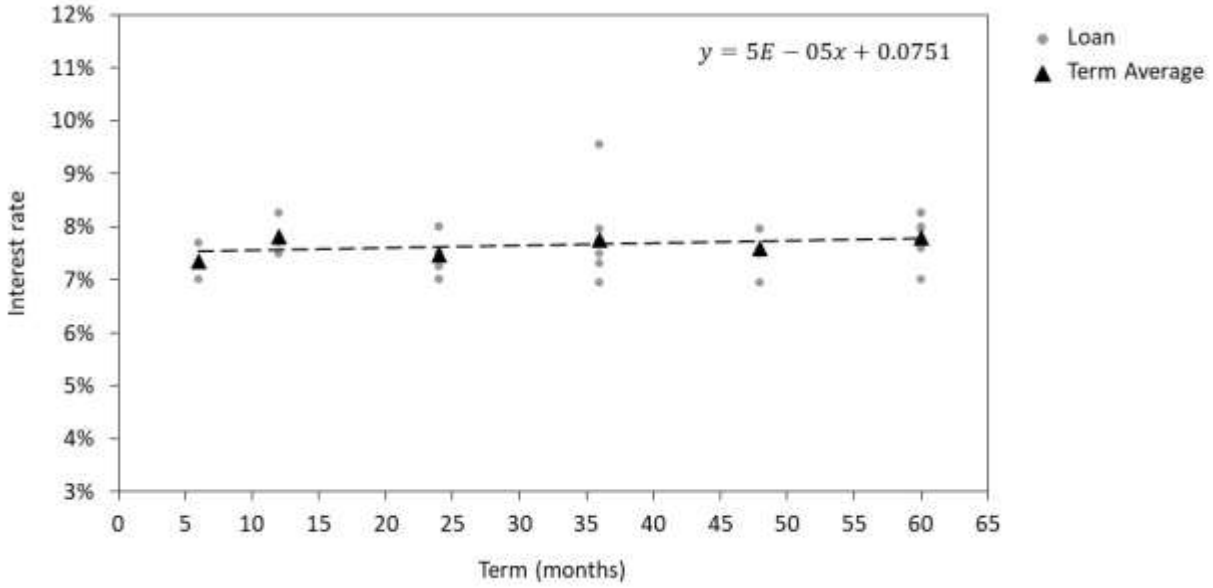


Figure 13: Term premium scatterplot credit rank B. Own production based on data from (Flex Funding , 2020)

Observing the scatterplot, it is evident that there is not any clear correlation between the term period and interest rate. This is further supported when looking at the correlation between the interest rate array and the term array. To find the correlation between the two arrays, the following formula is applied:

$$\textbf{(4.2)} \qquad r_{xy} = \frac{\sum(x_i - \bar{x}) * (y_i - \bar{y})}{\sqrt{\sum(x_i - \bar{x})^2 * \sum(y_i - \bar{y})^2}}$$

Where r_{xy} is the correlation between the x and y array, x_i and y_i are the x and y variables in the sample and $\bar{x}$ and $\bar{y}$ are the mean of the x and y sample values. When using our sample data values in this formula, we find a correlation of 0.1575. Albeit the coefficient being positive, indicating a correlation, it is not a very strong correlation. This is in line with the slope of the trendline which is found to be 0.00005 illustrated by Figure 13. Again, there is a positive slope which would be expected to be seen if a term premium is present, however the coefficient is so small that it is not significant to conclude the presence of a term premium.

Moving on to looking at the data for the loans in credit rank C, where we will follow the same procedure as for credit class B. Below, the terms, number of loans, and the average interest rates be observed from Table 16.

Loan term (months)	Number of loans	Average interest rate
9	1	8.95%
12	8	8.81%
24	3	8.72%
36	13	8.69%
48	13	8.88%
60	4	8.76%

Table 16: Credit Class C Comparable Loan Statistics. Own production based on data from (Flex Funding , 2020)

For credit class C, there is a slightly larger sample size at 42 loans (n=42). A scatterplot is created in the same fashion as previously done with the loans in credit class B. The scatterplot for the C rated loans can be seen in Figure 14.

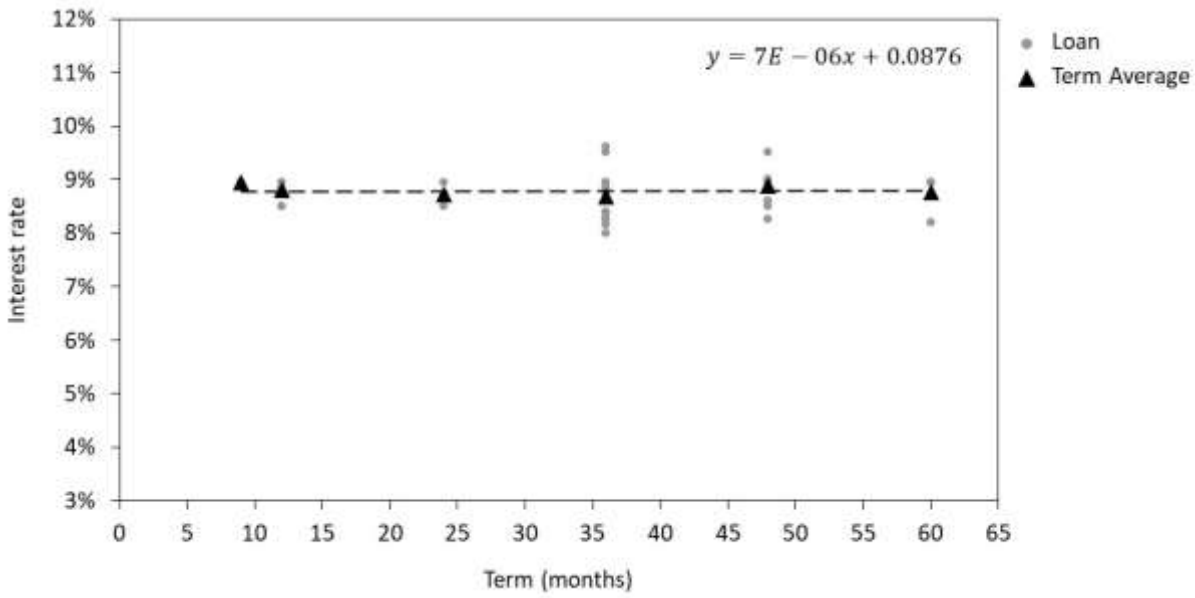


Figure 14: Term premium scatterplot credit rank C. Own production based on data from (Flex Funding , 2020)

Looking at the scatterplot for the C rated loans, a similar picture to that of credit rank B emerges. Looking at the scatterplot an obvious correlation between the term period and interest rate cannot be seen either. This is also supported by looking at the correlation coefficient. When using formula 4.2 on the data for the C rated loans, a correlation of 0.0284 is found. Which indicates that no correlation exists between the term period and interest rates. The same also applies to the slope of the trend line, which is found to be 0.0000065.

The overall conclusion when looking at whether investors are being awarded a term premium, is that there no clear evidence for a term premium from our analyzes. This is not to say that there with a 100% certainty is not a term premium included in the investments, but from our observations it does not appear to be significant.

4.8.3. Small Firm Risk Premium

By breaking down Flex Funding's completed loans by type of incorporation, we see a rather clear relationship between company size and estimated risk. By comparing stock companies to sole proprietorships, it is a fair assumption that stock companies are, on average, the largest companies. Sole proprietorships are, on average, the smallest companies, and private limited companies (ApS), are found somewhere between. The distribution of incorporation type by risk category is shown in Figure 15.

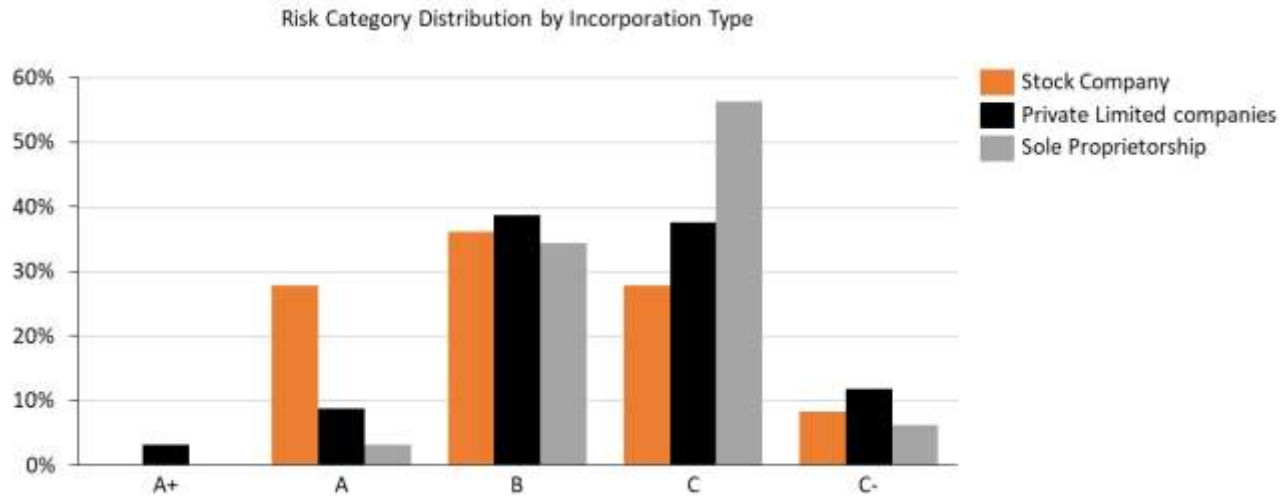


Figure 15: Risk Category Distribution by Incorporation Type. Own production based on (Flex Funding , 2020)

It is seen that the risk category of stock companies peaks between risk category A and B. The risk category of private limited companies peaks between B and C. Finally, the risk category of sole proprietorships also peaks between B and C, but has more observations distributed on risk category C than B, compared to private limited companies.

Furthermore, the distribution of the risk categories seems to be able to explain approximately all the tiny difference in expected returns between incorporation types. If we utilize a weighted average of the risk category distributions per incorporation type and multiply each weight with the expected return of the corresponding risk category, found in the section 4.8.1, we get the following results shown in Table 17.

Weight	A+	A	B	C	C-	Weighted Average Expected Return	Observed Expected Return	Difference	Total Observations
Stock Company	0.00%	27.78%	36.11%	27.78%	8.33%	6.74%	6.91%	+0.17%	37
Private Limited Company	3.13%	8.75%	38.75%	37.50%	11.88%	6.90%	6.85%	-0.05%	175
Sole Proprietorship	0.00%	3.13%	34.38%	56.25%	6.25%	7.03%	7.16%	+0.13%	35
Expected Return by Risk Category	5.53%	6.14%	6.58%	7.29%	7.65%				

Table 17: Risk Categories Weighted Average Return per Incorporation Type. Own production based on (Flex Funding , 2020)

The observed expected returns consist of the average of interest rate minus estimated loss for all observations within each incorporation category. It is still an underlying assumption, that the estimated losses are correctly estimated by Flex Funding. If this assumption holds true, there is no tangible indication of a small firm premium. The 0.25% difference in expected return between stock companies and sole proprietorship, is explained by assessed estimated loss, set by Flex Funding. However, there is no premium for the uncertainty regarding this estimation, contrary to Molyneux (2017).

Pooling together all the completed loans by risk category is not the perfect method, but it is a practical approach to a limited dataset. As the table shows, none of the incorporation types are systematically represented with observed expected returns that differ from the weighted average approach.

Sole Proprietorship represents the highest observed expected return, while private limited company represent the lowest observed expected return and stock company in between. As the “Difference” column shows us however, the distribution of loans in each risk category seems to explain all the difference. That is, if we ignore the small differences that by all chance is random noise, since no individual case is yielding the exact same as the average expected return of the corresponding risk category. As a result, investors should expect an annualized return of 6.91% by investing in all funded loans to stock companies, 6.85% by investing in all funded loans to private limited companies, and 7.16% by investing in all funded loans to sole proprietorships.

Overall, no indication of a significant small firm premium between the stock companies and the sole proprietorships is found.

This is an interesting result, as investors should usually expect some kind of small firm financing premium (Molyneux, 2017). All else being equal, the smallest companies, should tend to yield a higher expected return than the larger companies. Besides higher default risk, the most predominant reason for such premium is more acute asymmetric information problems that leads to increased costs of screening the borrower (Molyneux, 2017). Such information problems may arise from less transparency,

less professional management or from lower bookkeeping and accounting quality. Factors as these contribute to overall asymmetric information. These information problems should result in more uncertainty regarding the exact estimated loss percentage.

In the dataset, the expected returns are explained by the absolute value of the estimated loss. The uncertainty about estimated loss does not seem to be considered. If it is more difficult to estimate the expected loss of lending to the smallest companies, the expected return should reflect this uncertainty. This does not seem to be the case, from our observations. A possible explanation could be, that Flex Funding is specialized in credit analysis of small entities. This specialization may imply that Flex Funding effectively is as good or perhaps even better at analyzing sole proprietorships than stock companies. Therefore, it is a possibility that no small firm premium exists on the platform, as Flex Funding's competencies counterbalance the theoretical small firm premium. Unless such competencies are present on a platform, we would advise investor to choose loans from bigger companies rather than smaller companies all else being equal. This is based on the greater uncertainty regarding the credit assessment of small entities (Molyneux, 2017).

4.8.4. Sub Conclusion on Flex Funding Data Analysis

We began this section by stating, that investors should expect a risk premium when taking on additional credit risk, compared to other alternatives. From our observations, the data confirms that investors are compensated with a risk premium by taking on more default risk. We are by no means surprised to see default risk premium existing between the risk categories. Furthermore, we advise investors to demand the same from other crowdlending platforms.

We also expected to find a term premium. Meaning, all else being equal, loans with longer maturity providing a higher interest rate, than loans with shorter maturity. However, from our observations this did not seem to be the case.

Lastly, we expected to observe a small firm premium. This is due to the fact, that the exact credit risk of small companies for, for reasons mainly related to information asymmetry, should be expected to be subject to more uncertainty than that of larger companies. However, after analyzing the data, it does not suggest the presence of a small firm premium.

5. Discussion and Conclusion

5.1. Discussion

Having explored some of the main risk areas, accompanying investments in crowdfunding, we will now discuss our findings and explore the implications.

5.1.1. What Makes a Platform Risky?

Firstly, it is important to recognize that the risks highlighted in this paper are not an exhaustive list, and additional risks can be found when investing in crowdfunding. However, the risks we have explored are those which we have deemed the most relevant to explore and highlight. What an investor ultimately would like to know is why one platform is riskier than another? The risks highlighted in this paper can help investors answer this question. We will now outline what we advise investors to look out for.

The first risk area touched upon, and the most important for investors, is regulations. Regarding regulations the biggest concern for the investor should be the type of license under which the platform operates. The license has great impact on the protection of the investor's uninvested funds in case of platform bankruptcy. Furthermore, the license ensures that the platform is subject to capital requirements, which could decrease the risk of platform bankruptcy. If nothing else, it is important that the investor makes sure that the platform has a license at all. This can be done by looking up the given platform on the Danish Financial Supervisory Authority's (Finanstilsynet) database. Lastly, investing through a licensed platform, reduces operational risk. This is done as the Danish Financial Supervisory Authority have requirements in regard to the management of the platform. Preferably investors should invest through a fully licensed platform. Investing through a fully licensed platform ensures that the investor's uninvested funds are guaranteed by law. Therefore, in the case of the platform shutting down the investor will be able to recover uninvested funds. Furthermore, by ensuring proper licensing of the platform, the investor can prevent, or at least significantly limit, exposure to scams. Outside of Denmark, scam crowdfunding platforms have been seen, such as the ones mentioned in section 4.2.5, which under proper regulation and supervision could have been avoided.

Principal-Agent theory has been a reoccurring theme throughout the paper, and one of the areas where it is especially relevant is in regard to the credit assessment practices of the platforms. Here we advise investors to find platforms who are as transparent as possible. Reducing information asymmetry will be a significant advantage, as it allows investors to know exactly what the foundation of the credit rating of a borrower is. Credit rating systems are a good indication for investors in regard to the riskiness of the investments. However, if the investor does not know what is included in the assessment, the amount of

trust which they can put in the rating diminishes (Giddens, 1990). Therefore, the more transparency the platform provides to investors, the better.

Concentration risk is also a relevant consideration. When investing it is advantageous for investors to seek platforms that allow for diversification of geography as well as industries. This will allow the investor to reduce concentration risk, and not be overexposed to country or industry specific risk events. As most of the platforms today are quite concentrated, an alternative to this would be to limit the portion of invested funds in each individual platform. Furthermore, the investor could spread investments among multiple platforms. However by doing so, the investor will incur additional search costs, therefore the diversification benefits would have to exceed the costs for this strategy to make sense.

Section 4.7 discussed the implications of liquidity and found that all else being equal, investors would prefer liquidity and therefore platforms with a secondary market would be preferable. A secondary market allows for investors to sell-off loans or purchase additional loan parts if desired. As indicated in Section 2.1, the popularity of crowdfunding is expected to continue to increase over the coming years. And this will result in more active secondary markets, which will increase liquidity for investors.

Lastly, we will advise investors to make sure that the platform is run by people with experience within the fields of finance supported by a capable technical staff. Albeit, this did not seem like a great risk from the studied platforms. This risk could be very significant, especially in the presence of weak regulation. If the platform is subject to weak regulation, doing further investigation, beyond the platform website, of the leadership team is advisable. This could be done through websites such as Linkedin.com or Virk.dk.

Having now outlined selected key features investors should always look for in a platform in order to reduce their risk, an important note will be that an investor may not be able to find a platform, which fulfills all the preferred characteristics. If not, it is important to remember that there is always the option to not engage. As an investor, if you are not comfortable with the characteristics of a platform, and the risks associated with them, not investing is the best option. If multiple of the preferred characteristics are not found, it will imply associated costs. These costs will potentially offset the expected return from the investment, following section 3.1 and 3.2, on transaction and agency cost theory.

5.1.2. Limitation of Quantitative Research

It is important to state, that the amount of loan book data that is obtainable has been limited. The amount of completed loans in a Danish crowdlending context are still at a relatively small volume. This is

also the reason why a platform such as Lendino do not publish its loan book data currently, as they deem it statistically insignificant (Frederiksen, 2020).

Observations made in section 4.8 of the paper, are based on the available list of 265 completed loans on Flex Funding's platform (Flex Funding , 2020). This as a sample size is not sufficiently large and given that we only were able to obtain data from one platform, it is not possible to conclude that our findings are statistically significant. We have observed patterns which have supported our findings, as either being in line or defying our expectations. Furthermore, as the observations are based on data solely from Flex Funding, it is not possible to be generalize the results for all crowdlending Platforms. However, it provides an indication and serves as point of comparison for future research. Nevertheless, the premiums discussed remains relevant for investors to consider when investing, and if having the data availability, to test themselves.

5.1.3. Research Implications and Future Research

Our paper will contribute to the practical literature within crowdfunding. The paper sheds light on the most prominent risk areas associated with investing through crowdfunding platforms, which is still a relatively new trend in Denmark. The practical implications will be in regard to the detection and avoidance of these major risk areas. Little literature has explored these associated risks in great detail, especially in a Danish specific context. Furthermore, a lot of the past research has been written from an industry or society perspective, such as the papers by Kristian Roed Nielsen (Crowdfunding as a cooperative movement – The present and future of crowdfunding in Denmark, 2019; Crowdfunding i Danmark: Fra niche til mainstream finansiering, 2019). As we write from an investor perspective, we contribute to an area of literature that is scarce, within crowdfunding. Furthermore, as Crowdfunding becomes more prominent in Denmark, it will be important that literature also exists from an investor perspective, to assist decision making, or expand knowledge. This sentiment is also supported by Kristian Frederiksen of Lendino, who during our interview stated that one of the main challenges for Danish crowdfunding is currently the lack of knowledge within the general public (Frederiksen, 2020).

Our paper has mainly taken a qualitative approach, due to the lack of data availability and granularity, which prohibits the employment of a deeper quantitative analysis. As crowdfunding continues to become more popular, it will enhance the data availability and improve the level of data granularity. An increase in available data will allow researchers to perform more quantitative studies of some of the highlighted risks discussed in this paper. This could for example be studies in regard to market liquidity as well as more statistically significant studies of risk, small firm, and term premiums.

The Covid-19 pandemic has already at the time of writing demonstrated to have great economic impacts, which is also observed in Denmark. There are even speculations as to whether a recession will follow (With, 2020). This will be the first time crowdfunding will experience an economic shock, such as a recession could cause, while being a mainstream investment source. It will be interesting to study what the effects of economic events such as a recession will have on the crowdfunding markets, and how it will affect the platforms. If a Danish platform were to default, it would allow for some interesting observations, in relation to our paper. The default of a platform would provide empirical evidence on the actual cost inflicted on investors.

5.2. Conclusion

Through our research we aimed to provide investors with an overview of the main risks and opportunities associated with investments made through Danish crowdfunding platforms. Most of the risks are generalizable to all crowdfunding investors, but the risks are mapped out especially for retail investors.

Crowdfunding is a growing field within finance, which is expected to continue in years to come. On the demand side, many investors seek a fixed income choice when investing. This is especially true for retail investors that in essence are excluded from investing in traditional corporate bonds and no longer have the choice of an interest savings account in the bank due to negative interest rates. On the supply side, small and medium sized companies find it difficult to achieve favorable funding solutions, if any, from their bank. The main reasons for this being the book management policies of traditional banks and perceived bureaucracy (Rasmussen, 2020).

Theoretically, crowdfunding is reshaping transaction costs associated with funding. Albeit, evidence and past research cannot definitively conclude whether crowdfunding over- or underperform compared to that of traditional funding methods, research do show areas where crowdfunding has potential cost advantages compared to traditional funding (Arnold & Jeffery, 2014; Bottiglia, 2016). Among these are lower costs of information and monitoring due to decentralized monitoring done by a large network of investors, as well as lower regulatory costs following lighter regulation of platforms.
While some potential advantages can be found accompanying crowdfunding, the introduction of an intermediary platform also brings about challenges. Most prevalent of these are the potential information problems, adverse selection and moral hazard. Participants can counteract these problems by engaging in strategies such as signaling or screening, such as shown in section 3.2. However, residual risks will exist that need to be offset by an appropriate risk premium (Funk, 2019).

Before diving into the specific platform risks, we examine the tax implications of crowdfunding investments and what mistakes to avoid. Crowdfunding is split up into two pieces, namely capital income from crowdlending and equity income from crowd equity. Generally, crowd equity is taxed more gently than crowdlending, and since the underlying equities of crowd equity are typically unquoted, realized losses are deductible in personal income, which serves as an advantage.

In our research, four cases of Danish crowdfunding platforms were evaluated. Namely Lendino, Flex Funding, Kameo and Brickshare. By evaluating these four cases, five platform specific risks were identified. The risks primarily arise from regulation of the platforms, the governance of the platforms, the credit assessment processes of the platforms, concentration risk associated with investing through a platform and risk regarding the liquidity of the assets traded on the platform.

Although regulation of crowdfunding platforms is generally lighter than the regulation of traditional banks, existing regulation was found to prevent key issues that were identified in relation to defaulted platforms abroad, which resulted in huge losses for investors. A key aspect for investors is to be aware of the license under which a platform operates, if any. This can easily be done by looking up the platform on the Danish Financial Supervisory Authority's database. Doing so, greatly decreases the risk of losing uninvested funds or being exposed to scams. Furthermore, proper regulation helps to ensure proper governance and management of the platform. This paper did not find governance to be a major risk among the studied platforms, as all had a board of directors and management teams, who were well balanced with extensive experience in not only banking, but also in fields such as IT and FinTech. However, as discussed in section 5.1.1 if the platform is operating under no or weak regulations, governance becomes a large risk factor, as governance requirements are not imposed on the platform. This will increase the risk of incompetent or opportunistic management.

Regarding the credit assessment practices of the platforms, the biggest risk is the lack of transparency behind the credit assessment models. Two issues are especially prevalent for investors. First, information asymmetry. Transparency is critical for investors, as the platforms should try to decrease information asymmetry as much as possible, both relating to their credit rating practices, but also the information passed on to investors. Secondly, incentives. As the platforms are conducting the credit rating, but does not have capital at stake, the investors have a choice to either trust the platforms or endure additional search costs by doing their own credit assessment. Transparency is especially prevalent in the short run as platforms needs to prove alignment of incentives with the investors.

However, alignment of interest was also found in section 4.4, as the platforms in the long run will be rewarded for conducting high quality credit assessments.

When discussing liquidity in relation to crowdfunding, the key element is whether the platform operates with a secondary market or not. Of the four studied platforms, at time of writing it was only Flex Funding, who operated with a secondary market. If a secondary market is not present, the investor should require a liquidity premium on their investments. Otherwise, they would choose a platform with a secondary market (Mendelson, Amihud, & Pedersen, 2013). Additionally, during times of recessions, Bond holders should expect increased illiquidity costs, meaning it takes more time and require bigger discounts to sell bonds than is explained by increased default risk (Bao, Pan, & Wang, 2011). Observations suggest that this is true within crowdfunding as well, and perhaps the effect is even stronger than in traditional bond markets. Therefore, crowdfunding investments could lose more value in times of recession, compared to more liquid instruments.

Concentration risk adds further to the age-old advice of not to putting all eggs in one basket. However, concentration risk also takes into consideration the covariance of the baskets. As many crowdfunding platforms tend to be concentrated towards loans or equity projects that are correlated through common factors such as geography, industries, currencies etc. (Hibbeln, 2010), it is not advisable to invest a significant part of an individual's total wealth through the same platform. However, as crowdfunding grows in popularity, the platforms will hopefully offer additional diversification options. Until then, investors could lower concentration risk by spreading their investment across multiple platforms. However, the investor should be aware that doing so incurs additional search costs, as finding the right platform takes additional effort. The incurred search costs would have to be offset by the diversification benefits, for this strategy to make sense.

In the last part of our paper, we examined the loan book of funded loans from the crowdlending platform Flex Funding, from which we were able to observe a default risk premium, in alignment with our expectations (French & Fama, 1993). Investors taking on a higher risk of default were rewarded with a premium in terms of expected return. Since the credit risk for smaller firms on average is more uncertain compared to that of larger firms, we would expect to see a small firm premium (Molyneux, 2017). However, from the observed data, there were no indication of such premium. Lastly, we also expected to see evidence of a term premium. It should be expected that bonds with longer maturity yields an higher interest rate compared to bonds with shorter maturity, all else being equal (Kim &

Orphanides, 2007). However, similarly to the small firm premium, there were no indications of a term premium in the examined data.

In conclusion, as crowdfunding continues to become more prevalent for Danish investors, it is vital that the investors are aware of the associated risks. Being aware of the major risk areas can prevent investors making costly mistakes. Through our paper we have highlighted the most impactful risks concerning investments made through crowdfunding platforms, and by doing so helping future and current crowdfunding investors make more informed decisions.

Bibliography

Ackert, L., & Deaves, R. (2009). *Behavioral Finance: Psychology, Decision-Making, and Markets.* Cengage Learning, Inc .

Adrian, T., Crump, R. K., & Moench, E. (2013). Pricing the term structure with linear regressions. *Journal of Financial Economics*, 110-138.

Akerlof, G. (1970). The Market for "Lemons": Quality Uncertainty and the Market Mechanism. *The Quarterly Journal of Economics, Vol. 84, No. 3.*, 488-500.

Anders Karlsson, L. N. (2007). Home sweet home: Home bias and international diversification among individual investors. *Elsevier*, 317-333.

Arnold, D., & Jeffery, P. (2014, September 13). Disrupting Banking. *Business Strategy Review, Vol. 25.*, pp. 10-15.

Arrow, K. J. (1968). The Economics of Moral Hazard: Further Comment. *The American Economic Review, Vol. 58, No. 3, Part 1*, 537-539.

Bank of England. (2020, February 27). *Interest rates and Bank Rate*. Retrieved from https://www.bankofengland.co.uk/monetary-policy/the-interest-rate-bank-rate

Bao, J., Pan, J., & Wang, J. (2011). The Illiquidity of Corporate Bonds. *American Finance Association*, 911-946.

Barnes, S. (2015, February 9). PEER-TO-PEER LENDING—DISRUPTION FOR THE BANKING SECTOR? *International Banker* .

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management Vol. 17 no. 1*, 99-120.

Basel Committee on Banking Supervision. (2006). *International Convergence of Capital Measurement and Capital Standards A Revised Framework Comprehensive Version.* Basel: Bank for International Settlements.

Basel Committee on Banking Supervision. (2010). *Basel III: A global regulatory framework for more resilient banks and banking systems.* Basel: Bank for International Settlements.

Black, F., & Scholes, M. (1973). The Pricing of Options and Corporate Liabilities. *The Journal of Political Economy, Vol. 81*, 637-654.

Blaseg, D., & Koetter, M. (2015). *Friend or Foe? Crowdfunding versus Credit when Banks are Stressed.* Halle : Halle Institute for Economic Research (IWH) .

Børsen. (2016, April 12). Låneplatformen Lendino vokser og sender stifter og adm. direktør på porten.

Boscia, V., Stefanelli, V., & Ventura, A. (2018). Are There Differences in Boards of Directors Between Banks and Non-financial Firms? Some Evidence from EU Listed Companies. In B. D. Diaz, S. O.

Idowu, & P. Molyneux, *Corporate Governance in Banking and Investor Protection* (pp. 91-106). Cham, Switzerland: Springer International Publishing.

Bottiglia, R. (2016). Competitive Frontiers in P2P Lending Crowdfunding. In *Crowdfunding for SMEs* (pp. 61-92). Palgrave Macmillan.

Brealey, R., Myers, S., & Allen, F. (2017). *Principles of Corporate Finance .* Mcgraw-hill.

Brickshare . (2018). *Årsreport 2017.* Brickshare .

Brickshare . (2019). *Årsreport 2018.* Brickshare.

Brickshare . (2020, March 11). *FAQ*. Retrieved from Brickshare Corporate Website: https://brickshare.dk/faq

Brickshare . (2020, March 11). *Projekter* . Retrieved from Brickshare Corporate Website: https://brickshare.dk/investeringsprojekter

Brickshare. (2019). *Væsentlig investorinformation.*

Brickshare. (2020, April 9). *Holdet bag Brickshare* . Retrieved from https://brickshare.dk/holdet-bag-brickshare

Brueggeman, W. B., & Fisher, J. D. (2010). *Real Estate Finance and Investments .* New York: McGraw-Hill .

Campbell, J. Y., & Viceira, L. M. (2005). The Term Structure of the Risk–Return Trade-Off. *Financial Analysts Journal, Vol. 61*, 34-44.

Carr, D. (2010). Determinants of the Yield Curve - A Model for the Relationship between Risk and Yield. *Journal of Financial Transformation, Vol. 26*, 79-84.

Chen, L., Lesmond, D. A., & Wei, J. (2007). Corporate Yield Spreads and Bond Liquidity. *The Journal of Finance Vol. LXII, No. 1*, 119-149.

Chorafas, D. N. (2005). *The Management of Bond Investments and Trading of Debt.* Burlington, MA: Elsevier Butterworth-Heinemann.

Dahlman, C. J. (1979). The Problem of Externality. *The Journal of Law & Economics, Vol. 22, No. 1*, 141-162.

Danish Ministry of Industry, Business and Financial Affairs . (2018). *Strategy for Denmark's Digital Growth.* Government of Denmark.

Dankel, A., & Andersen, A. P. (2015). *Why high-yield corporate bonds are attractive in a low interest rate environment.* Danske Capital .

Danmarks national bank. (2020, February 27). *Officielle rentesatser*. Retrieved from http://www.nationalbanken.dk/da/markedsinfo/officiellerentesatser/Sider/default.aspx

Danmarks Statistik. (2020, March 12). *The families possession of home appliances by type of consumption and: Smartphones*. Retrieved from StatBank.

Dansk Erhverv . (2019). *Iværksættere går glip af muligheder for investeringscrowdfunding .* Dansk Erhverv .

Demsetz, H. (1968). The Cost of Transacting. *The Quarterly Journal of Economics, Vol. 82, No. 1*, 33-53.

Dennison, T. (2018). *Invest Outside the Box: Understanding Different Asset Classes and Strategies.* Palgrave Macmillan.

Dhaliwala, D., Judd, S., Serfling, M., & Shaikh, S. (2016). Customer concentration risk and the cost of equity capital. *Journal of Accounting and Economics vol. 61* , 23-48.

Dietrich, A., Amrein, S., von der Heyde, F., Heuermann, A., & Rüdisühli, M. (2019). *Crowdlending Survey 2019.* PWC.

Edelman. (2019). *2019 Edelman Trust Barometer.*

Estonian Police and Border Guard Board. (2020, January 31). *Were Envestio and Kuetzal a fraud?* Retrieved from Estonian Police and Border Guard Board Organizational Website: https://www.politsei.ee/en/news/were-envestio-and-kuetzal-a-fraud-1151

European Central Bank. (2020, February 27). *Key ECB interest rates*. Retrieved from https://www.ecb.europa.eu/stats/policy_and_exchange_rates/key_ecb_interest_rates/html/index.en.html

European Crowdfunding Network . (2020, january 22). *ECN reports Kuetzal and Envestio to National Conduct Authority*. Retrieved from European Crowdfunding Network Organizational Website : https://eurocrowd.org/2020/01/22/ecn-reports-kuetzal-and-envestio-to-national-conduct-authority/

EY Reporting. (2019, June 28). Why good corporate governance still matters in private companies.

Fabozzi, F. J. (2007). *Fixed Income Analysis .* Hoboken, N.J.: Wiley.

Fama, E. F., & French, K. R. (1992). The Cross-Section of Expected Stock Returns. *The Journal of Finance, Vol. 47, No. 2*, 427-465.

Fiegener, M. K., Brown, B. M., Dreux, D. R., & Dennis, W. J. (2000, July 1). CEO Stakes and Board Composition in Small Private Firms. *Entrepreneurship Theory and Practice Vol. 24*, pp. 5-24.

Finans Danmark . (2020, April 10). Fit & Proper - god governance i finansielle virksomheder . Copenhagen, Denmark.

Finanstilsynet . (2020, May 13). *Finanstilsynets virksomhedsregister*. Retrieved from https://virksomhedsregister.finanstilsynet.dk/

Firla-Holme, R. (2019, March 18). *Et interview med Kameo*. Retrieved from Pengepugeren: https://pengepugeren.dk/2019/04/interview-med-kameo/

Fisher, I. (1930). *The Theory of Interest, as determined by Impatience to Spend Income and Opportunity to Invest it .* New York: Macmillan.

Flex Funding . (2018). *Årsreport 2017.* Flex Funding .

Flex Funding . (2018). *Vilkår og betingelser for Flex Fundings formidling og administration af lån.* Flex Funding .

Flex Funding . (2020, May 13). *Frontpage of Corporate Website* . Retrieved from Corporate Website : www.flexfunding.com

Flex Funding . (2020, April 19). *Gennemførte Lån*. Retrieved from https://new.flexfunding.com/flexfunding/marketplace/closed-auctions

Flex Funding . (2020, May 13). *Pricelist*. Retrieved from Flex Funding Corporate Website : https://documents.flexfunding.com/documents/dk/da/pricelist.html

Flex Funding . (2020, March 19). *Tilgængelige lån*. Retrieved from https://new.flexfunding.com/flexfunding/dashboard/new-loans

Flex Funding . (2020, May 13). *Vilkår og Betingelser for Långivere*. Retrieved from Flexfunding corporate Website : https://documents.flexfunding.com/documents/dk/da/terms-and-conditions-for-lenders.html

Flex Funding . (2020, March 20). *Vilkår og betingelser for Låntagere* . Retrieved from Flex Funding Corporate Website : https://documents.flexfunding.com/documents/dk/da/lending-terms-and-conditions-for-borrowers.html

Flex Funding. (2019). *Årsreport 2018.* Flex Funding.

Flex Funding. (2020, April 9). *Om Flex Funding*. Retrieved from https://flexfunding.com/om-flex-funding/

Flex Funding. (2020, March 26). *Sekundært Marked*. Retrieved from Lendino Investment Platform : https://new.flexfunding.com/flexfunding/marketplace/secondary-market

Frederiksen, K. M. (2020, March 24). Lendino Thesis Interview. (J. Granlund, & M. Hansen, Interviewers)

French, K. R., & Fama, E. F. (1993). Common Risk Factors in the Returns on Stocks and Bonds. *Journal of Financial Economics vol. 33*, 3-56.

Funk, A. S. (2019). *Crowdfunding in China: A New Institutional Economics Approach.* Springer International Publishing.

Gatev, R. (2020, January 22). *The fall of Envestio - Some technical evidence*. Retrieved from GatevNotes: https://www.gatevnotes.com/envestio-technical-evidence/

Giddens, A. (1990). *The Consequences of Modernity* . Stanford: Stanford University Press.

Gleasure, R., & Feller, J. (2016). Emerging technologies and the democratisation of financial services: A metatriangulation of crowdfunding research. *Information and Organization Vol. 2*, 101-115.

Goddard, J., & Marcum, B. (2012). *Real Estate Investment: A Value Based Approach.* Springer .

Gorton, G., & Winton, A. (2003). Financial intermediation . In G. M. Constantinides, M. Harris, & R. M. Stulz, *Handbool of the economics of finance* (pp. 431-552). Elsevier.

Grupeer. (2020, March 31). *Statement From Grupeer*. Retrieved from Grupeer Corporate Website: https://www.grupeer.com/blog/statement-from-grupeer/

Haldane, A. (2016). Is there an Industrial Revolution in Financial Services? *Joint Bank of England/London Business School Conference.*

Han, S. (2011). *Web 2.0.* Routledge.

Harrington, O. (2019, December 10). *Has Kuetzal lent €850,000 to a fake petrol company?* Retrieved from Explore P2P: https://explorep2p.com/alborg-petrol/

Harrington, O. (2019, December 19). *More questions emerge about Kuetzal*. Retrieved from Explore P2P: https://explorep2p.com/kuetzal-questions/

Havrylchyk, O. (2018). *Regulatory Framework for the Loan-based Crowdfunding Platforms.* OECD.

Havrylchyk, O., Mariotto, C., Rahim, T., & Verdier, M. (2016). What drives the expansion of the peer-to-peer lending?

Heath, C., & Soll, J. B. (1996). International Journal of Law in Context,. *Journal of Consumer Research, Vol. 23, No. 1*, 40-52.

Hendrikse, G. (2003). *Economics and Management of Organizations .* Berkshire: McGraw-Hill Education.

Hibbeln, M. (2010). *Risk Management in Credit Portfolios - Concentration Risk and Basel II.* Braunschweig: Physica-Verlag.

Jarrow, R. A. (1978). The Relationship between Yield, Risk, and Return of Corporate Bonds. *The Journal of Finance vol. 33, issue 4*, 1235-1240.

Jensen, R. M. (2016, Juni 7). *Betalingstjenester og e-penge - nye krav om sikring af brugernes midler*. Retrieved from Plesner Corporate website: https://www.plesner.com/insights/artikler/2016/06/betalingstjenester-og-e-penge-nye-krav-om-sikring-af-brugernes-midler?sc_lang=da-DK&fbclid=IwAR21AqgjJ-lPGGjeMuRtFEulBTzvztvSTi7GVXg2rWpte5kPL0smDM5h9V0

John, K., Saadi, S., & Zhu, H. (2015). Liquidity Risk. In K. H. Baker, & G. Fillbeck, *Investment Risk Management.* Oxford Scholarship Online.

Jørgensen, T. (2018). Peer-to-Peer Lending – A New Digital Intermediary, New Legal Challenges. *Nordic Journal of Commercial Law* , 232-258.

Joseph, C. (2013). *Advanced Credit Risk Analysis and Management .* West Sussex: Wiley.

Kallberg, J. G., & Udell, G. F. (2003). The value of private sector business credit information sharing: The US case . *Journal of Banking & Finance 27*, 449–469.

Kameo. (2017). *Årsreport 2016.* Kameo.

Kameo. (2018). *Årsreport 2017.* Kameo.

Kameo. (2019). *Årsreport 2018.* Kameo.

Kameo. (2020). *Årsreport 2019.* Kameo.

Kameo. (2020, May 13). *Frontpage of Corporate Website*. Retrieved from Kameo Corporate Website : www.kameo.dk

Kameo. (2020, March 10). *Gebyrer* . Retrieved from Kameo Corporate Website : https://www.kameo.dk/Om-tjenesten/Gebyrer

Kameo. (2020, March 19). *Kreditrisiko forbundet med investering i virksomhedslån*. Retrieved from https://www.kameo.dk/Risiko-og-kreditanalyse

Kameo. (2020, April 9). *Om Kameo*. Retrieved from https://www.kameo.dk/Om-Kameo

Kameo. (2020, March 10). *Seneste Projekter*. Retrieved from Kameo Corporate Website: https://www.kameo.dk/investeringer-med-hojt-forventet-afkast

Kim, D. H., & Orphanides, A. (2007). The bond market term premium: what is it, and how can we measure it? *BIS Quarterly Review*, 27-40.

Kirkegaard, F. K. (2019, Maj 24). Stifter sælger ejerskab i den alternative investeringsplatform Brickshare. *Politiken Byrum*.

Kortleben, H., & Vollmar, B. (2012). Crowdinvesting, an innovative option for start-up financing? *7th European conference on innovation and entrepreneurship.*

Laffont, j.-j., & Martimort, D. (2002). *The theory of incentives: the principal-agent model.* New Jersey : University Presses of California, Columbia and Princeton.

Lendino . (2018). *Årsreport 2017.* Lendino.

Lendino . (2020, April 28). *Få et erhvervslån*. Retrieved from Lendino corporate website: https://www.lendino.dk/businesses

Lendino. (2016). *Årsreport 2015.* Lendino.

Lendino. (2019). *Årsreport 2018.*

Lendino. (2020). *Årsreport 2019.*

Lendino. (2020, April 10). *Holdet bag*. Retrieved from https://www.lendino.dk/about/team

Lendino. (2020, May 12). *Network Loan*. Retrieved from Lendino Corporate Website: https://www.lendino.dk/networkloan

Lendino. (2020, May 12). *Projects*. Retrieved from Lendino Corporate Website : https://www.lendino.dk/projects

Lendino. (2020, March 19). *Sådan tildeles kreditklasser*. Retrieved from https://www.lendino.dk/howitworks/creditclasses

Linkedin. (2020, April 10). Retrieved from http://Linkedin.com

Lintner, J. (1965). The Valuation of Risk Assets and the Selection of Risky Investments in Stock Portfoliosand Capital Budgets. *The Review of Economics and Statistics, Vol. 47, No. 1*, 13-37.

Marwitz, H. (2020, January 22). *Envestio has vanished*. Retrieved from Explore P2P: https://explorep2p.com/envestio/

Mendelson, H., Amihud, Y., & Pedersen, L. (2013). *Market liquidity: asset pricing, risk, and crises.* Cambridge: Cambridge University Press.

Merton, R. C. (1973). Theory of Rational Option Pricing. *The Bell Journal of Economics and Management Science, Vol.4(1)*, 141-183.

Mintos. (2020, March 31). *Introducing a fee for selling loans on the Secondary Market*. Retrieved from Mintos Corporate Website : https://blog.mintos.com/introducing-a-fee-for-selling-loans-on-the-secondary-market/

Mintos. (2020, May 10). *Statistics* . Retrieved from Mintos.com: https://www.mintos.com/en/statistics/

Molyneux, P. (2017). *Access to Bank Credit.* Palgrave Macmillan.

Nehme, M. (2017). The rise of crowd equity funding: where to now? *International Journal of Law in Context Vol. 13*, 253-276.

Nordby, R. D. (2019). Other Risks Associated with Debt Securities . In K. H. Baker, G. Filbeck, & A. C. Spieler, *Debt Markets and Investments* (pp. 63-80). New York, NY: Oxford University Press.

North, D. (1992). *Transactions Costs, Institutions, and Economic Performance.* San Francisco : International Center for Economic Growth.

North, D. C. (1987). Institutions, Transaction Costs and Economic Growth. *Economic Inquiry Vol XXV,*, 419-428.

OECD . (2019). OECD Economic Surveys: Denmark 2019. OECD Publishing.

Orca Money. (2017). *The Growth & Development of Peer to Peer Lending: Mega Trends, Trends and More.* Belfast.

Oshiro, N., & Saruwatari, Y. (2005). Quantification of sovereign risk: Using the information in equity market prices. *Emerging Markets Review Vol.6* , 346-362.

Oxford Learner's Dictionaries. (2020, May 12). *crowdfunding*. Retrieved from Oxford Learner's Dictionaries: https://www.oxfordlearnersdictionaries.com/definition/english/crowdfunding

P2P Conference. (2020, May 12). *P2P Conference Riga 2020*. Retrieved from https://p2pconference.com/

P2P Crowdlending. (2020, April 14). *Kuetzal Shutting Down?* Retrieved from P2P Crowdlending: https://p2pcrowdlending.com/en/kuetzal-shutting-down-en/

Pástor, Ľ., & Stambaugh, R. F. (2003). Liquidity Risk and Expected Stock Returns. *Journal of Political Economy, Vol. 111, No. 3*, 642-685.

Pauly, m. V. (1968). The Economics of Moral Hazard: Comment. *The American Economic Review Vol. 58, No. 3, Part 1*, 531-537.

Perloff, J. (2016). *Microeconomics.* Pearson Education UK.

Perloff, J. M. (2012). *Microeconomics.* Pearson.

PRI Association. (2013). *Principles for Responsible Investments.* London.

Rasmussen, J. (2020, April 3). Flex Funding Thesis Interview. (J. Granlund, & M. Hansen, Interviewers)

Roed Nielsen, K. (2019, June 26). Crowdfunding as a cooperative movement – The present and future of crowdfunding in Denmark. Retrieved from Copenhagen business School: The Business of Society: http://www.bos-cbscsr.dk/2019/06/26/crowdfunding-as-a-cooperative-movement/

Roed Nielsen, K. (2019, December). Crowdfunding i Danmark: Fra niche til mainstream finansiering. *økonomi & Politik #4*, pp. 80-99.

Ross, S. A. (1973). The Economic Theory of Agency: The Principal's Problem. *The American Economic Review Vol. 63, No. 2*, 134-139.

Rudebusch, G. D., & Swanson, E. T. (2008). Examining the bond premium puzzle with a DSGE model. *Journal of Monetary Economics*, 111-126.

Schmidt, L., & Toxvig, J. H. (2019). *Penny Reporten 2019.* Moneypenny and More .

Seedrs. (2020, May 12). *Help - Seedrs*. Retrieved from Seedrs Corporate Website: https://help.seedrs.com/en/articles/1913261-types-of-equity

Seedrs. (2020, May 12). *Invest* . Retrieved from Seedrs Corporate Website : https://www.seedrs.com/learn/help/what-is-the-minimum-and-maximum-investment

Seedrs. (2020, May 12). *Secondary Market*. Retrieved from Seedrs Corporate Website : https://www.seedrs.com/secondary-market

Shah, S. N. (2014). *The principal-agent problem in finance.* The CFA Institute Research Foundation.

Sharpe, W. F. (1964). Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk. *The Journal of Finance, Vol. 19, No. 3*, 425-442.

Shkedi, I. (2020, March 30). *Grupeer: Another Scam*. Retrieved from Colminey : https://colminey.com/grupeer-critical/

Social Lender . (2020, May 12). *About Us*. Retrieved from Social Lender corporate Site: https://www.sociallenderng.com/

Spence, M., & Zeckhauser, R. (1971). Insurance, Information, and Individual action. *American Economic Review, vol. 61, No. 2*, 380-387.

Statista. (2019, September). *Crowdfunding: Denmark*. Retrieved from https://www.statista.com/outlook/335/133/crowdfunding/denmark

Statista. (2020, March 12). Market size of crowdfunding worldwide in 2018 and 2025.

Strumeyer, G., & Swammy, S. (2017). *The Capital Markets: Evolution of the Financial Ecosystem.* Wiley.

Thaler, R. H., Tversky, A., Kahneman, D., & Schwartz, A. (1997). The Effect of Myopia and Loss Aversion on Risk Taking: An Experimental Test. *Quarterly Journal of Economics* , 647-661.

The Crowdfunding Center. (2020, March 12). The Crowd data center: Denmark.

The World Bank. (2020, 02 27). *Individuals using the Internet (% of population)*. Retrieved from https://data.worldbank.org/indicator/IT.NET.USER.ZS

Thomsen, S., & Conyon, M. (2019). *Corporate Governance and Board Decisions .* Copenhagen: Djøf Publishing .

Tzavalis, E. (2004). The term premium and the puzzles of the expectations hypothesis of the term structure. *Economic Modelling Vol. 21*, 73-93.

Virk. (2020, April 9). Retrieved from Virk Data: 2020

Wasserman, N. (2003). Founder-CEO Succession and the Paradox of Entrepreneurial Success. *Organization Science Vol. 14* , 149-172.

Wasserman, N., & Boeker, W. (2005). Mentoring and Monitoring: The Evolution of Boards of Directors in New Ventures. *the Babson Kaufmann Entrepreneurship Conference 2005.*

Williamson, S. D. (2008). *Macroeconomics .* Pearson.

With, L. (2020, May 7). Ny prognose: Europa har kurs mod "den dybeste recession i historien". *Borsen*.

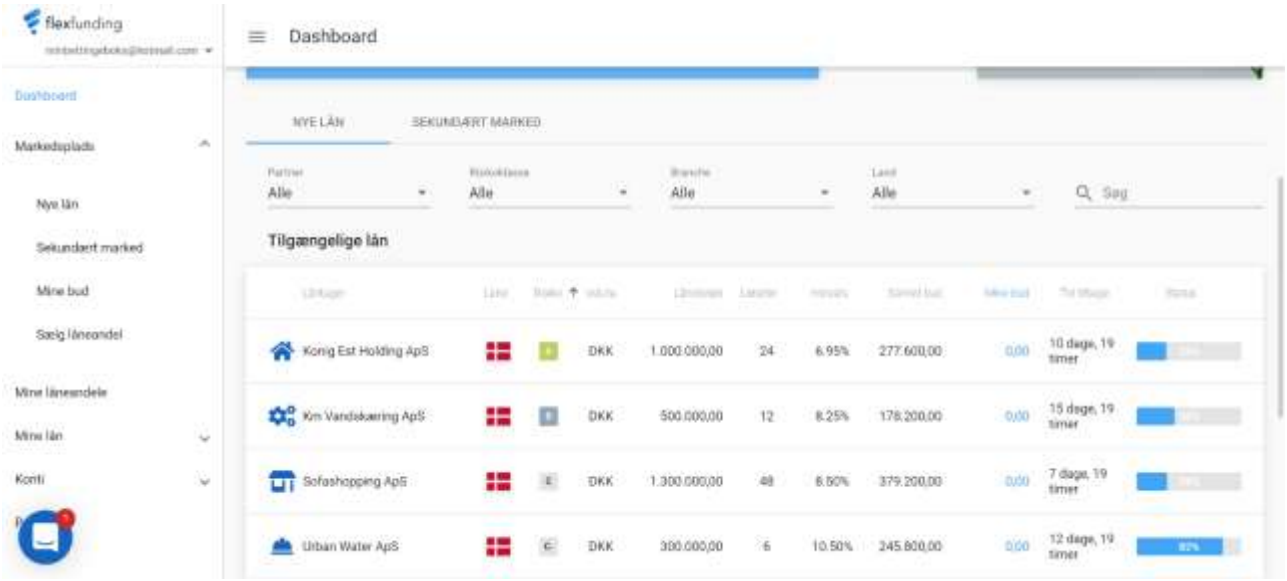
Wolf, J. (2019, 12 11). *Concerns about Kuetzal – Is Kuetzal a scam?* Retrieved from Financially Free: https://financiallyfree.eu/concerns-about-kuetzal-is-kuetzal-a-scam/

Yoshino, N., & Taghizadeh-Hesary, F. (2019). *Unlocking SME Finance in Asia: Roles of Credit Rating and Credit Guarantee Schemes.* Routledge.

Zweifel, P., & Manning, W. G. (2000). Chapter 8 - Moral Hazard and Consumer Incentives in Health Care. In *Handbook of Health Economics* (pp. 409-459). Amsterdam: Elsevier Amsterdam.

Appendices

Appendix 1 – Filtration options on Flex Funding's Platform



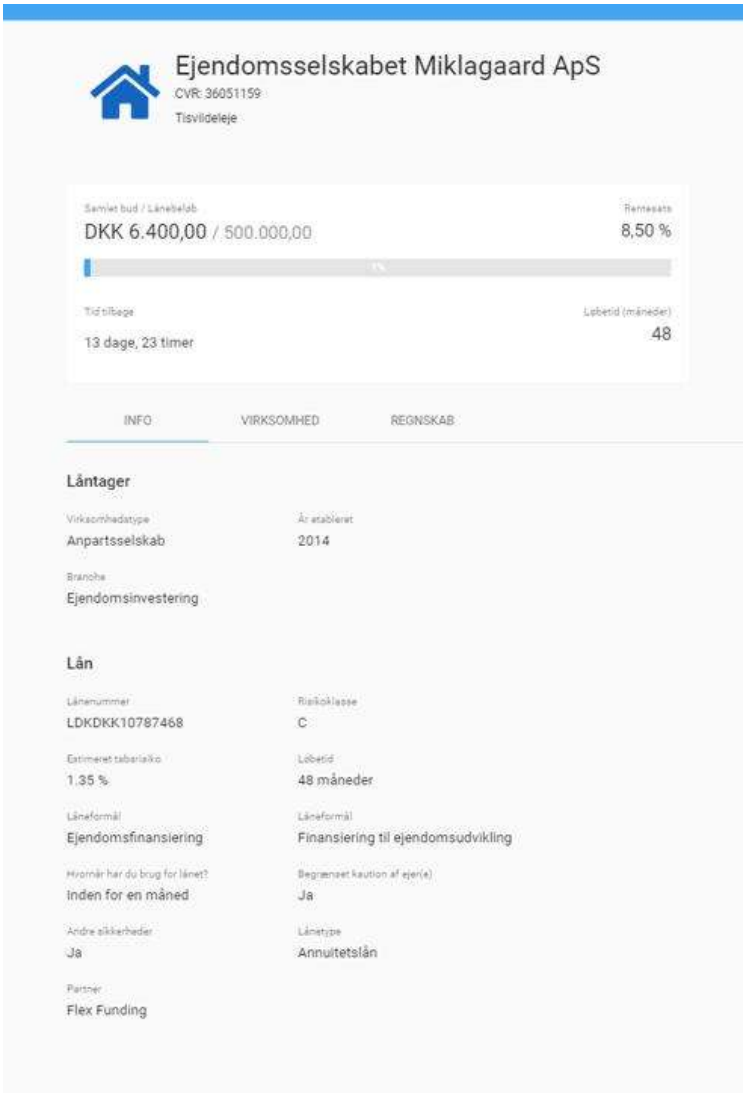
(Flex Funding , 2020)

Appendix 2 – Edelman Trust Barometer

Industry	2015	2016	2017	2018	2019	5yr. Trend
Technology	74	75	76	75	78	+4
Automotive	67	61	66	62	69	+2
Entertainment	64	65	65	63	68	+4
Food and beverage	64	65	68	64	68	+4
Telecommunications	60	61	64	64	67	+7
Consumer packaged goods	61	62	64	61	65	+4
Energy	57	59	63	63	65	+8
Financial services	49	53	55	55	57	+8

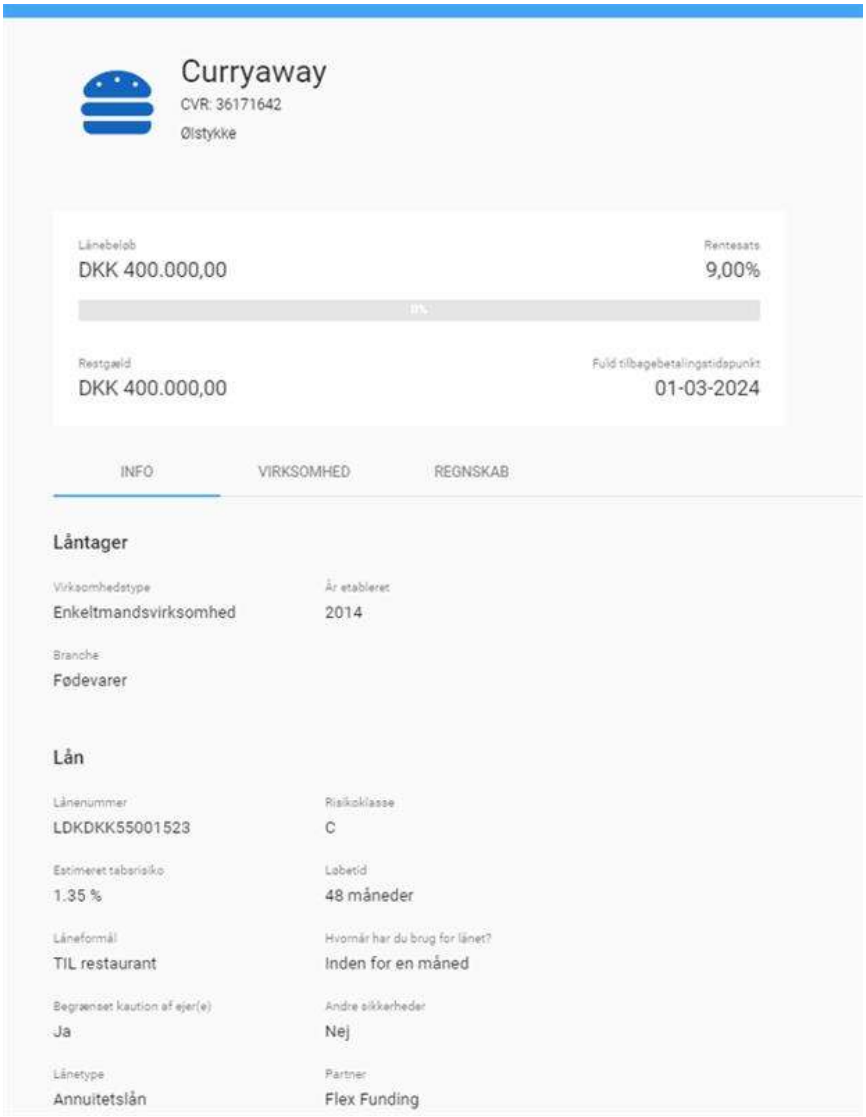
(Edelman, 2019)

Appendix 3 - Ejendomsselskabet Miklagaard ApS on The Primary Market



(Flex Funding , 2020)

Appendix 4 – Curryway on the Secondary Market



(Flex Funding, 2020)

Appendix 5 – Flex Funding Completed Loans Data Set

Attached as separate file.

Data obtained from (Flex Funding , 2020).

Appendix 6 – Transcribed Lendino Interview

Interviewee: Kristian Marker Frederiksen, Credit Officer – Lendino

Date: 24/03/2020

Length of Interview: 1 hour, 10 minutes, 50 seconds

In text reference: (Frederiksen, 2020)

Jakob: To provide you with an idea of what we would like to achieve with the paper, our goal is to examine the Danish crowdfunding market from an investor perspective. We want to examine what the opportunities are, and where there are found potential disadvantages and risks. We want to take a practical approach to the paper. The paper is written by myself, Jakob, and Michael. If you wish for the content of our conversation to be confidential, this will be an option, so please let us know. Just to be sure, we would like to make sure that it is alright with you, that the interview is being recorded.

Kristian: yes, that is alright, if you want to transcribe it for the paper.

Jakob: Perfect, thank you. Then we will get started with our questions.

Michael: Our first question is; crowdlending as a phenomenon, or industry, have experienced a quite impressive growth the past years, as I could imagine you at Lendino also have been able to feel. How do you see crowdlending evolve going forward?

Kristian: If just looking one year ahead, I am not certain how the development will be, but looking further ahead, I definitely think it will be a positive development. I think that we will continue to see some high growth rates within crowdlending in general.

Michael: Do you have any estimates for how high the experienced growth rates have been?

Kristian: That depends on how the growth is measured.

Michael: If measured on the volume of loans, that is how many there have been funded in DKK?

Kristian: If measured in [Danish] Crowns, there has not been observed growth per say, it has been a flat curve. However, that is a question of capacity. We simply can't handle more loan applications.

Jakob: Have you been able to feel the increased interest in P2P loans, do you for example get more and more applications each year?

Kristian: We get an increasing number of applicants constantly, and we also get a more steady flow of loan applicants.

Jakob: What elements do you think have been decisive in making P2P lending more attractive, and popular among the general public?

Kristian: I definitely think the interest rate level, has something to do with it, as they have been dropping for a long period of time. People do not want to sit with funds they aren't quite sure where to place, and then you find new possibilities and explore these. Crowdfunding as a phenomenon is not something new, it is just the technology, which has been developed, that makes it possible for people to raise capital in different formats and for different purposes. That is what mainly drives the popularity.

Michael: If you look at all the loan applicants who come to you, in a more stable and larger flow, what is it that you offer, that a traditional bank does not?

Kristian: We are not as large as an organization as a bank, which makes us more flexible. We can more quickly process and application. Furthermore, we are not subject to the same capital requirements as a bank is. A bank is typically subject to "tilsynsdiamenten" and the Basel requirements, pillar 1,2 and 3. They also have to fulfill LCR and the different capital requirements which a bank is subject to, and we are not subject to anything of that sort. We can avoid this, and offer people a favorable interest rate because we do no have to price all these different things in.

Michael: So it slims down the internal analysis, as you don't have to risk against you own equity, in the same manner [as the banks], is that correct?

Kristian: Yes, because it is not our own money which we lend to the borrowers, it is the lenders. So it is a different way of measurement.

Jakob: On the subject of the market development. The past couple of months have had enormous impact on many sectors. How do you think a possible recession, or a period of low economic activity, could impact the crowdlending market?

Kristian: what I personally believe, is that on the short term, it will have a hurtful effect. It will not be very positive for the investors to enter crowdlending in the short-term. However, in the long term I believe it is important that the industry foes through a recession, to be able to show people the data, and that you are able to have a portfolio and manage it through times of crisis.

Michael: Do you think that there will be a separation of the good from the bad platforms, in regards of handling of the crisis?

Kristian: yes, that is actually a very good point. Der there likely be a form of consolidation and separation, where some platforms are likely to default. I don't know if you have investigated the buy back guarantee, but especially the platforms with buy back guaranties, which do have a credit risk, I could imagine would have a tendency to default, if there is a lot of their borrowers who stop their payments. They are relying on these payments as their liquidity is dependent on their loan book.

Michael: Is it correctly understood, that you have 0% part of the loans? So you don't have any "skin in the game"?

Kristian: For practical, and legal, reasons we do buy one loan share. We do this so we can register borrowers in RKI, and some other reasons. But it is more of a formality. We don't buy more than 1,000

DKK. All of our employees who do invest through the platform must utilize the investment-agent, so they are not handpicking the loans. However, we are required to buy parts of the loans.

Michael: So employees have to use the investment-agent, or?

Kristian: Yes, exactly. If you as an employee want to invest in loans through Lendino, you have to use the investment robot, that is the investment-agent.

Michael: So when you buy a loan share, it is because you have to be a creditor for legal and practical reasons?

Kristian: In reality it is simply a formality, that we buy loan shares. It is not because we are exposed towards the loans ourselves, we are more in an agent, who merely administers the loans.

Jakob: Vi have talked a little about, the rise in popularity of crowdfunding, what do you see as the biggest advantages of investing in crowdfunding?

Kristian: It is an asset class, which previously have been reserved for the banks. It has now been systemized and provided access for investors. It is a product which has become more scalable, which can be traded as an investor. A asset class which has been made more transparent and available.

Jakob: What do you then see as the drawbacks and challenges of being an investor in crowdfunding?

Kristian: I could imagine, that there is a general lack of knowledge about crowdfunding. When something is new, you have to obtain knowledge about it. It may be difficult to separate the sheep form the goats. Especially, when there is as many platforms as there is in Europe. Then there will be people who take on risks they are not completely aware of. There are some new layers of risk, that you have to identify as an investor, especially on foreign platforms. It is risks which one may not be familiar with, at least not on foreign platforms.

Michael: Through your auto-invest, it is visible that some of your projects have been funded as quick as 3 seconds. Is there a risk that if you want to obtain loan shares, you will have to accept any loan available, or is there the option to build a diversified portfolio, where you have time to pick the loans?

Kristian: Yes, we are launching a secondary marketplace within the next 6 months. If there is a loan which you would like to buy additional shares of, because you find it as a good case, you will have the opportunity to do so. You also have the option to sell of part of your portfolio, if you are too exposed to for example restaurants, and buy for example more IT loans. Thereby you will be able to diversify your own portfolio, and you can look through the loans yourself, before buying or selling additional shares of loans.

Michael: How do you see the volatility within crowdlending, compared to for example the stock market. Also do you think it is less stable on a long term perspective?

Kristian: There is relatively high risk on loans to small and medium sized businesses, but in the long term it should provide a stable risk adjusted return, with a lower volatility than for example stocks.

Michael: But then also a lower return?

Kristian: Exactly, also a lower expected return.

Jakob: You mentioned that your organization is smaller and more agile, than a classic bank. How would you describe the composition of your organization? Are there any general trends of how the team behind a crowdfunding platform is comprised?

Kristian: It is called FinTech, and it is a combination of finance and IT people. I would estimate that half of employees have a finance educational background, while the other half has an IT educational background. And then people are educated to different degrees.

Jakob: When you also mentioned, that you are more agile, do you also then think, that you are a less bureaucratic organization compared to for example a traditional bank?

Kristian: Yes, It may be that we have not existed for that long, but that also makes us hungrier for acquiring customers, and we may be willing to stretch to get the customer on our books. The second thing is, When the customers come to us, they actually tell us, that they have been in talks with the bank. But it takes too much time, as it is too bureaucratic, and the amount of documentation which they need to provide the bank is too extensive. It is like they get strangled before the process is done. Then they apply with us, and after they get their loan proposal within a week or so, they sometime choose us, if we can beat the interest rate offered by the bank, or other parameters.

Michael: This so called information burden, what kind of information is it that they have to provide the banks with, they you don't need?

Kristian: It is not something which we know to a certain extend. We are just told that overall there is a lot of documents which they inquire. But we don't have concrete knowledge on it.

Michael: But you also conduct physical meetings with the borrowers, or is it mainly meetings over the telephone?

Kristian: we try to keep it as digital as possible. But personally I think that you lose something by not having physical meetings. To meet people physically gives something extra. It's basically a two fold story. There is the ability to be able to repay the loan, there we can look at the financial statements. Then there is also the will to repay the loan, this is the one which a physical meeting can help asses better, by looking people in the eyes. But in practice it is not something which is done with every borrowers.

Michael: How does the underwriting process run when you make a loan agreement with borrowers? Is it one person who is in charge for the credit assessment, which I assume it is not, but is one person able to underwrite agreements by themselves, or is it required that multiple people are involved?

Kristian: There is not one person, who per say, signs the agreement. We have internal processes with different loan amount brackets, and credit assessments, and we also have a credit committee. Basically it really depends on the underlying case.

Jakob: In regards to internal policies and processes, do you have anything from a regulatory level, or internal set up rules, which regulates independence of employees or the management from loan projects available for investment?

Kristian: We have actually incorporated such policies. If one is a near relative, economically involved, or otherwise involved, there is a couple of different statements. But it you in one form or another is unable to be objective, or affected by other incentives, then you don't get to be part of the processing of a case. Or you can be part of the process of handling the case, but you have to submit it to the credit committee.

Jakob: have you experienced cases where this has been relevant?

Kristian: yes, we actually have. Actually there is currently a case on the platform associated to a windmill project. It is an shareholder, who is also part of the board of directors of Lendino, who is whom is part of the project. In such cases the loan is processed without his input.

Michael: This credit committee, does it consist of board members, or who compromises it?

Kristian: it consists of both the management team, board of directors, operational employees. So three layers of the organization

Jakob: We have talked a little about the regulatory environment, what would you say the largest differences is between you, and traditional banks? Is there some regulation in which you really stand out compared to the traditional banks?

Kristian: For example the real estate exposure parameter of the "Tilsynsdiamant". That is a really good example of a borrower who applies for a loan related to a real estate project. But then the bank have to deny as they would exceed the threshold given by "Tilsynsdiamanten", however we do not encounter such a problem. We can give unlimited real estate loans as we are not subject to "Tilsynsdiamanten".

Michael: Could you imagine that in the future you would become subject to some similar regulation?

Kristian: yes, it is feasible to think that some form of regulation will be implemented. But I don't have any idea of what the regulation would look like.

Jakob: Could you also imagine, that there are differences in regards to other regulations that traditional banks are subject to, such as Know You Customer (KYC), are you also subject to something similar?

Kristian: yes, we are subject to a lot of the same in regards to KYC regulations, in that area there is a big overlap between us and the banks. Most financial institutions are subject to anti money laundering regulation, which also is very extensive at the moment. "Lov om finansielle virksomheder" is a very broad, and encompasses a lot of different regulation. I have looked at law proceedings a little bit over the past period, and there is actually a lot of banks who are missing proper anti money laundering measures, and a lot who are reprimanded by the authorities. There are also some of these quick-loan providers who have been reported to the police for not having proper internal controls and processes as you have according to "Lov om finansielle virksomheder".

Jakob: is there a difference in what information I you are required to provide investors, and you actually provide investors on your platform? Also, is it something which you can decide yourself?

Kristian: With the type of loan we are currently administrating, corporate loans, you don't have to provide a large informational basis. However, as soon as you start providing private loans, it would be a totally different informational basis which needs to be provided. It would also be some different regulatory areas in effect such as "kreditaftaleloven". Ultimately i would require a different informational basis.

Michael: In regards to the information you put up on your website for a project, is there any legal requirements for which information must be provided, or is that self-regulated?

Kristian: That is a really good question actually. I am not quite sure how it is regulated, but you could take basis in "kreditaftaleloven". It is also some of the same information as required there, which we provide on our platform. "kreditaftaleloven" only covers individual agreements, so it is a little more extensive in regards to corporate agreements.

Jakob: Are you subject to any limitations on how much risk you are allowed to take relative to your equity?

Kristian: Yes we are. We are subject to a number of compliance tasks. For example, every year we have to report some different volume figures to the Financial Supervision Authority. Right now we operate under which is called a restricted license as a payment provider, if we exceed any of the stipulated thresholds, in what is called paragraph 59, then we would have to upgrade our license, which we be quite costly for us.

Michael: Is this also an administrative burden?

Kristian: Yes, the upgraded license, would have more administrative tasks associated with it. You would have to extract and provide more figures, and there would also be a larger yearly fee to the Financial Supervisory Authority, I am pretty certain of. But there are a lot of different figures which needs reporting, the Financial Supervisory Authority requires a lot of reporting.

Michael: is all this regulation, quite unique for Denmark? Do you see lighter regulation elsewhere in Europe?

Kristian: I mainly familiarize myself with Danish law, so I am not able to provide a sophisticated answer for that.

Michael: is there any requirements for the fit and proper of your employees which differs from that of a traditional bank?

Kristian: if you for example are to sit on the board of directors of a bank, then you would also have to be fit and proper assessed and approved. Danske Bank recently tried to promote a director who were not fir and proper approved by the Financial Supervisory Authority. All of our board of directors and management team will also need to be fit and proper approved. In that sense we are regulated in a similar fashion.

Jakob: Is it also similar requirements for the fit and proper assessment?

Kristian: I would assume that it is different requirements. There is actually a quite good description on the Financial Supervisory Authority's website. It is the Financial Supervisory Authority who makes an assessment of a the applicant who is to become a member of the leadership team of a financial corporation, and then they either approve or they don't. You have to get all the key persons who sits in the leadership team or key employees.

Michael: it is must be relatively difficult as a newly started crowdfunding platform to fulfill al the regulatory requirements, in some sense this would benefit the traditional banks?

Kristian: It is both a advantage and disadvantages with substantial regulation. For newly started companies, it is not very pleasant, that you have to live up to all these requirements. However, once you are established then it serves as an advantage, as it makes it more difficult for others to access the market.

Jakob: That sounds to a certain extent what you know from the traditional bank world, which is characterized by monopolistic competition, and is hard market to enter and get established in. is this similar to the crowdlending industry, where the platforms who get established the quickest will dominate the market?

Kristian: You could have that as a worst case scenario, that some very large companies decides to suddenly enter the crowdfunding market, instead of opening a bank which is extremely expensive to open and run, there are huge costs associated alone with the licensing of a bank. Where crowdfunding platform is relatively cheap to run.

Jakob: Could you imagine that some of the established banks would venture into the crowdfunding scene, by creating their own platforms, and challenge some of the existing platforms such as yourself?

Kristian: yes, definitely. A thing which is interesting with the banks, is that if they create a crowdfunding platform where they loan out money, they would cannibalize some of their own market. It may not be the crowdlending market which they would enter, but they may make a donation-platform, a Kickstarter type of thing. By doing so there would be some synergy effects. If they decide to so there would probably also be observed some new economic ecosystems where platforms would exists where you after having obtained one form of financing, would be able to get additional financing because someone have already approved you.

Jakob: This would also be quite attractive for the borrowers, that if you make it past the first step additional funding is guaranteed?

Kristian: Definitely, if there is bank advisor who isn't quite sure whether he feels confident in providing a loan to a company, then the company would be able to able to raise capital through the banks crowdfunding platform, where people could buy the product, and this way you would also be able to obtain proof of concept, by seeing if people are willing to buy the product. Which could provide confidence for the banker when deciding on providing a loan or not.

Michael: Coop also runs their reward crowdfunding platform in a similar manner, to obtain proof of concept?

Kristian: Yes, I can actually provide information on Coop's platform as well as we make the technology for their platform. Therefore I also know everything which is going on there. However, they run reward campaigns really well. There are also loans, however these are less popular, and the applicants have been very large businesses such as These, very credit worthy applicants, and therefore a very low offered interest rate associated with the loans.

Jakob: If we look at the individual loan. Can you then from a high level perspective outline how you arrive at the offered interest rate?

Kristian: When you assess the loans it is on a case by case basis, so there are a lot of variables to account for. It is simply put, just to take all the variables and construct a rate form these. These are variables such as company lifetime, if it is a company which haven't been around for long, then the interest rate will be higher, which his one parameter. If there are securities attached, then this will push the rate downwards. You constantly have to strike a balance between the variables weighing upwards and downwards. We also use a Z-score model to be able to price the loans, and asses whether we should deny a loan case. Then we also look the borrowers up in the RKI registrar. We also look at where people are based out of, as your zip code can have a effect on the likelihood of one being in the RKI registrar, according to the data. There are a lot of ways In which to rate the borrowers, and we utilize different tools. However, I can't really go in to further detail due to confidentiality.

Michael: it seems like you process is quite similar to that of a traditional bank?

Kristian: yes, it is largely the same things which we examine. We look at the financial statements, tax filings, salary papers, budgets, account statements, mortgage status, all kinds of information as such the bank would also inquire.

Jakob: So it also this information which are utilized to reach the credit rating?

Kristian: Yes, exactly. But then again there will on a case by case basis be exceptions in one case to another.

Jakob: What kind of exceptions could that be?

Kristian: If you for example have a C/O address, then it is not favorable, and we would ask the borrower why that is the case, or simply just price it in the rate. However it would likely lead to a higher interest rate. There is also data such as telephone number. If you telephone number is a prepaid number, it will draw down in the rating. There are a lot of different things which are assessed. It is something which we inquire into if things doesn't seem as they should, but there can also be things which are hard to go into deep detail of as we have limited time. There can be certain factors which we decide we can live with, but then adjust the rate upwards.

Michael: Is it your impression that you able to offer a better price on the rates than your competitors, which must consist of both other crowdfunding platforms and traditional banks? Is there a harsh competition?

Kristian: It is a super interesting question, but also difficult to answer. I know that we lose cases every now and then. There is definitely competition in the market, however sometimes people do not tell us the other rates which they have been offered. Sometimes though the difference is down to a half to one percentage point which makes the difference between the offered rates. A loan is similar to buying milk in a way, it costs the same almost regardless of where you get it, and you get milk regardless of where you get it. You could say that if you choose crowdfunding, then you will get some free marketing on our platform with the loan, which you won't at the bank. So there are a couple of parameters where we can compete with the banks. But overall, it is basically the same rate offered by almost all providers. We have cases where people apply for a loan with us, and then the next day we can see they have been given a loan by Flex Funding for example.

Jakob: Could this also have something to do with the different platforms willingness to accept risk? Maybe you are more strict in your credit assessment compared to other platforms? So it becomes a question of risk you are willing to accept?

Kristian: Yes, exactly. One thing is the competition. But the other thing is that you can't compromise on your internal credit processes, otherwise it is meaningless. The risk you are willing to take, have to be in accordance with the internal credit policies. Sometimes we also receive loan applications and therefore, have insider knowledge, where the case is subsequently posted on another platform, and we wonder what the platform have based the approval on, as it didn't seem as an interesting case to us. But that also provides transparency in the market.

Michael: I am able to see that some of the loans on your platform has been funded within minutes by your auto-invest, do you feel a pressure to constantly provide new loan opportunities, so the investors money aren't standing idle? Are there people contacting you asking for higher volume?

Kristian: As an investor you take on the risk when depositing money on the Lendino platform, as we are not subject to the "indskuds og garanti formuen". `That is if you deposit your money in a bank, in case of default, you will get your money back up until 100,000 EUR. However, you will not be subject to that on our platform, because we don't have a security account for the funds. However, it does put a lot of pressure on us that there is high demand for the loans, and the supply is so slim. That is also part of the balance between accepting loans and having a strict credit policy, however you should also be able to provide loans.

Jakob: Is there some groups of variables which are weight more highly when doing the assessment?

Kristian: That's a good question. As a base case, a company should be operate at a profit, if they don't that is a bad signal. A negative equity post is also a bad signal. So is a low solvency ratio, as well as a lot of debt. We examine the whole balance quite extensively, especially what the asset base is comprised of. Also what type of debt they have on the books, and whether it is a lot of different debt posts. You can make a lot of calculations on this. But the financial data weighs highly. It is also this data which is basis for the loan, and then the budget. The budget is quite interesting as you move into a subjective are. We do take a stance on the quality of the budget, which also has an effect, and we have some minimum requirements. Sometimes if we see a budget which is missing something which we deem

definitely should have been included, then we will adjust the rate upwards. Otherwise we will inquire into it.

Michael: you also mentioned, that you utilize a Z-score model, is it a specific kind of Z-score model, or one developed internally?

Kristian: It is Altman's Z-Score

Jakob: How much of the information used to assess the borrowers are provided to the investors?

Kristian: As investor you only get access to public CVR data, but we do have a loan forum where you can ask questions.

Jakob: Would you also be able to see the budget?

Kristian: Not necessarily, however you can ask the borrower if they would agree to upload it.

Michael: The interest rate offered to investors, is that the rate which is offered to the borrowers with you fees added?

Kristian: yes, we take the gross rate offered to the borrower, and then deduct it with Lendino's payment fees, which typically is 1%, and then the rest is given to the investor.

Jakob: So the typical spread is 1% more or less?

Kristian: yes, 1% to 1.5%

Jakob: You also provide estimates for expected return and expected loss probabilities. What methodology is used to estimate these?

Kristian: That is to do with the interest rate, it fits together. If there is a low default probability, then there is likely personal or other security in the loan, stable cash flow, and possibly dividends.

Jakob: The estimated default probability given, is that based on historic data?

Kristian: You could easily do so, however we currently do not. This is because we currently do not have a large sample size of data. However, as soon as we get closer to 1,000 loans, I would think you could begin to utilize historic data as well.

Michael: have you been evaluating on how well the estimated defaults fits with the reality?

Kristian: Yes, we do this on an ongoing basis. We follow the entire loan book on monthly meetings

Michael: Do you have an idea of how well the estimates have performed so far? Is the actual default above or below the estimates?

Kristian: AS far as I remember, then the C- rated loans have underperformed, but we also have adjusted our credit policy according to this. Otherwise I believe the other estimates have been fairly accurate. We have also discussed a couple of times whether to release the data when the sample size becomes

greater. Right now for example there are not a lot of A+ and A rated loans, and it would be improper to release the data if there are only 20 or 50 loans. It simply wouldn't be statistically significant.

Michael: How do you expect that you would adjust your processes in accordance with the possible recession ahead. Are you going to make your credit assessments even more strict, or increase the default probabilities?

Kristian: Right now we are monitoring the situation closely, but there are a lot of theoretical methods which can be utilized. There is something called TDC, and some other methods in which you can estimate how to price rates through a recession. Right now we are careful with issuing new loans, because there is a lot of uncertainty about the situation, which makes one more careful. However, it is something that we evaluate how we should handle. I don't think we necessarily will be making changes to our credit policy, it may be that there is a statement tomorrow that it [Covid-19] may not be as bad as first expected, and then the changes for be for nothing.

Michael: It also sounds like that you also consider macro-economic figures in your credit assessment?

Kristian: yes, because we look at macro-economic figures such as inflation etc. We are forced to do so, as if there is high expected inflation, we have to price it in the interest rate. So such figures are automatically part of the assessment.

Jakob: When an investor uses your platform, how is their capital then protected? For example when a borrower defaults?

Kristian: if you deposit money on to your Lendino account, then you will not be subject to "af indksuds og garanti formuen", So in case of a default of the platform, these would be lost. However when the funds are invested, it is the loan agreement between the borrower and the investor which regulates. Thereby the money are secured through the loan agreement, one could say.

Jakob: If a borrower, defaults on a loan, and the default process is initiated, do you then have anything to do with this process? Or is it between the investor and borrower?

Kristian: As the agent, we take care of everything. If you invest through our platform, then you don't have to move a finger. We write dunning letters, sends debt collection warnings. We take care of the entire legal process.

Michael: What in the case of Lendino defaulting, is there then a wind down agreement in place with a law firm, wo will take over as administrators, or is it left up to the investors?

Kristian: There is a wind down agreement in place, so it will be a lawyer who takes over and runs the platform on behalf of the investors.

Michael: So a defaulting platform is not something the investor should expect a significant loss by?

Kristian: No, as the investments are still regulated through the loan agreement, so the lawyer will simply collect according to the agreements

Michael: How successful would you say that Lendino have been in collecting debt through collection?

Kristian: I have not been able to obtain any data on recovery rates unfortunately which I can provide due to confidentiality, and also due to the limited data

Jakob: You mentioned earlier that you are planning to implement a secondary market on your platform. What advantages do you see this having?

Kristian: Today when you buy a loan it is not very liquid, you will potentially have to hold the loan for 5-5 years. So it is to create more liquidity, and allow for investors to diversify their portfolio quicker than one is able to today. It also has to do with the auto-invest feature, which today buys most loan parts on the primary market, and investors who wish in on the loan are not able to get a part on the primary market. They will then be able to do so on the secondary market.

Michael: What do you expect that your policy will be in regard to the secondary market, in cases of defaults or late payments? Will trading of the loan be suspended, or will it be allowed to continue?

Kristian: In case of default there will like be a categorization of what degree of default it is. But you would probably suspend the trading of the loan, until there is clarity as to what will happen with the loan.

Michael: Do you know if there is any regulation as to how a secondary market have to be operated? Issues such as insider trading could become prevalent?

Kristian: As a basis I don't believe that "markedsmisbrugsforordningen" is applied to a secondary market. However, it would always be a good idea to implement best practices. It is not a quoted exchange, it is more similar to the OTC market, where we will go in and match orders. Buyers and sellers do not directly conduct transactions. So we will not be running a exchange, similar to a stock exchange, but it will still be a liquid market where you are able to trade with each other. However, additions regarding investor protection, insider trading and suspension of trade will be implemented into our business.

Jakob: I believe that that was the questions, which we had prepared. Do you have any questions for us?

The interview is subsequently rounded off and ended.

Appendix 7 – Transcribed Flex Funding Interview

Interviewee: Jacob Rasmussen, Chief Risk Officer – Flex Funding

Date: 03/04/2020

Length of Interview: 56 minutes, 2 seconds

In text reference: (Rasmussen, 2020)

Jakob: My name is Jacob and I study FSM

Michael: Michael here, I study Finance and Accounting

Jakob: In our thesis, we intend to look at crowdfunding and mainly crowd equity and crowdlending, because it has evolved a lot over the last few years, and we intend to do so from a Danish-specific perspective and from an investor perspective, and that's what's the scope of the task.

The first question we have is quite wide - around the growth that has been seen in crowdfunding, what do you think has been the biggest drivers behind this development?

Jacob: I think there are several things in it, I think there are generally among the borrowers - this is a rather divided business, which both a lender and a borrower side that you have to balance, and that is why it is difficult to do a lot of expansion, it should preferably grow organically - but I think there has generally been a banker disgust among the borrowers , which we see with many of our borrowers who are simply tired of the banks. There are, of course, some of them who cannot get loans in the banks, and then there are some who do not want to have anything to do with the bank, or as little as possible, and think the bank is interfering too much, and that has a lot to do with the regulation that has hit the banks in terms of how to capitalize the various loans and counterparties they have. They run a lot of book management in the banks at the moment, so we are also contacted by advisors who sit in the banks with their otherwise healthy clients, and on today's agenda there is one point: How can we reduce your business with us as quickly as possible? Because they are not allowed to have concentrated risks on the bank's balance sheet.
There we are a good alternative because we are not so affected by it [regulation]

Jakob 14.58: From an investor's point of view, what would you say are the benefits of investing through Flex Funding?

Jacob 15.12: From an investor's point of view , you can get in fairly quickly, and for a small amount of money make a fairly diversified portfolio, we accept bids on loans from DKK 200, so you can figure out that if you need a little diversification, then it won't cost many thousands of DKK before you are up and running. There are many of our customers, they probably sit somewhere with a hundred counterparties [borrowers], then there is someone who defaults and you have diversified your risk, then it is a pretty manageable loss you suffer while you at the same time get a reasonable return on the rest of your portfolio .

Michael, 16.03: This bank aversion you are talking about, it sounds like it is primarily a thing among the more risky borrowers who add too much risk to traditional banks anyway?

Jacob 16.15 : No, they may not be able to get loan in the bank [the risky], but the banks have also taken an approach where they say that they do not want have too much construction / construction companies, as they simply make up too much of our portfolio currently, so we must have reduced that exposure by 10%. They then remove the 10% least profitable or risky customers. It may well be otherwise healthy companies that have once been through the bank's credit assessment, so customers are not necessarily weak companies at all.

Michael, 17.00: Is it your impression that it is due to regulation or that it is an internal decision for the banks they choose to do so?

Jacob 17.08: It has a lot to do with how to balance their assets, it is book management.

Jakob 17.15: When you say balance their assets, is it based on external regulations, or is it more an internal decision?

Jacob 17.35: It is very regulated.

Jakob 17.37: On the opposite side, what are some disadvantages of investing in crowdfunding?

Jacob 17.55: You don't get huge capital appreciation. it's not stock picking something that grows 150% and buying a lottery ticket like that. Most loans we issue, they have a return of 6, 7 8%, so what you can obtain a relatively stable but high return rate, with relative good diversification.

Michael 18.30: Is it correct in terms of legislation, then can you have as much construction companies on the books as you want, that is, all the regulation ordinary banks are subject to, you are completely exempt from?

Jacob 18.45: You could say that. We do not have the liabilities on our own book, so I am not a lender. I am only an intermediary. What we are subject to, is regulation as a payment provider. That is, there are some requirements that we must have fit and proper management, we must have risk management, we must have documentation of our procedures, we must have control of our money laundering risk , there are also some liquidity requirements we have to live up to in order to keep and maintain operations. So we are reasonably regulated really, but compared to our loan book we are not. It also implies that some of the loans we can offer that a bank can't offer, it's simply because either it gets too expensive for them, or maybe we can lend a bit more in terms of loan to value in a house than what a bank can do in regards to the write-downs they have to make on the assets behind. But we think it is reasonable to offer the loan. You may want to pledge your private house as collateral for a commercial loan in your company, I have no problems with that, but you will get squeezed of you go to the bank because of to leverage regulations.

Jakob 20.10: In relation to that, would you say that is where the biggest difference is in terms of regulations between you and traditional banks? Maybe you offer a little more flexibility compared to the strict requirements of banks?

Jacob 20.28: On the book we have other conditions for what loans we offer. You could say that the loans we make, the bank can do as well, it just means that they have to allocate too much capital to get a good business out of it. I do not have to do that.

Jakob 20.45: In relation to Know your Customer, are they not very similar to the bank's law?

Jacob 20.50: It's the same legislation, yes.

Jakob 20. 55: You even mention that there are some vital requirements for you, in relation to Basel requirements for banks and the like?

Jacob 21.11: No, not at all. We don't need any capital for the loans, we just need to have proper work processes, and then we have to have cash for a year's operation.

Jakob 21.35: How will you describe the team behind Flex Funding? And how would you say it differs from the teams behind traditional banks?

Jacob 21.55: We have far more IT people, proportionally, than what a bank has. In principle, we are four people employed in operations, and background wise there are two persons who have both studied at CBS, then we have a service man, we who work with credit assessment, we have an economic-financial background and have worked in banking and finance in the past. Then we have our dear director, he is former director of the Scandia bank and has worked at Danske Bank and something like that, so he is also from a financial background.

Jakob 22.45: So there's a classic " fintech mix" that is seen more and more?

Jacob 21.52: Yes, it is, we have an IT guy who comes from Saxo, the bookstore, and then we have a large developer team based in Poland, the rest is a good mix of customers and financiers.

Jakob 23.28: In relation to the team, do you have some governance rules set up about how decisions should go through and how the decision-making process runs?

Jacob 23.42: Yes, there is. In relation to the grant process? There are four-eyes principle on everything, both in relation to loan projects, withdrawals and everything else. There is also a framework for who are able to do what and why.

Jakob 24:14: Do you have rules regarding independence between your employees and loan projects?

Jacob 24.33: It's not really there, but it's ethics. Right now we have a loan, which is from one of our owners' business, and we are very open about that to the investors who invest into it. It is stated that it is an owner who is behind the loan, and it is approved by the board and that the owner, who by the way is also on the board, he was not present at the meeting where it was approved. So we are very transparent about that, we owe it to both lenders and ourselves. If we in any way appear untrustworthy in our presentation of the borrower, then we cannot obtain funding for it, and we will have a hard time obtaining funding in general moving forward. Credibility is the key to it all.

Michael 25.50: What is the name of the project, where one of the board members is involved?

Jacob 25 .55: It's called Exact

Jakob 26.15: The current climate is severely affected by Covid-19, which no one had foreseen. What effects does an event like this have for you?

Jacob 26.42: Huge. On the investor side, we have experienced exactly the same as we see in the equity market, that investors cash out as quickly as possible and try to limit losses and see exactly where this is heading. We also have institutional investors who buy loans on our platform, and we are in close

dialogue with them on an ongoing basis, and they have done exactly the same thing - just stick their heads in the sand and try to get an overview of what is happening. At the same time, of course, we also look at what borrowers we have, are there many who are directly affected by this, will they be affected now, will they be affected later? How do the payments of the loans come about? Now we have just hit the 1st day of the month, immediately there are no big shock waves on it compared to what one could have feared.

Then we have a really good collaboration with the Growth Fund, where they actually go in and fund our loans partly, and many of the customers we have, they are within scope of the growth fund also, where we issue smaller loans than the [Growth Fund] typically do. The banks have a Growth Guarantee Scheme that we are not part of, instead we have that they [Growth Fund] actually go in and fund up to 25% of a loan. In connection to this cooperation, we have also been arranged under this Guarantee Scheme, which has been launched by the state in relation to the fact that you can borrow your revenue decline if you have had a revenue decline of more than 30%. We have been very busy orchestrating these last few weeks and getting it up and running in the computer systems .

We've just seen a activity decline for a week or two, but otherwise we have a pretty strong pipeline of new loans, and the lenders we've talked to, we have sent out a survey to as well, and they're pretty interested in investing in loans with the Growth Fund as stakeholder. It gives a reasonably good risk-weighted return.

Michael 29.20: So you expect the same interest rates will be offered, including the guarantee?

Jacob 29.26: In terms of the loans we usually issue, you have a guarantee from the owner, as a minimum, and preferably mixed with some other collateral such as a mortgage in real estate, corporate mortgage or other, but you cannot do that in this [loan with a state guarantee], you have a 70% guarantee from the state, and you can say the companies you are going to finance, these are companies that have experienced a minimum 30% revenue reduction, so it is also risky business. The trick is to find the good ones, those where one thinks, they have had a good operation before, we also expect that they will get there again pretty soon after the reopening of society. So see if you can pick out the cases and get them presented with a good guarantee scheme.

Michael 30.20: What challenges do you face in terms of valuing mortgages right now if you are going to value some commercial real estate - that must be quite difficult, I think?

Jacob 30.30: Well it is, but so it is generally. If it is a standard residential building that we get in, then we put a lot of value in the mortgage loan. if it is recent, then there has been an appraiser out there and valuing the property. Otherwise, auditor's statements, real estate appraisals , etc. I cannot value a commercial property in Grenå, I have no idea. There are someone who knows better. So we listen to that someone who knows more about it. But if you are dealing with a standard residential house in Birkerød, where there are 400 similar buildings just around the corner, then you see what they cost and can base your own assessment on that.

Michael 31.24: Do you have any kind of security margin against, that is, how unique is this building? So maybe you have a rule that you do not give loans for more than 60% LTV (Loan to Value)?

Jacob 31.35: Well, we do, we go further than the banks usually do. Now you say 60%, we go up 80-85%. You can also say that 60% is a mortgage loan at zero point something, and we may offer an interest rate of 6-7%. So the higher the loan to value is, the higher you get on the yield curve, it all ties together.

Michael 32.00: So you dare go to 85% loan to value, even though it is difficult to value the buildings?

Jacob 32.08: We take a look at what it costs and what kind of building it is. Is it something that is very difficult to market? We have probably made mistakes in regards to this at least once or twice before, we will not do that again. But it is residential real estate, smaller commercial real estate, or whatever it may be, then marketability is there, unless you are completely out in the outskirts.

Jakob 32:45: We talked before about the interest rate being offered. Can you tell us something about how you arrive at the interest rate offered to investors?

Jacob 33.00: We start by risk assessing where we grade the loan, we run A + A, BC, C- and then "newly established" , which we cannot rate. That's our risk scale. Then you have a standard indicative interest rate for each of the risk classes, and then we deduct according to what collateral you are offered, you deduct it, and then it becomes a slightly lower interest rate, and then you weigh them against each other, and then we arrive at something. We also take a look at what cases we have been doing recently that looked somewhat similar and looks at how they were priced? Then we lean on it and adjust a bit up and down based on whether we think we can get the funding for half a percent less, or we think we should just add half a percent because this kind of project is a little slow to attract lenders. So it's a risk weighting with an eye on what's in demand, so it happens on market terms.

Jakob 34.10: We talked a bit about giving you this credit rating, which is going to correspond to a rating, what factors and information are you using from the borrower to make this rating?

Jacob 34.28: We use an external agency , we used Experian before, now we are using Bisnode. So you get an indicative rating. You can put more or less into that. I don't know quite have much faith I always have in them, but this is the starting point anyway. Then we look at some standard credit matrix, in terms of solvency, liquidity ratio, cash flow, ability to generate a cash flow. We also look on, what is the " debt repayment capacity " from existing cash flow. If we are to receive a payment of 20,000 DKK a month - can you make it? Otherwise, perhaps we should say, you should not repay the loan over two years but over five years so that we can get the monthly repayment brought down a bit so that your liquidity does not halt completely. It is very much that exercise we are going through, it is very standard within the banking world, which I do not differ much from it.

Michael 35.38: How much information do you have on, how well you hit your expected credit loss over time, do you have any overview of that?

Michael 35.45: We do not have that many losses, we do not have that. We have a loss rate of 42 (basis) points I believe in depreciation, and if we make an projection on active collection cases, then we have a projection of 55 basis points. This is after we have realized collateral as mortgages and run a debt collection process. I do not have numbers on the default cases, we have a supplier that makes such figures for us, and we have a little bit of loss of data over the last few months, but our loss rate is very, very low.

Michael 36.30: Maybe it is lower than what you really expected?

Jacob 36.35: Yes, we have been pretty conservative in that regard. Our strategy has been that we want to make some loans where you lend to a higher loan to value than the banks, we also want to secure those loans well and secure our lenders. Partly so that they do not run away screaming when they have

suffered the first loss, but also so that they can see what we have thought about things. This approach is also what has enabled us to attract some private debt funds that invest with us, who have also seen the idea behind it and can see that we have a conservative and somewhat cautious approach to valuation, pricing etc. These factors in total make them want to throw money at it.

Jakob 37.20: Do you take any steps to safeguard yourself against the risks associated with the fact that it is the borrowers themselves who will provide you with this material, where something may be false or manipulated material?

Jacob 3 7.50: There is always a risk, and it does not differ from the situation of banks. You try to cover yourself as good as possible when you piece a picture together about the business. If the company has been around for a number of years and you have a number of financial statements that are reported. Are they audited, if so, that will help a lot. Does it seem likely that they have run this turnover, or is it a scam all over? Can we get a printout from their bank? Can we get it backed by some tax papers? This is something we are looking at. It is very standard to try to get the information right.

Jakob 38.38: Do you also pay much attention to the external assessment you get from, for example, Experian or similar places?

Jacob 38.45: Not to validate information. We look at them for their rating and make a quick sort in the applicants. But I will say, many of the ratings they make [the external companies], when you have experience in working with ratings and various suppliers, you can also see that some ratings are made on a thin basis. And it doesn't always make sense. It probably does at the portfolio level, but you can also spot some outliers where you think it is totally wrong.

Michael 39.40: As far as I am informed, do you have a relatively active secondary market? What thoughts did you make when you chose to introduce it?

Jacob 39.50: It's been there for a really long time and before I started in the company. But it has something to do with the fact that you can finance loans that are a little longer in terms of maturity. That you do not necessarily have to tie up your money for five years, but that you can get it out of again after three years, and then you can find a buyer for it on the secondary market.

Michael 40.17: So is it really for the benefit of both the lender and the borrower that the lenders have this opportunity to exit early?

Jacob 40.25: Yes, it has also had a positive effect on our " underwriting capacity ", in the sense that there are several lenders who buy up in connection with the loan offering and who afterwards just put it up for sale at a premium, and think if it is sold then it sold, and if it not sold, you get the interest. But it is also a positive compared to the new investor, who does not have to wait for 50 or 100 loans to be originated and that you like, the new investor can build the portfolio from the secondary market, so you get some diversification into your portfolio from the beginning.

Jakob 41.12: Have you seen more activity in the secondary market due to Covid-19, or is it fairly stable?

Jacob 41.28: There has actually been quite a lot of activity. The premiums we have seen loans have been traded on before, they have been at a few percent, and now you are actually been able to buy loan shares at a discount. There are a lot of people who have taken advantage of that opportunity too. So there has been much activity, both on the buying and selling side.

Michael 41.55: How is your policy in relation to a borrower who gets into trouble for some reason and possibly defaults , do you close the secondary market for the loan or leave it open for free trade?

Jacob 42.05: As soon as there is payment delay or bankruptcy, it will be closed.

Michael 42.10: I noticed a special loan you had issued from a municipality in the Faroe Islands. What are your thoughts on giving such an offer to your investors?

Jacob 42 0.25: We have different partners. Among others, Nordjysk Lånefond with a white label solution on our platform, which will be called "North", and then we have a partner cooperation with a Faroese bank, and this is actually a loan they had to the local municipality, for building a swimming hall. They say that the bank's customers, they found it difficult to get a reasonable return on investment in the market last year. So they chose to say "we issue this loan, that's pretty safe" and instead of you getting zero or minus 0.5, you can buy a small portion of the swimming hall here in a loan to your own municipality. It is reasonably safe, the return is not so high, but then you have something. We got a share in that, both the locals but there are also some others who have said - now I can not remember the return on it?

Michael 43 . 58: 0.6% interest .

Jacob 44.00: Yes, in the low end, but the risk is where you think, it almost corresponds to a government bond, but with a positive return. In that way, the loan is not a mistake, but is of course at a lower interest rate than what we normally do.

Michael 44.17: I also think that this is a whole new offering that private, small investors have never had before. For as much as DKK 200 you can get access to diversifying into the " risk-free " investment more or less, which is quite unique.

Jacob 44.30: Ja, og det er også hvad vi ser på den seneste undersøgelse. Hvad har vi af långivningskapacitet på disse her Covid-19 lån? Kan man købe sig ind i et lån med 70% statsgaranti med en rente på 6%, så rykker det.

Jacob 44.30 : Yes, and that is also what we see in the latest study. What do we have of lending capacity on these Covid-19 loans? If you can buy into a loan with a 70% government guarantee with an interest rate of 6%, then it is really something.

Michael 45.00: I have observed that even brand new loans that have just been issued and that do not have had a first repayment or anything, those you can buy a small discount, like a quarter percent, and at the same time, some try to sell for a premium . Would you say there is a general tendency for people to demand a slightly larger discount on the secondary market because they don't really know what's behind the loan?

Jacob 45.25: I will say, now they do, now they are traded at a discount, but we have not seen that historically, there has always been a premium of 0.75 and up. There have been these investors, who buy the loans and then put them up for sale in the secondary market to see if they can make 3% just like that in the first month, then it's a pretty good annual return, and if they don't succeed, then they still get the interest rate.

Jakob 46.05: In relation to how investors are protected on your platform. If you wind down the platform someday?

Jacob 46.24: We have actually done something special as a platform not only in Denmark but globally, there are several platforms that have established first loss principles, and there are also several platforms, especially in Eastern Europe, which have completely seized operations. We have not done that. We have first and foremost done our best with the credit rating and our funding capacity, it is a slightly different strategy we have had [than the closed platforms], and then we have done the thing

that we have segregated customers' money from our own assets, so if you as an investor have money in your account, they are actually in a deposit with Danske Bank and are covered by the deposit guarantee for each individual depositor. So you are covered up to these 750,000 DKK, 100,000 euros, for the uninvested funds. As soon as you are invested, the risk lies with the company you have borrowed the money to, and should we stop existing, we have made a " wind down agreement" with a large law firm, which ensures that the platform keeps running and administration and debt collection runs should it be needed.

Michael 47.47 : If this wind down agreement turns into reality, will it cost investors anything in terms of returns?

Jacob 48:00: No, there is a fee already that covers it, that is the fee we usually earn, and it should cover the lawyer.

Michael 48.08: Can It covers all attorney bills?

Jacob 48:10: So if there will be a loss it will be in regards to the recovery proceedings if the lawyer fails to recover loans, historically, we have paid the attorney bill out of own pocket. Otherwise, you have to deduct the legal fees before the lenders get their share.

Jakob 48.30: On some of the cases where a borrower has gone bankrupt, what does it looked like, compared to the estimated " loss given default"?

Jacob 48:48: Historically , we have had some bad loans in the past. Primarily on the first cases we made. We can see that our recovery rate on the later cases, it is good, it is up around 70-80% , so those we have covered properly. But we also make some loans where the recovery is zero. If we are dealing with a smaller loans that are simply tied up on a personal guarantee and they go bankrupt personally. So we have incurred depreciations, we absolutely have. I think overall we are at a recovery rate of about 40%, I think , but mainly because of the old cases. It is based on the fact that we have had about 15 loss cases, I think. So it's not the end of the world.

Jacob 50.00: Do you have any further questions or comments?

Jacob 50.05: Have you examined the demand side / investment desire?

Both 50.30: Nope .

Jacob 51.30 : Is it possible to obtain data from the loan book?

Jacob 51.40 : In theory, you can see all completed loans on the marketplace. On the front page under "more" you click on "statistics", we refer to Brismo , that validate loan book and yields, however, with a slightly different methodology than what we use, they base it on pure cash flow, where there has been a bit of data loss, but on Brismo you cannot be seen at the single-loan level. You can read about their relatively advanced statistical model in there