The future of farm succession
How alternative financial solutions could facilitate Swedish farm successions

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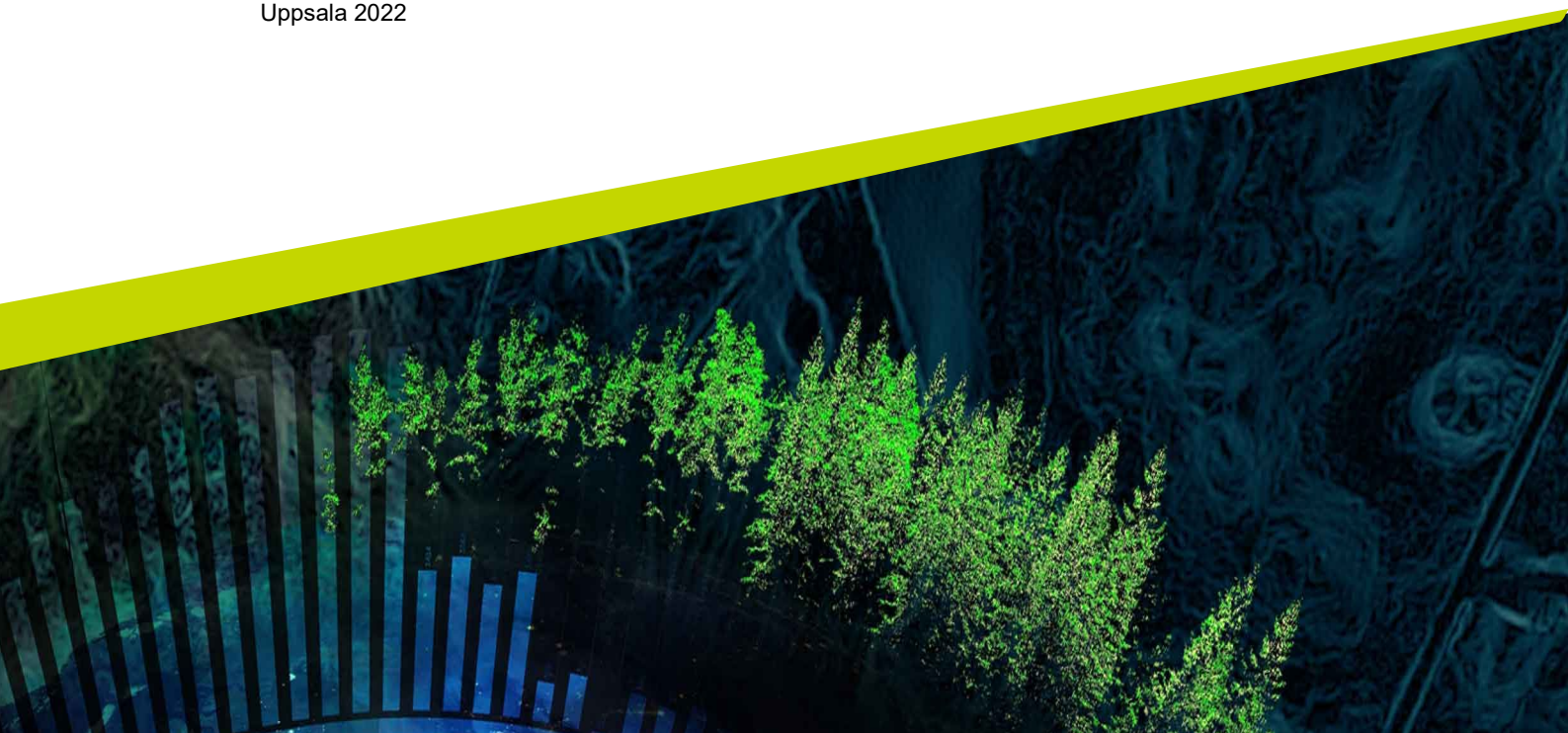|	
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Abstract

This thesis develops an understanding of how Swedish beginning farmers choose between different sources of financing and examine how these preferences could be used in assessing a new alternative financial solution to facilitate farm successions. This has been done through a qualitative case study were six young farmers in the region of Mälardalen, facing a generational renewal, have been interviewed. The new alternative financial solution assessed is a hybrid loan developed by a Swedish start-up company, Gårdskapital. Agency theory and the Pecking order theory are theories used to give guidance in understanding the empirical findings. A net present value calculation is also made to further strengthen the analysis of the novel funding solution.

Farmers in the EU are getting older and fewer young people are interested in becoming a farmer due to several financial and socioeconomic aspects. Research shows that the different aspects constitute a so-called young farmer problem in the EU that leads to fewer farm successions. The land distribution moving the ownership from farmers to corporates or governments are also affecting the generational renewal process and makes it harder for farmers to compete on the land prices. The poor access to finance, due to low to zero track record of farming and low equity serve as other barriers to entry for young prospective farmers. These entry barriers are prominent in Sweden too, where the bank regulations are stricter than EU average. The issues of having difficulties in accessing finance and the fact that a successful farm succession is based on an unfair monetarily compensation opens for investigating alternative financial solutions that cater the social values of ownership and which does not add on to the financial stress for the inheritor.

The respondents of the study emphasised the need for external financing and the impossibility of acquiring the farm to market value and monetarily compensate their parents and siblings. Although, ownership was seen as crucial to the willingness of taking over the farm due to less agency problems and the access to future finance.

The study finds that the drivers for ownership of farmland is connected to social values rather than direct financial incentives due to agency problems connected to the leasing of farmland and that it may be less financially risky for the farmer to take a hybrid loan, but that it will have long-term effects on the LTV. Further, the current generation and siblings may have to accept an unfair monetary compensation if the social values of keeping the family farm exceeds the monetary value.

Keywords: Farm succession, capital structure, information asymmetry, alternative financial solutions

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Abbreviations

LTV	Loan to value
NPV	Net present value
POT	Pecking order theory

1. Introduction

Since the mid-19th century, the number of European farms has declined due to the increased productivity and modernisation of the sector (European Commission, 2012), accompanied by a consolidation of farmland and farms. Smaller holdings have merged into fewer but larger farms.

Arable farms have traditionally been managed as family enterprises in many European countries, where the most common way of generational renewal proceeds as an inheritance from one generation to another (Leonard et al., 2016; Hennessy & Rehman, 2007). These integrational successions have decreased in number in recent years (Burton & Fischer, 2015), which aggravates the so-called "young farmer problem", i.e., a lack of young farmers entering the sector in European countries (Eurostat, 2018; European Commission, 2012). Due to a change in social values and long-term demographic trends, the succession rate of family farms is steadily decreasing (Coopmans et al., 2021; Burton & Fischer, 2014). Signing up for a life in a remote rural area is often associated with economic uncertainties, fewer holidays, and limited access to public infrastructures such as healthcare and schools affecting the farmer's son/daughter's choice to become a farmer. When off-farm labour markets offer higher salaries and more generous benefits than an occupation on the family farm, the inheritors might look for other options than carrying on the family business (Coopmans et al., 2021; Hennessy & Rehman, 2007). Statistics show that in the EU, only about 6% of the farms are owned by farmers younger than 35, while on the other hand, about 55% of the holdings are run by farmers older than 55, with no signs of a changing pattern (Leonard et al., 2016; European Commission, 2012).

There are several significant economic entry barriers for both new entrants and farm successors, such as access to land, high start-up costs, significant capital investments and low rates of return on the farm operations (Zagata & Sutherland, 2015). The lack of access to farmland emerges from the unwillingness of older farmers to give up control of their farmland and the farm business. This is an effect of the rising capital value of farmland and the emotional value and time invested in managing farmland long-term (Zagata & Sutherland, 2015; Ingram & Kirwan, 2011; Gasson & Errington, 1993). For large-scale farms, the land is a considerable

capital asset, not only due to the value of land but also regarding CAP payments and pensions, which are also interrelated in the sense that higher direct payments typically also imply higher land prices (Ciaian et al., 2021; Latruffe & Le Mouël, 2009). When agricultural land is being brought to the market, the new entrants compete with both existing farmers who want to enlarge their farm and investors from outside agriculture who want a diversified investment (Bunkus & Theesfeld, 2018; Zagata & Sutherland, 2015).

Purchases of large tracts of land, mostly farmland, by national companies and governments have become a global trend after the liberalisation of land markets (Bunkus & Theesfeld, 2018). The drivers behind such large-scale land acquisitions are not solely profits but also a question of access to food for investors from countries with poor soils and unfavourable water conditions (Bunkus & Theesfeld, 2018; Zoomers, 2010; von Braun & Meinzen-Dick, 2009). For the same reason, the land becomes attractive for private investors with a non-agricultural background as well. Although there can be positive effects with outside investors, such as greater productivity efficiency, good infrastructure and employment, there are emerging social negative effects for rural areas, e.g., loss of empowerment that comes from ownership (Bunkus & Theesfeld, 2018). In addition, there is a trade-off for the farmers between the liquidity advantages that come from not using debt-financing for land purchases and the lack of a long-term perspective regarding soil maintenance towards the landowner when leasing land (Barry et al., 2000). In other words, while leasing land may reduce leverage effects and hence risks due to lower equity, leasing also prevents the farmer from reaping the benefits of good agricultural management practices that would typically be capitalised into owned land.

1.1 Problem

The lack of access to capital for agricultural property acquisitions in Sweden is extensive, especially for new entrants (Fi Compass, 2020). Starting as a farmer, with or without a farm in the family is difficult and hence young prospective farmers are being strongly affected by a bank's reluctance to grant loans to individuals without credit history. Furthermore, according to a survey from Fi Compass (2020), Swedish farmers state that the banks do not solely assess the credit history, but also the track record from managing a farm. For instance, the entrepreneur's capacity to manage financial and practical issues and handle employees. Combined with a relatively low profitability from agricultural production and high land prices, it gets even more difficult for new entrants to develop a business that fulfils the bank's requirements to access capital. The discussion is reflected in several practitioner magazines, for instance, the Swedish

newspaper Affärstidningen för Lantbruk (ATL) confirms the difficulties of acquiring farmland as a new entrant and emphasises the need for a stable liquidity (Persson, 2021). Further, the Swedish Bank Federation (2020) explains that the financing for agricultural properties is made through covered bonds and hence cannot exceed 70% loan to value (LTV). Covered bonds are more cost-efficient for the banks and the high trust enables the banks to emit new ones continuously.

Entry barriers for Swedish farmers are aggravated by the legal environment, most prominently by the Land Acquisitions Act (Pettersson, 2020). This law forbids legal entities from buying farmland from natural persons, which supports one of the main aims of the regulation, which is to keep a stable ownership ratio between natural persons and legal entities (SFS, 1979:230). Another purpose of the law is to favour housing and employment in rural areas. Already in 1996, the Swedish parliament introduced a motion stating that The Land Acquisition Act lacks motives to exist and may hinder innovation regarding farm ownership and operation (www, riksdagen, 1996). According to Helena Hansson, professor at the Swedish University of Agricultural Science (SLU), it is harder for individuals compared to enterprises to obtain such land investments, mainly due to tax benefits for ownership within a legal entity. In times when the price for arable land is at a historically high level this becomes even more pressing (Persson, 2021). Further, the SLU professor expresses a growing concern regarding new entrants without agricultural property within the family. Hence, the barrier for generational renewal in Sweden is due to the lack of alternative financial solutions. The chairman of the board in Swedbank, Göran Persson, emphasises the need for new financial constructions to deal with the issue of generational renewals (Wikström, 2021). Further, Persson argues that the agricultural sector is overlooked by existing venture capital due to the Land Acquisition Act. There can be benefits from allowing legal entities to own agricultural properties to ensure stronger competitiveness but also to enable generational renewals.

The research on farmers' financing issues is generally focused on developing countries or the US (Osabohien et al., 2020; Amanullah et al., 2020; Kauffman, 2013; Xu et al., 1993). In the EU context, extensive research has been made on topics surrounding the financial issues, such as entry barriers, young farmer problems, generational renewals and land grabbing (Coopmans et al., 2021; Bunkus & Theesfeld, 2018; Leonard et al., 2016; Zagata & Sutherland, 2015; Burton & Fischer, 2014; Hennessy & Rehman, 2007). The research tends to focus on the problems existence and explores why the problems occur and the farmers' perspectives towards the challenges, which opens for further research on different possible solutions for future farm successions. This thesis contributes to the above mentioned identified research gap by connecting the young farmers' financial issues with the empirical findings and develop understanding in capital structure by

using pecking order theory and agency theory. Thus, a broader understanding and a better insight of the problem is provided, and hence potential solutions can be presented and reviewed.

The emphasis on social, economic and local challenges within the generational renewal process from both researchers and the industry opens for exploring different types of financial solutions and how the inheritors will perceive these as alternatives to ensure feasible farm successions in the future. The issue surrounding a limited track record as a farmer, a unique ownership regulation, and a lack of capital are major challenges in Swedish farm successions. A deeper understanding of the issue is needed and thus this thesis will examine key factors that affect the financial structure of farm successions and how alternative financial solutions could contribute to mitigate the challenges and hence foster an increase in successful farm successions.

1.2 Hybrid loan

The hybrid loan concept entails that outside investors contribute capital to land purchases of the farmer and potentially benefit from increases in the value of this land. For example, Gårdskapital (2022), a Swedish lending company for farmers, argues that generational renewals can be challenging even within the family, forcing the current owners to split the property to get an even share among siblings. The parcelling of the land also leads to a higher burden of administration and the new units becomes less efficient. Further, newly entered farmers often have a great need for investments, and hence needs to use the cash flow from the business to reinvest in business development. What leads to even more difficulties in acquiring land due to large amortisations and interest payments that eats up the liquidity. The company also states that the difficulties for young farmers to purchase land has negative impact on the sustainable development within the sector and emphasises that ownership is necessary to secure a satisfying soil health, to increase carbon sequestration and to maintain a long-term management of the land (Gårdskapital, 2022; Sklenicka et al., 2015). Today, young farmers in Sweden have little to zero alternatives to traditional first and second lien loans from banks when purchasing arable land or monetarily compensating siblings and parents (Gårskapital, 2022). First lien loans are credits below 75% loan to value (LTV) and second lien loans are the credit above 75% LTV, meaning that the loans have a different priority order in case of a credit default (The Swedish Bank Federation, 2018). A first lien loan hence holds the top priority of the collateral and thus have lower risk for the credit issuer than a second lien loan which leads to different interest rates for the different loan categories.

A contributing factor to the problem for young farmers to purchase land, Gårdskapital (2022) means is the bank regulations in Sweden and points to three aspects for the banks first lien loans with up to 75% LTV. The first is that many banks demand a down payment of 10-15% of the purchase price which stands for a great amount of money for young farmers. Second, the banks require a 1-2% in annual amortisation on the loan, until the LTV reaches 50% or below, even though the land value increases and is an asset that is not depreciated. Third, the banks use a conservative interest and this combined makes it difficult for the buyers to profit from the investment in farmland with a 1-2% in direct returns. To conclude, Gårdskapital (2022) argues that the dilemma for young farmers is that it is hard to purchase land despite that it is a relatively profitable investment, if looking at the return on investment and not the return on operations.

Gårdskapital, has therefore begun to develop a new financial construction for loans, called a hybrid loan, that aims to enable young farmers to buy their own land without their liquidity getting affected by annual interest rates and strict amortisations (Gårdskapital, 2022). Since arable land in Sweden only can be owned by a natural person, due to the Land Acquisition Act, it becomes hard for Swedish farmers to raise equity. Hence, the new financial construction aims to imitate a direct ownership in land by being classified as debt. The hybrid loan intends to differ from regular first and second lien loans by offering terms without annual amortisation and interest payments.

The background for the idea is that the price for arable land has increased substantially over the past 30 years in Sweden, mainly due to low interest rates and high land-based direct payment subsidies from the European Union, but despite this, there are reasons to believe that the prices will continue to increase further (Gårdskapital, 2022; Johnsson, 2021). Arable land will become a scarcer resource in the future and the land prices tend to be disconnected from the return value of the operation on the land. Thus, the land prices will very likely increase more than the cash flow from the agricultural production and hence an interesting investment opportunity for outsiders. This equation makes the question of financial solutions hard for young farmers to solve. Figure 1 below shows the price development on arable land in different production areas in Sweden from year 1995-2020.
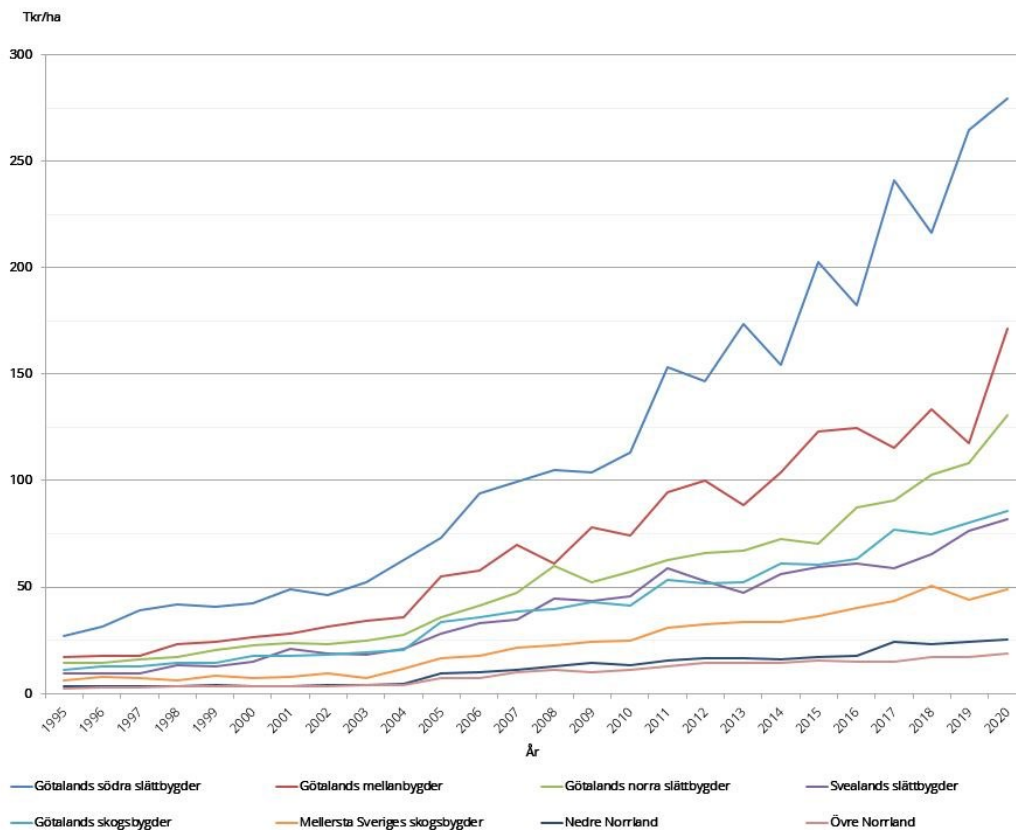
Figure 1. The price development on arable land in different regions of Sweden (The Swedish Board of Agriculture, 2021).

The hybrid loan is designed so that the farmer pays 1% in coupon annually to the investor, as a cost for the borrowed capital, and the interest rate for the credit is connected to the value development of the arable land (Gårdskapital, 2022). The loan is paid in total when the loan expires by refinancing the purchase with a regular first lien loan with the bank. If the loan expires, for example, in ten years, the farmer year ten pays 100% of the value increase times the proportion of the land which the hybrid loan has financed. Meaning if the hybrid loan has financed 70% of the purchase the investor gets 70% of the total value increase. Further, the interest rate needs to be regulated with a floor and a ceiling level, this so that if the farmland should increase, for example 200%, the borrower has a guaranteed highest hybrid loan interest rate. To illustrate an example, if the floor interest rate is 0% and the ceiling interest rate is 7% it means that the borrower has a safeguard on the increasing value of the land and the investor has a safeguard if the farmland should not increase in value. Thus, the borrower pays no more than 7% in interest rate and the investor does not lose the initial invested capital. A hybrid loan in practice is illustrated in figure 2.
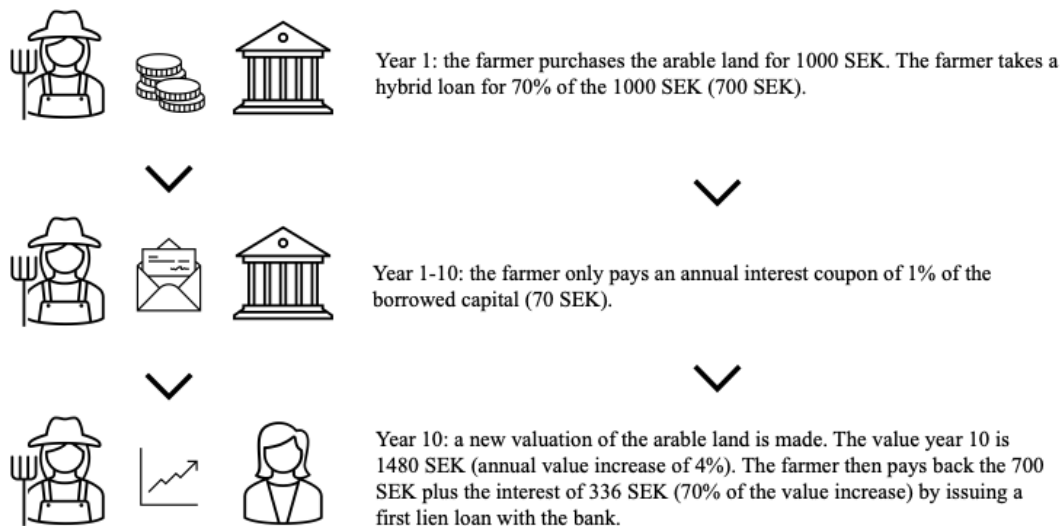
Figure 2. Explaining the hybrid loan in practice. Own processing.

1.3 Aim and research question

The aim of the study is to develop an improved understanding of the capital financing process for generational renewal in an environment of increasing market values and constrained cash flow.

The aim will be reached by answering following research questions:

- How do entering farmers view the capital financing process of a generational renewal?
- How could the hybrid loan improve the possibilities for young farmers to purchase farmland and how does the option compare to other investment and financing options?

1.4 Delimitations of the study

The study is based on a specific alternative financial solution, the hybrid loan model, as developed by a Swedish start-up company Gårdskapital. The hybrid loan, described in detail in section 1.2, is used as an illustrative solution when answering the research question. Thus, it is the respondents' perspectives and incentives on ownership, capital structure, entry barriers and financial issues that will be addressed in the study. This leads to empirical delimitations of the study, such as not investigating multiple alternative financial solutions and not include other stakeholders' perspectives and incentives on the matter. Further, the study will not focus extensively on accounting technicalities, the banks' attitudes or the provider of venture capital. Nor will the study examine what kind of investor that has the

best profile or interest in agricultural land as a diversification. These delimitations are drawn to facilitate the nature of a case study, which aim is to gain in-depth insights about a specific phenomenon (Yin, 2007). Limitations are drawn to a Swedish context because of the restrictive arable land acquisition environment despite of similar challenges existing also elsewhere. The study is excluding EU sponsored, and other, subsidies from the farmer's access to finance, this because of the characteristics of the subsidies. The theories in the study will be used to develop an understanding of the respondent's perspectives and then examine the theoretical substantiation within the analysis to help answer the research question.

1.5 Outline of the Study

Figure 3 gives the reader an overview of the outline of the study. Beginning with chapter one that introduces the researched subject, presents challenges that point at the relevance of the study and gives the reader an introduction to the novel funding alternative. Chapter two contains a literature review that gives a science-based perspective on the empirical challenges mentioned in the first chapter. Further, the chapter explains the theories used within the study and presents the conceptual framework. The next chapter describes the methodology used for conducting the research in terms of e.g., research design, interview guide, data collection and units of observation and analysis. Chapter four touches upon the empirical narrative of farm succession challenges and explains how the Swedish environment regarding land acquisitions and bank regulations. The empirical results from the conducted interviews are presented in chapter five. In chapter six, the empirical results are analysed upon and connected to the literature review and theories together with calculations that further explains the outcome of different financing options. Chapter seven concludes the analysis and discussion by presenting an answer to the research questions.

| 1. Introduction | 2. Literature review & Conceptual framework | 3. Method | 4. Empirical background | 5. Empirical results | 6. Analysis & Discussion | 7. Conclusions |
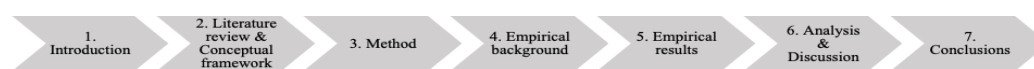
Figure 3. Illustration of the study outline. Own processing.

2. Theoretical perspective and conceptual framework

This chapter reviews existing studies on farm succession and its influencing factors and presents relevant theories to the study. The literature review is conducted with a narrative approach with the goal of a comprehensive overview. Further, this chapter aims to specify the research gap and demonstrate the importance of the research area. The chapter also provides an overview of theories that can be used to explain the different financial challenges with the farm succession. Finally, a conceptual framework is developed to structure and guide the empirical case.

2.1 Literature review

2.1.1 Social factors affecting farm succession

Several studies on generation renewal in agriculture explain how different factors affect the intergenerational succession process (Coopmans et al., 2016; Burton & Fischer, 2015; Potter & Lobley, 1992). The general conclusion drawn in previous studies declares that social factors where the incumbent's and the successor's perspectives are crucial for the succession process. Business researchers explain a trend among general small business owners from a broader perspective, where the owner looks at the succession process of the firm and further the retirement as a loss in identity and social position (Sharma et al., 2001; Lansberg, 1988). For many farmers', the occupation is instead a way of life, then a formal title, where there is no clear boundary between the business and private life (Burton, 2004). Many studies find that farmers oppose their retirement due to fear of identity loss because of quitting farming (Convey et al., 2021; Fischer & Burton, 2014). From the perspective of the inheritor, a delayed succession can lead to the inheritor not getting required managerial responsibilities who might therefore lose interest in the business. Because of this delay, in many cases, the successor will look for other

career options and give up the plans of carrying on the family farm (Williams, 2006; Gasson & Errington, 1993).

Researchers highlight several factors influencing the successors' willingness to carry on the farm business. The farmer's welfare is strongly connected to the socioeconomic threats of being a farmer leading to farm exits and an unwillingness to enter (Waldman et al., 2021). These threats include trade instability, industry consolidation, price declines together with stress and are perceived as more prominent amongst farmers than environmental threats. Further, factors like social values, educational level, the off-farm labour market, and former engagement in the family farm business also affect the willingness to operate as a farmer (Coopmans et al., 2016; Zagata & Zutherland, 2015). Earlier research within the area is mainly quantitative and a study by Glauben et al., (2009) shows a correlation between integrational successions and the educational level of the intended successor. In cases where the successor has a non-agricultural degree, there is a smaller chance of intra-family succession due to more favourable occupation options outside the farm industry. Meanwhile, it is stated by both Chiswell (2014) and Lobley (2010) that early involvement in farm management has a significant impact on aspiring farmers, mainly on their practical skills, and therefore their possibility of succeeding, but also on their personal beliefs and interests.

2.1.2. Land acquisition

Studies on farm successions emphasises access to farmland as a crucial barrier for young people to enter the farm sector (Šimpachová, 2017; Ahearn, 2011; Williams, 2006). According to Eistrup et al. (2019), the poor access to farmland prevents ambitious people to entering the sector, which further causes a loss of potential farmers in the future.

Statistical evidence from previous studies of the market and valuation of farmland in both Europe and the US shows that agricultural land prices mainly corelates whit soil quality, distance to larger cities and parcel specificities (Sklenika et al., 2013; Huang et al., 2006; Xu et al., 1993). The shorter the distance to a city, the higher the price of agricultural land because of the value for alternative use of the land within these areas increases. An example of alternative usage, as Zasada et al. (2013) argue can be horse-keeping by urban dwellers. The orientation of existing farms within a geographical area is another parameter that drives the prices in regions were already established farms compete in land acquisitions (Beckers et al., 2018; Huang et al., 2006; Williams, 2006). To some extent, existing operations may gain from economies of scale where they can still increase output without a significant change in their overhead costs due to already existing resources, and

therefore drives the pricing of farmland within specific areas (Beckers et al., 2018; Huang et al., 2006).

The drivers for land acquisitions all over the EU are related to low interest rates, cheaper land prices and the EU subsidiaries that are connected to size rather than actual land cultivation (Bunkus & Theesfeld, 2018). Nevertheless, the European Union states agriculture as the main land user and because of its high visibility, agriculture becomes strongly attached to rural life and hence plays an important role when assessing the additional societal values of land ownership. Thus Bunkus & Theesfeld (2018) pointed out that these additional values, such as cultural values and other social elements, can be grabbed from a land user and rural people by a decentralised ownership. Ownership leads to empowerment and well-being and is crucial to both rural and economic development. These values are lost when other natural persons, enterprises and/or governments own the land. Other values that can be taken away due to a different ownership structure are connected to agricultural management. The landowners have incentives, if they act with a long-term perspective, to manage the land more sustainably as well as spending more time on social engagement, which may not be a priority when the landowner does not operate the farm. Further, Bunkus & Theesfeld (2018) emphasise that new distribution of ownership is accelerating the agricultural structural change in Europe.

2.1.3. Access to finance

Several studies state the lack of access to credit as one of the main entry barriers for new farmers, but also a crucial aspect in young farmers' access to farmland where first-time buyers would not be able to raise enough capital to acquire farmland (Van Rompaey et al., 2018; Williams, 2006). Amanullah et al. (2020) state that farm productivity relies on the access to agricultural credits to enable farmland acquisitions. However, many farmers face difficulties to access capital due to credit constraints, which leads to unfavourable effects on farm output since a lack of capital affects the development and hinders efficiency improvements on farm level. Hence, access to debt financing significantly improves the farmer welfare and income. The farmer's welfare is strongly connected to the socioeconomic threats of being a farmer which leads to farm exits (Waldman et al., 2021). These threats include trade instability, industry consolidation, price declines together with stress and are perceived as more prominent amongst farmers than environmental threats. Hence both socioeconomic factors and access to finance becomes entry barriers for prospective farmers (Waldman et al., 2021; Amanullah et al., 2020).

Young and beginning farmers are more exposed to difficulties in accessing debt financing due to the perception of higher risks for the commercial lenders (Kauffman, 2013). The low farm equity and few assets amongst young farmers leads to higher risk because assets that could be liquidated to meet loan obligations are lacking and can also lead to a limited farm income. As a farmer with high-risk profile, the collateral becomes crucial to being granted a loan. Combined with higher land prices this leads to higher fixed costs and cash outlays for young and beginner farmers trying to acquire farmland, serve as an entry barrier into owning land and practice as a farmer. Hence, Kauffman (2013) states that the access to agricultural credit is different for young farmers then for experienced and well-established farmers which concludes that owning most of the operated land may not be a feasible solution to transits to a new generation of farmers. Thus, there is a need to challenge the conventional business model of farmland ownership and new skillsets amongst farmers are necessary for family farms facing successions and for other young and beginning farmers.

2.2 Theory

The previous chapters and paragraphs testify about several issues regarding farmers capital structure and the social aspects of generational renewals. The chosen theories, the pecking order theory and the agency theory are not alone sufficient to describe the issues theoretically. Although together they can provide a better perception of the complexity since more aspects are considered.

The research of capital structure is describing what factors affects the firm's financing choice for real investments and how this further implicates the firms' stock pricing (Modigliani and Miller, 1958). Most studies regarding the firm's capital structure are developed through the findings by Modigliani and Miller (1958). The researchers exemplified factors affecting the capital structure and further the impact of the capital structure on the value of a firm. A further development of Modigliani and Miller (1958) findings are the Myer and Maluf's (1984) development of the Pecking order theory, which explains how firms order different financing sources, but also the static trade-off theory which focus on the tax benefits of using debt. Another approach to explain the capital structure of a firm comes with the agency theory by Meckling and Jensen (1976) that explains the behavioural aspects within the manager-investor relation. To illustrate and further analyse the hybrid loan solution, a net present value (NPV) calculation has been made to provide insights in how the solution will affect the borrower and the capital structure of the firm.

2.2.1. Pecking order theory

The pecking order theory does simply explain the order of how firms choose between different options to finance their operations (Myer, 1984). Within the early development, Myer (1984) assumes the firm does not have a target capital structure, while latter development by Froot (1995) states a target range where the firms want to operate and where the deviations from the desired structure can be explained with the pecking order theory.

Within the Pecking Order Theory (POT), Myer and Majluf (1984) and Myer (1984) assume a scenario with a perfect financial market and an already existing firm with a clear growth opportunity. The only exception from an ideal market is the information asymmetry between the inside management and the outside investors, where the managers are the ones best knowing the firm's actual value. The information asymmetry causes varying costs of external finance due to the risk premium faced by underinformed investors. Therefore, POT states a capital structure where internal funds are the most preferred source of financing. If the firm does not generate enough earnings to self-finance its growth, it must turn to external funding. The most accessible explanation states that they prefer the safest option available, which tends to be dept to equity. The pecking order of a firms' capital structure are explained in figure 4.

1. Retained earnings

2. Debt
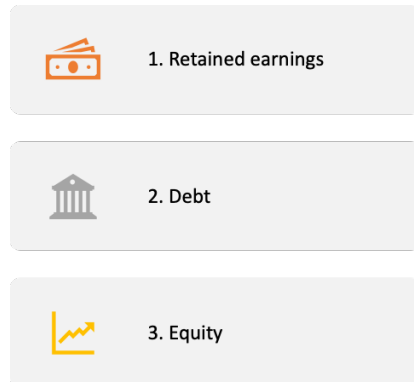
3. Equity

Figure 4. Model illustrating the firms' pecking order for capital structure. Own processing.

According to Myer (2001), financing by equity cause a need for issuing new stocks. POT assumes that the managers want to make decisions in favour for existing shareholders and preventing them from issuing under-valued stocks. Potential investors do not want to acquire overvalued stocks and at the same time, selling stocks to an undervalued price will move the wealth from already existing shareholders to the new ones. If the firm increases its level of equity by giving new stocks, this will signal a poor performance by the company, which leads to a fall in the stock price (Myer, 2001).

Despite the capital structures' effects on the stock price, Lopez-Garcia and Sogorb-Mira (2008) find the pecking order theory useful to explain the capital structure rationing by small and medium-sized enterprises. Companies who are not listed on stock exchange markets face a more significant information asymmetry between managers and investors (Shyam-Sunder & Myer, 1999). In general, this causes even higher agency costs in the financing process, which speaks for the relevance of the given theory in the analysis of the capital structure and the financing process of smaller enterprises. Within the context of farming, Barry et al (2000) speaks for the POT with another approach because of the irrelevance of the stock market as a source of finance for farmers. Farmers prefer internally generated funds over dept capital, like other firms suggested by the POT, but find leasing arrangements more preferred than debt-financing for purchase of farmland due to favourable liquidity advantages. Further, Barry et al (2000) states less agency problems between landowner and tenants, compared to the relation between debt-issuing officials and arrangements and the farmer/landowner.

2.2.3. Agency theory

The agency theory within the area of corporate governance aims to explain the relationship and interactions between agents and principals, where the agent is someone in charge of making decisions or take actions on the behalf of the principal (Jensen, 1986; Jensen & Meckling, 1979). The agent could be the manager of a firm, while the owner acts as the principal, whereas another agent-principal relation is, for instance a firm and bank.

According to Eisenhardt (1989) the agency theory is divided in two major fields of research. The positivistic approach to the agency theory aims to understand the governance structure of a firm and why different actions in the principal-agent relation occur. According to Jensen (1983) the positivistic approach of the agency theory will be best used to enrich studies of the organisation, rather than giving full explanations of a phenomenon. The formal principal-agent theory is used more broadly than the positivistic stream that are mostly focused on the owner-manager perspective. The pure principal-agent theory is more abstract and mathematical and do not fit into organisational research like the positivistic approach. The principal-agent research focus on finding the best suitable contract rather than examine the behaviours behind different contracts.

The focus within the theory are the so-called agency problems that occurs between agents and principals when the agent does not have incentives to act in the best interest of the principal, but rather gain their own success on the behalf of the principal (Jensen, 1986). The agency problems further lead to agency costs which can be explained as monitoring costs, bonding cost and residual losses (Jensen &

Meckling, 1979). Cost associated with the monitoring by principals could be, for example, a board of directors or hiring an outside auditor. The bonding costs ensure the agent to act in the best interest of the principal and could, for example be things like incentive schemes for the managers. The residual losses are the remaining costs occurring from the divergence between the agent and the principal, such as, personal use of the firm's assets or other actions that do not add value to the owners. According to Ang (1991), the characteristics of many small owner-operated firms are entrepreneurial behaviours, attitudes towards risk and more informal management. As previously stated, the major issue within the agency theory is the monitoring process of the agent, by the principal (Jensen & Meckling, 1979). The costs of monitoring are an even bigger issue in smaller firms, due to the lack of financial information available (Chittenden et al, 1996). Another issue detected by Chittenden et al, (1996) are the bonding cost issues for smaller firms where there is harder to provide incentives such as bonuses or promotions for the agents. This problem causes smaller firms to use lending against collateral rather than equity.

One of the various agency problems is information asymmetry, which occur when the other party has more or different information than the other (Marks-Bielska, 2021). When a landowner leases out land, the person delegates some tasks to the tenant and a relationship of agency appears. In accordance with the agency theory, information asymmetry and a different risk apatite may occur. The nature of the relationship, and the way information are shared affects the tenants negative and positive perception on leasing.

In this study, the information asymmetry within the agency theory will be highlighted and used to understand the relationship between tenant and landowner. The theory implies that an agent does something on behalf of the principal (Jensen & Meckling, 1979), which according to Marks-Bielska (2021) can be applicable on the tenant and landowner relationship in the context of ownership versus leasing. The information asymmetry will also be used to understand the relationship between farmers and financing issuing authorities.

2.3 Conceptual framework

Alternative financial solutions

The bank regulations and farmers attitude towards debt

The Swedish Land Acquisition Act

Farmers relationship towards landowners & external financiers

How farmers value ownership and the perception on leasing

High land prices and hard competition

Social values of keeping the farm in the family

The capital structure in Swedish farm successions

Figure 5. The conceptual framework. Own processing.

Figure 5 gives an illustration of the study's conceptual framework by clarifying how alternative financial solutions can improve land purchases in Swedish farm successions. By emphasising factors that affect the beginning farmers actions, detected in the literature review and empirical background, the conceptual framework will assist the reader thru the complexity of generational renewals and develop an understanding of the construction behind feasible alternative financial solutions.

The literature review explains the empirical narrative of capital structure and ownership within agricultural businesses and arising financial and social issues with farm successions. The common denominator within generational renewals are the relationships, interactions, emotions and perspectives e.g., within the family, towards the banker or with other landowners. Which all are factors affecting the access to finance, arable land and ownership structures. Further, the bank regulations, high market prices and socio-economic aspects are contributors to the complexity faced by beginning farmers.

Further, the study takes on a theoretical approach to gain support in the reasoning behind the capital structure and to give guidance in understanding how different relationships affect the farmers actions and viewpoints. Interviews with prospective farmers asking broad questions will be made to grasp the Swedish farmers perception the complexity of generational renewals as well as driving forces behind ownership versus leasing and thence conclude how alternative financial solutions could complement the capital structure.

Thus, the conceptual framework aims to lead the reader through the complexity and its different fields towards answering the research questions and the conclusions.

The conceptual framework is developed to support the main theme and make the study easier to digest and absorb. The construction of this funnel will enable conclusions based on theoretical and empirical assumptions and construe if hybrid loan as an alternative financial solution can facilitate the process of generational renewal.

3. Method

This chapter presents the chosen research design and the methodology behind the study. This is followed by an explanation of the analysis method, the ethical considerations, data collection and quality criteria. The chapter ends with a presentation of the unit of analysis & observation.

3.1 Research design

The research design constitutes the framework for generating empirical data and decides the researchers' criteria for the questions aimed to be answered (Bryman & Bell, 2013). Further, the research design reflects various positions made about the subject of interest and prioritise different dimensions or aspects of the research process. These dimensions or aspects can be causal relationships between different variables, generalisations from individuals participating in the study to broader groups, an understanding of behaviours and its effects in specific contexts together with an estimation of various social phenomena and their connections over time. Thus, the research design becomes important when knowing what to research and a tool to conduct the study in an adequate manner.

This study aims to investigate the individual preferences within generational renewals by conducting and connecting empirical data on established theories and from thence explore how well a new financial solution could help solve various practical issues of generational renewals within the farming sector. Hence, a qualitative descriptive case study has been made on beginning Swedish farmers and their perception on the possibility to acquire arable land, their incentives to own their land and how they tackle the farm succession. The study takes on an inductive approach since the theories used are generated from practice and hence explains and provide understanding of specific financial decisions amongst farmers.

According to Yin (2007), the case study research design is useful when the intention is to contribute to the collective knowledge about an individual, group, organisational, social and political phenomenon and allows the researcher to gain a broader understanding about the meaning of reality. Hence, it is a suitable approach for economic research when exploring specific industries since it aims to create an

understanding of complex phenomena. This because the researcher asks the questions why and how. What distinguish a descriptive case study is the focus and detailed approach towards scrutinising and emphasising a certain topic. The inductive perspective describes the relation between science and empirical findings by letting the theory evolve from practice (Bryman & Bell, 2013). Thus, preferably a qualitative method is used. This due to the descriptive character for a qualitative method and its aim to gain insights on the perspectives of the issue from those included in the study and hence ensure understanding of a phenomenon as it occurs in its natural context (Bryman & Bell, 2013; Robson, 2011; Creswell, 2007; Carter & Little, 2007).

Criticism of qualitative case studies focus on three different aspects (Bryman & Bell, 2013; Yin, 2007). The objectiveness of the researcher, the ability to generalise from only analysing one case and lastly, that the research method is time-consuming and can easily result in comprehensive and indecipherable reports. These aspects can lead to the research study not being transparent and therefore hard to replicate. Despite the criticism on the research design and its methods, it is the most suitable and feasible approach for this study. Although, it is important as a researcher to be aware of the deficiencies when conducting a qualitative case study.

3.2 Literature review

For this study, a narrative literature review has been applied. The narrative literature review aims to identify a research gap to fill and to enrich both the human discourse and the understanding of a specific subject (Bryman & Bell, 2013). A systematic literature review can be useful to minimise bias and increase the capability to replicate the review. Nevertheless, the reason behind the chosen approach is its usefulness when conducting qualitative studies since it gives the researcher the ability to discover new areas or themes of importance to the study.

The purpose of the literature review for this study was to gain an understanding of what has been made on the area, different angles of approach towards the issues and which terminology that was frequently used. The second step was to gain further insights in what the research resulted in, what it tends to focus on and what was missing. These two steps helped to broaden the perspectives and knowledge about the subject of research. The literature review is based upon books and peer-reviewed articles which was found in different databases, for instance the SLU's online (and physical) library Primo, Google Scholar and ScienceDirect. Different key words were used to navigate and target the area of interest; "entry barriers for farmers", "young farmer problem", "agricultural finance", "generational renewals",

"land acquisition act", "venture capital", "agricultural funds", "long-term ownership", "access to farmland", "agricultural credit assessment" and "land acquisitions". By using these key words and an unstructured approach, additional articles and books relevant to the topic was collected and used in the study. Further, secondary data from corporates, authorities and practitioners' magazines outside the academic sphere has been reviewed and used in the study to gain insights and examples from an empirical perspective. This literature review ensures the quality of conducted information and knowledge which thus helps to enable adequate conclusions and discussions.

The literature review will provide an overview of what has been researched on the generational renewals' phenomenon. Most of the articles written on the subject are of quantitative character which opens for a qualitative approach towards the challenges and

3.3 Research method

The research method explains the technique used for data collection (Bryman & Bell, 2013; Yin, 2007). In qualitative studies, the empirical data is normally based on interviews, although the structure of the interviews can vary (Bryman & Bell, 2013). A qualitative researcher can either use unstructured interviews or semi structured interviews, the notion of structured interviews is mainly used in quantitative research. Hence for this study, semi structured interview is to prefer. To explain and understand the idea of hybrid loan as an alternative financing option, net present value (NPV) calculations will be made. The calculations will present three different scenarios, one traditional bank loan case, one hybrid loan case and lastly a leasing case. A NPV calculation is made to develop an understanding of how the novel funding alternative will affect the farmers equity and then compare it to the other cases to see how they differ.

NPV shows the present value of future cash flows for a specific project or investment (Gallo, 2014). NPV is a method of calculating the return on investment by looking at the expected earnings and translating it to today's monetary value (Brealey et al., 2019). Hence, the method takes the time value of money into consideration (Brealey et al., 2019; Gallo, 2014). The time value of money is used to describe the fact that money in hand today is more valuable than money tomorrow and takes as well as inflation as alternative usage of the money. Another reason for using NPV is that the calculation provides a concrete number that can be easily compared with the initial outlay of cash. Despite the benefits of NPV it is also easy to make mistakes in the calculation which affects the outcome. Gallo (2014) argues that the disadvantages of the method is that it may be hard to explain

to others and the fact that it is based on several assumptions. These assumptions, such as costs, discount rates and rates of return. Costs can be difficult to assess if the expenditure or project does not have a clear price tag. For example it can be hard to estimate employee time and resources. In terms of discount rates, the interest rates can spike during the project period and hence the calculation will be faulty. Third, the investments projected rate of return need to be fair and hence the risks lies in being over optimistic. To avoid mistakes and misunderstanding, the assumptions made will be clearly displayed and argued for in the result chapter.

Semi structured interviews aim to focus on the respondents' own interpretations, perspectives and standpoints (Bryman & Bell, 2013). In this approach it is eligible for the interview to take on different paths to further evolve and develop knowledge about what is important to the respondents and their reality. Thus, an interview guide is conducted which includes different areas of interest for the study. In addition to this, the semi structured interviews are flexible and does not force the researcher or the respondents in any direction or conduction. The respondent can be interviewed many times, it is allowed to go outside the interview guide and ask other questions or in different orders as well as formulating the questions in any preferable way.

Although the approach is flexible and leave space for exploring and detect important aspects on an issue, Bryman & Bell (2013) means that this is also the reason behind the criticism of the not so structured approach. It becomes harder to replicate the findings and the interpretations and perspectives of a respondent can be viewed as disturbance that should be avoided.

Since the study is a qualitative descriptive case study, semi structured interviews have been made with young prospective and active Swedish farmers with a farm within the family. The respondents are facing a generational renewal process or are in the middle of one but in different steps within the process. The reasoning behind the chosen respondents is to gain different insights on the various financial issues that may arise when beginning as a farmer and to obtain knowledge about the whole spectra of generational renewals.

Despite the criticism, it becomes crucial to describe and understand the respondents' perspectives to fulfil the study's aim and answer the research question.

3.4 Analysis method

The method of analysis is determined based on the research design and characteristics of the study and hence grounded theory is the most suitable analysis

method for this study. Grounded theory is the most used analysis method for qualitative studies and means that the analysis and theories develops after the researcher has conducted the data (Bryman & Bell, 2013). By letting the analysis and theories develop after collecting data allows the researcher to enlarge the explanation of a complex phenomenon by identifying key aspects of the unit of observation and categorise the elements to the unique context that aims to be investigated.

The method consists of tools and results and should be used in parallel and in interaction with each other (Bryman & Bell, 2013). The tools are theoretical selection, coding, theoretical saturation and continuous comparisons which will develop into the results for the method. The results of the method consists of concepts, categories and characteristics and theory. Theoretical selection means the theoretical considerations taken during the process and should be made continuously until theoretical saturation is fulfilled. Theoretical saturation touches upon the different concepts developed until there are no further theoretical insights to be made. The importance of maintaining a close relation between the data and the conceptualisation is defined as the continuous comparisons that should be made throughout the process. The coding of the data can, according to Bryman & Bell (2013) be made in various forms. For this study, open coding has been used which means that the collected data has been broken down into concepts followed by different categories which will be the basis for analysis to draw conclusions to answer the research question. The coding will hence be the foundation of the result of the grounded theory and are illustrated as separate paragraphs in the analysis chapter.

3.5 Interview guide

To conduct the semi-structured interviews, an interview guide has been developed. The interview guide provides a direction for the interviewer and declares important areas of interest that should be covered in the interview. Instead of using specific questions, four different areas of interest have been identified. This to create an open environment for the interviewees and not steer in any specific direction. After touching upon the different interest areas, the idea of new alternative financial solutions was presented and discussed. The four areas are formulated as follows:

- Background about the person, the company and the farm

- The view on ownership versus leasing of farmland

- The view on external finance

- The possibilities of acquiring the farm and the respondents' perception of the future

3.6 Ethical considerations

Ethical questions may arise in various shapes and forms when conducting business research (Bryman & Bell, 2013). Hence, it is important for a researcher to comprehend how to manage these issues if they occur and how to mitigate the risk for such events. Openness and honesty are essential for any research as these ethical considerations cannot be neglected. Therefore, ethical code of conducts have been formulated by various institutions, authorities and corporates. Some of these ethical rules concerns requirements for information, consent, confidentiality, anonymity and utilisation together with false pretences. This means that the researcher must inform the respondents in the study of the purpose and what element the research includes. The respondent's participation should be voluntary, and they are allowed to cancel their partaking at any time. Anonymity should be applied if wanted by the participants and their personal data needs to be handled with outmost caution. Further, the collected data should not be used for other purposes and the researchers are obliged to provide the participants with correct and accurate information about the research.

To ensure that these ethical rules are being followed, an oral consent agreement for the respondents of this study has been made and all have been anonymised to respect and care for their privacy. This because the process of generational renewals and/or land acquisitions can be of delicate character. The agreements content can be found in appendix. As requested by the respondents, to further respect and safeguard their identities, the transcript of the interviews will only be provided if asked for. This is because it should not be possible to find out their identity through their responses.

3.7 Data collection and quality criteria

Yin (2007) has identified three principles for data collection that aims to improve the validity and reliability of the study. The data collection for this study has been made according to these three principles and hence an explanation of them will be given.

The first principle manages the usage of multiple sources and triangulation (Yin, 2007). By using multiple sources, the researcher broadens the scope of perspectives

which is fundamental when conducting case studies. The triangulation process refers to making an evaluation of the data sources with the purpose that all of them aims to confirm and/or strengthen the view of the researched phenomenon. It is important to analyse the multiple sources all together and not individually, which constitutes the design of triangulated information as illustrated in figure 6. Although all the below sources will be used to enable an analysis and answer the research question, the semi-structured interviews and the NPV calculation will be of higher priority. The other sources are used as a framework to understand the complexity and validate or question the respondents' perspectives.
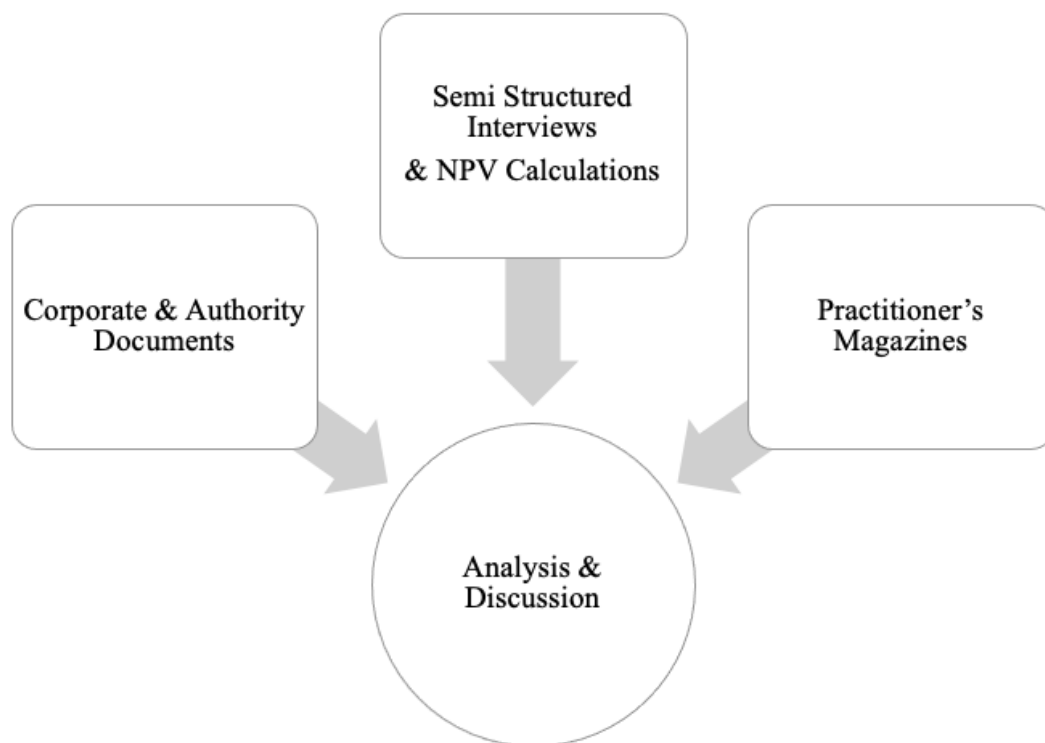
Figure 6. Illustration of the study's data triangulation. Own processing.

Data triangulation intends to counteract the issues regarding concept validity that often occurs in case studies (Yin, 2007). In practice this means that the empiric in this study is based on interviews, corporate and authority documentations and practitioner's magazines articles. These multiple sources have been triangulated to manage the criticism of qualitative case studies. This because Yin (2007) argues that case studies using these methods tends to reach a higher quality.

How to organise and document the collected data is brought up in the second principle (Yin, 2007). If the conducted data is documented and stored right, it benefits an independent audit of the case study. The raw data are available upon request to enable other researchers to penetrate the information directly without

solely being referred to the final report. The reason behind this is to ensure the study's reliability since the lack of a formal database is one of the shortcomings of case studies as a research design. Hence, the transcript from the interviews made for this study will be provided if asked for, to ensure the ethical considerations. This method means that the answers and narratives from the interviews will be complied and available for others to use and study (Yin, 2007). To further assure the quality of the information given in the interviews, respondent validation has been made. Respondent validation means that the respondents get access to their answers and confirms the researcher's interpretations of the data (Bryman & Bell, 2013).

The third principle aims to create an evidence chain (Yin, 2007). The purpose of this is to enable the reader to follow the steps taken to reach the results and conclusions in the study. If the reader wants to track the conclusions and reasoning behind the study, it should be possible to do so. To enable this, the final report will consist of various and sufficient number of quotations from the empirical data. To ensure this principle in practice, the quotations are cross-referenced. This to enable traceability from the empirical data to statements, conclusions and reasoning within the final report.

These three principles are formal procedures being applied to ensure the quality of the data collection and to manage the complexity of collecting qualitative data (Yin, 2007). Due to the flexible nature of qualitative studies, the quality assurance becomes important and refers to the trustworthiness and authenticity of the research (Bryman & Bell, 2013 & Yin, 2007). To concretise how to fulfil the trustworthiness and authenticity, Yin (2007) has formulated four quality criteria. These criteria aim to ensure that the research has been conducted accordingly and to prevent the risks connected to qualitative research. The criteria's conducted by Yin (2007) has been mentioned in various shapes and forms by other researchers (Bryman & Bell, 2013 & Robson, 2011). The four criteria and how they are applied in this study is explained in the table 1.

Table 1. Quality criteria and their application in the study. Own processing.

Criterias	Explanation	Applied in the study
Construct Validity	Shaping real measures for the studied concepts.	• Usage of multiple sources • Triangulation • Evidence chain • Respondent validation
External Validity	Delimitating the scope of the study.	• See chapter 1
Reliability	Ensure that the execution of the study can be repeated with the same result.	• Raw data given upon request • Usage of cross-references • Comprehensive method chapter • Seminars with supervisor, opponents' feedback and examination

3.8 Unit of analysis and unit of observation

The unit of analysis is according to DeCarlo (2018) the entity that intends to be explored and what the research questions aims to give an answer to. When learning about the unit of analysis, there are different items needing to be measured, observed and collected. These items represent the unit of observation. Yin (2009) also refers to the unit of analysis being the broader spectra in which the investigated area is included, and the unit of observation are the specific targets within the broader spectra.

The unit of analysis and the unit of observation for this case study is both entering farmers. The reason behind this is the fact that the case study is focusing on entering farmers by conducting interviews with concerned and analysing their perspectives and incentives to draw conclusions on hybrid loan as a solution for generational renewal.

4. Empirical background

The empirical background aims to give an operational insight into the challenges of Swedish farm successions and farmland acquisitions. Lastly, an alternative financial solution will be presented and explained.

4.1 Land acquisition act in Sweden

Sweden has a long history of governmental control regarding the purchase of forest and farmland (Swedish Board of Agriculture, 2010). The current law that reaches the end of 1970th was initially founded to make sure the farmland was used efficiently. The law made it possible for the authority to refuse one buyer of forest and farmland in favour of another to make sure the properties became profitable units of family farms and not bought up by large forest corporations (Slätmo, 2018). The Acquisition Act builds on three different aims. These contribute to employment in low populated areas, enable improved property parcelling on forest and farmland and restrict land ownership by legal entities.

The Land Acquisition Act regulates who can buy land in specifically low populated areas. According to the Acquisition Act (SFS, 1979:230), buyers who are not residents within these areas must apply for permission of ownership to encourage settling and occupation. If the land is of interest to improve the occupational situation in the area, the application can be denied. The second aim is to facilitate property parcelling in small and inefficient farm and forest properties. In these areas, the buyer needs to apply for permission to buy land to ensure the acquisition improves the property parcel. According to the law, the acquisition permits will be denied if the transaction will not improve the property (SFS, 1979:230). Further, the ownership restriction for legal entities restricts the acquisitions of forest and farmland. It deals with property transactions between private owners or estates and legal entities. Thus, the regulation does not control transactions between legal entities.

4.2 Bank regulations in Sweden

Access to financing is crucial for the business's growth and development (The Confederation of Swedish Enterprise, 2019). This because investments in growth and development requires capital and this capital does not necessarily come, or cannot come, from the companies own retained earnings. Therefore, the companies are dependent on external equity or debt financing. The debt financing can be collected through loans from banks or credit institutes, by issuing bonds or through supplier or client borrowing. The latest banking regulations may have affected and changed the companies' possibilities to access funding via bank loans.

Bank regulations have one main purpose, and that is to mitigate or prevent financial crisis since a financial system in crisis foster great socio-economic and social expenses for the society (The Confederation of Swedish Enterprise, 2019). The regulations aim to keep the fundamental needs of the system in place, such as handling payments, managing savings and financing as well as risks. Hence, the financial companies are imposed to have a certain covering in equity and to hold a certain amount of cash for their lending. These capital adequacy requirements mean that the banks need to charge a higher interest rate to maintain their return on equity. Hence, the companies interest expenses increase when the banks' capital requirements increase, this despite that the effect could possibly be counteracted by a decrease in the banks' deposit rate due to the perception of being more secure because of them being well-financed. The statement is proven by the Swedish National Bank (2017) and in a study by Baker & Wurler (2015). Further, the Swedish National Bank (2017) emphasises the banks' need to increase the interest margins to maintain the profitability when forced to reserve more capital for their lending. The reason for stricter regulations, despite the negative impact, are the assessment that the high lending rates does not exceed the negative effects on the national economy that a financial crisis entails (The Confederation of Swedish Enterprise, 2019).

The foundation of the bank regulations in Sweden are the Basel Regulations (The Confederation of Swedish Enterprise, 2019). The Basel committee develops the regulations and consists of, amongst others, the US Federal Reserve System, the European Central Bank and the Swedish National Bank and the Swedish Financial Supervisory Authority as representatives from Sweden. Technically, the Basel Committee has no power over the different countries law, but the members have committed to follow the agreements. Since the EU is a member, the Basel Regulations becomes Swedish law through the EU-law, although, every country has the right to add stricter regulations. The financial crisis in 2008 showed that there was a need for stricter regulations and hence the Basel III came to be and is the regulations which Swedish banks follows today. The Basel III aimed to increase

the quality and quantity of the banks' capital and to cover further risks than earlier. This led to an increase in capital requirements from 8-10.5% and other demands on e.g., liquidity and a countercyclical buffer.

The regulations in Sweden are stricter than the Basel III and the Swedish Bank Federation (2018) emphasises the higher capital requirements due to the reserved amount for the system risk, the countercyclical buffer and the risk weight floor for mortgages. The capital requirement in Sweden is considerably higher than the EU average and exceeds the EU regulation demands (The Confederation of Swedish Enterprise, 2019). Thus, the Swedish special requirements influence the companies' funding opportunities. With today's regulations, the companies are divided into seven different categories with different risk classification. Small and mid-sized businesses (SME) are a separate category to mitigate the risk of them being too affected by the risk classification. The regulations states that the risk weight for SME's is 85% but despite this, the major banks in Sweden can, with permission from the Swedish Financial Supervisory Authority, determine internal risk weight models. Hence, it increases the flexibility in risk fixation. Although, the risk weight can only be amended if the company has property as collateral and this because the credit risk for lending is determined by the risk of credit default and the loss due to credit default. Another reason is that the regulations only allow to take company-specific considerations to the loss due to credit default. Thus, the banks cannot lower the credit risk on the grounds of a contract guaranteeing the company a certain turnover and hence secure the repayment capacity, but solely if there is property to be held as collateral. The risk weight can then be lowered to 50%. That means that a company with better turnover and profitability will get a higher interest rate on the bank loan then a real estate company with profitability issues but properties as collateral. The immediate effect of the regulations shows that companies without property as collateral are affected harder because of the banks higher interest margins and hence faces difficulties to get funding through bank loans.

The risk of credit default is determined by branch average, table 2 shows the bankruptcy rate of different industries in Sweden, including the bankruptcy rate of Swedish agricultural businesses (SCB, 2022; The Swedish Bank Federation, 2018).

Table 2. Bankruptcy rates within Swedish industries. Own processing.

Sector	2000-2005 (%)	2006-2010 (%)	2011-2015 (&)	2016-2020 (%)	Average 2000-2020 (%)
Agriculture	0.06	0.05	0.05	0.05	0.05
Forestry	0.14	0.04	0.04	0.03	0.06
Real Estate	0.45	0.31	0.26	0.16	0.30
Transport	1.16	1.04	1.20	1.09	1.12
Construction	1.32	1.12	1.26	1.18	1.22
Retail	1.40	1.30	1.40	1.25	1.34
Hotels & Catering	1.79	1.61	1.64	1.60	1.66
Swedish Economy (gross)	0.79	0.58	0.57	0.51	0.62

Further, The Confederation of Swedish Enterprise (2019) emphasises that companies without property collateral will continue to face difficulties in access financing through bank loans. Other aspects than the Basel III regulation that affects the possibility to get a bank loan is the trend of closing local bank offices and the digitalisations of the credit assessment process. This leads to a decrease in personal contact and makes it harder to assess the business idea and various client contracts.

5. Empirical results

This chapter gives a summary of the respondents in the study followed by a presentation of the empirical results from the interviews. The semi-structured interviews have been summarised in different parts according to the interview guide and will hence not be divided per participant.

5.1 Introduction about the interviewees, companies and farms

The interviews were conducted during the spring of 2022 with six different people who were all in different stages of their family farm successions. The respondents were in the age range from 22 to 34 years and lived in the region of Mälardalen - in the centre of Sweden. Further, they were all born on farms, but number 6´s parents were not practicing farming. The farm specifications differed amongst the interviewees with an unambiguous image of the history on the different farms. For some respondents the farm has been within the family for generations, while others were the first-generation inheritors. The farms' branches of production were diverse with beef, poultry or dairy, and two of the respondents focused predominantly on arable crop framing.

Respondent 1 and 2 have education within agriculture from high school and respondent 3-6 have an agricultural degree from the university. Respondents number 3 and 4 had off-farm employment, but they were both living on their family farms and were to some extent involved in the business, mainly in the cropping on the farm. Respondents 3 and 4 were both employed on their family farms without further managerial responsibilities. Respondent 5 is born on a farm where the land is leased out. The aforementioned respondent had a newly established firm together with the life-partner, in which they run a cropping operation on leased land besides their off-farm occupation. Interviewee number 6 had full managerial responsibilities in the family business that was owned by the parents. In this case, the farm succession is planned to be completed by this year. Despite the different occupational constellations among the various interviewees, the consistent

similarity in every single case was the willingness to work as farmers in the near future. The respondents are presented and briefly introduced in table 3.

Table 3. Overview on the respondents of the study. Own processing.

Respondents	Age	Gender	Region	Main occupation as farmer	Family farm	Farm owner	Siblings
Person 1	22	Male	Mid Sweden	Yes	Yes	No	Yes
Person 2	22	Male	Mid Sweden	Yes	Yes	No	Yes
Person 3	30	Female	Mid Sweden	No	Yes	No	Yes
Person 4	30	Female	Mid Sweden	No	Yes	No	Yes
Person 5	30	Female	Mid Sweden	Part-time	Yes	No	Yes
Person 6	34	Male	Mid Sweden	Yes	Yes	No	Yes

5.2 The view on ownership versus leasing of farmland

The view on ownership was to some extent conforming between the respondents. All six of the respondents pointed at the security of owning their own land in terms of proprietorship and that it would facilitate development through access to capital. This, according to the respondents, because of the value of having land as collateral when approaching the bank. Another aspect was the ease of not having to worry about losing arable land. All the respondents pointed at the fact that they have an emotional bond to the farm and that it is more empowering to work and manage own land. Arguing that the amount of engagement and input is high, and interviewee number 5 compared it to owning versus renting a house. Respondent number 6 added the security of owning most of the land to make it an attractive farm to take over due to the benefits that comes from owning land such as less worry about a decrease in arable land and no other stakeholder to adjust to. Other aspects are of financial nature, where some respondents meant that it is more important that it is financially feasible rather than a question of owning or not owning. The argument was strengthened by respondent number 2 emphasising the benefits of leasing in terms of a better cash flow then to affect the cash flow by paying amortisations and interests.

" - In fact, I believe that it is better to lease. Otherwise, it is so much money just to pay the interests and amortisations" Resp. No2.

Despite the financial benefits from leasing which was brought up from some, all the respondents mentioned the same downsides of leasing. Meaning that the

willingness to invest in infrastructure on leased land is low and the uncertainties of leasing from private individuals, due to the risk of conflicts. When having lease contracts for five years or less, the incentives of a long-term management get lost according to respondent number 1 & 2. The reason for tenants' unwillingness to invest money and effort on other people's land, respondent number 5 meant was because of the empowerment of investing in oneself and hence it is important to own the land. According to some respondents, there is also a question of whom the landowner is. They would rather lease from a retired farmer than from an institution or individual from outside the farming community. This because they viewed it to be easier to maintain a good relationship and an understanding for farming if the landowner has been a farmer, and hence mitigate the risk of conflicts.

" - I do believe that one can be more reluctant to lease from an outsider than from the neighbouring farmer" Resp. No3.

All the respondents were reluctant to owning the land together with someone else because having full property and usage rights is important. Respondent number 5 believed that it is not feasible to own jointly if the parties are not equal owners, meaning that it would not be possible if one of the owners worked outside the farm and the other one managed the land and the buildings. Other respondents pointed at the security of not having to worry about different volitions and opinions but had a positive attitude towards buying together and then split the land equally or other similar solutions. This to enable to purchase more land without having access to all the capital needed oneself.

" - You rarely hear any happy endings of when siblings own the farm together" Resp. No4.

When discussing ownership, the respondents mentioned the market for agricultural properties and the fact that they do not compete solely with other farmers, but wealthy individuals from outside the farming community. Within these discussions, the young successors emphasised the impossibility to compete with that amount of money and that it pushes up the market price for arable land. Respondent number 1 had a negative attitude towards institutions purchasing land, meaning that it hinders young farmers from entering the sector. Respondent number 6 showed an understanding for other private individuals wanting to purchase arable land as an investment, stating that they are allowed to do what they want with their money and that there is a market for leasing land. Although, the respondent also emphasised the issue of higher barriers of entry for prospective farmers and other personal interests attracting these kinds of landowners, such as hunting.

"- I see a huge problem with that, all the farmers in the countryside are being replaced. And then there is a financier or other from the city buying the land... We cannot even get close to that kind of capital" Resp. No6.

5.3   The view on external finance

The predominant opinion regarding the upcoming need of different financial sources stated internal generated funds as the most preferable source of financing for their prospective farm operations. The second alternative was financing via bank loans. Thus, the respondents felt a sense of fear to raising dept to meet the need for capital to compensate other stakeholder within the succession process. Other sources, such as seeking finance from various firms granting corporate loans, was not mentioned as an option amongst any of the respondents. To secure financing through different solutions existing in other branches, such as issuing equity, bonds, crowd funding or other loan constructions was neither mentioned, nor even reflected upon.

Respondent number 3 & 4, who did not work on the family farm were neither involved in their family's relations nor contacts with outside investors, i.e., banks. Despite this, both had a very similar attitude to borrowing money as the respondents who also worked on their family farms. They were all concerned about the centralisation of the bank sector, where they bevelled for having an unknown banker who did not know farming or was familiar with the operations. This phenomenon, the interviewees meant has led to an information asymmetry between the banks and the farmers. Respondents number 5 & 6, who already had well-established contacts with banks, viewed the financing process as the most crucial part of the farm succession. One of them, pointed at the tradition among Swedish farmers to be loyal to the bank and the banker and that Swedish farmers hence are unlikely to change bank. Further, the respondent stated that this can lead to farmers not getting the best terms available due to the lack of comparison between different banks. The reason behind this loyalty lies within the fact that the Swedish farming community has a strong sense of trust and tradition when seeking finance, rather than exploring the best option available. The other respondent, who had already started a legal entity, declared the worries about being highly mortgaged but at the same time explained the strength of being married to a person with deeper knowledge and several contacts within the bank sector throughout the employment outside their farm operation. The respondent said:

" - I am not super worried about being highly mortgaged, because I have my partner with me. But I experience that many other young people are. One can get a little shortness of breath by the thought of being mortgaged in that way" Resp. No5.

All the respondents were concerned about the mortgage effects on their future cash flow in the operation. This because they all will have newly started firms and have not yet been able to build an economic buffer or a stable operation generating a decent cash flow. Hence, they are still facing heavy expenditures and start-up costs. The distinct need of raising debt to pay out or fairly compensate the siblings with cash would jeopardise the possibilities of investing to develop the farm further. Interviewee number 3 was clear about the fact that the family farm itself was in a need for the earnings to maintain further development of the business and, that there was a narrow room for paying interest and amortising. In two of the cases, the livestock barn on the family farm had to be replaced to make the day-to-day work tolerable. One of the respondents expressed the problem of paying millions to a sibling and, after that, being forced to invest the same amount in a new cattle barn to make the work situation acceptable while not even increasing the number of cows.

"- The operation is rather in need for reinvesting their profits instead of paying amortisations and interests" Resp. No3.

Another perspective of the financing process was expressed by respondent 6 who had full managerial control and financial insight within the family farm. In the interview, the respondent argued that there is probably not a single successor in the farm sector who are happy about raising loads of dept. On the other hand, being highly mortgaged for assets such as farmland does most probably not bring a significant risk exposing itself. Although, the respondent expressed his concerns about the uncertainties of the interest rates while being highly mortgaged and at the same time, rely on the farm business to keep a stable cash flow to be able to pay interest even if the rates increases or the farm leaves a bad cropping season behind.

" - The cash flow is absolutely something that worries me and is one of my biggest anxieties. Today it is OK, but what if/when the interest rates become higher?" Resp. No6.

5.4 The possibilities of acquiring the farm and the respondents' perception of the future

A consistent image that was pictured in most of the interviews was the sense of pride in being a farmer operating the family farm. No matter how many siblings were affected by the farm succession, the inheritors were convinced about their brothers and sisters' willingness to keep the farm within the family in the future. Without talking to any of the current generations of farmers, four out of six respondents viewed their parents' attitude to the farm succession as a crucial process where the farm is seen as a life's work that must be held together to ensure a financially stable farm business in the future.

In one deviant case, respondent number 2 perceived the older generation's view a bit differently, where the parents were determined about the strict fairness, in terms of monetary compensation, in the succession process. They viewed the successors' ability to carry through the mortgage level, that would come from compensating the sibling, too heavy of a burden. Therefore, the farm was going to be split in half where the interviewee would lease the other half from the sibling who is not, interested in using the land for own farming, nor in becoming a farmer. Thus, the reason to split the farm is due to lack of other compensating assets. Respondent 2 & 5 also pointed at the aging of the current generation of farmers and their reluctance in quitting as farmers. The respondents meant that it hinders young farmers from entering and it also hinders existing farmers from expanding their arable land since it nearly never comes any land for sale. Respondent 5 pointed out that the reason behind the reluctance to quit farming was due to the lack of pension and a decent livelihood which leads to them being forced to continue with the production to ensure an income. The respondent further argued that this was not a situation the current generation willingly and open talked about.

Throughout all interviews, the respondents were concerned about the possibility to acquire the farm to an estimated market value and fully compensate their siblings and parents. It was viewed as nearly impossible to accomplish, and hence the perceived monetary unfairness was mentioned in various forms within all the interviews. It was more a case of what level of monetary compensation the sibling could agree to, below an estimated market value, without contributing to a severe constraint on the successor's liquidity, business development and standard of living.

" - I could never afford to buy this and take over the estate at market value. And I do not believe anyone can" Resp. No1.

How the six different successions are intended to work differs from case to case. Although, there are a few similarities such as starting a legal entity were the successors gets to buy the inventories or get the inventories as a donation, and to buy the property below market value but enough for the other parties to feel

satisfied with the compensation in cash. The reasoning behind starting a legal entity was to ensure a stable cash flow and to gain a track record for the successor to later be able to take over the agricultural property.

" - An agricultural business today can only survive, in principle, by borrowed money in order to develop. And that I am aware of. But I have been very clear that it would not be possible to cash out my sibling for market value" Resp. No6.

For respondent number 1,2 and 5, their siblings will also get compensation in terms of land or real estate, other assets within the family and/or get to live on the farm for free. In cases where other siblings are interested, which is the case for number 3 and 4, the legal entity will be owned jointly, and the operations will be managed by the siblings together. In cases where the sibling will be compensated with arable land, the farm successor will lease the land from the sibling. Exactly how the sibling/s and the parents will be compensated, the amount and the portion of land is not determined in any of the cases, but there is a concern on how to manage it and get every person involved pleased. Respondent number 4 mentioned the lack of peer-to-peer knowledge sharing about generational renewals, that it is common to talk about different scenarios but not how the final solution was designed. The respondent meant that it could help others in their process.

" - The one taking over the farm always gets more. Although, that person becomes more of a property manager and the sibling gets money to spend instead" Resp. No1.

Despite the pessimistic view on the possibilities to acquiring the farm to an estimated market value, the respondents' view on their future as a farmer was optimistic and, to some extent, untraditional. Untraditional since today's economic and political environment force prospective and young farmers to think and act differently than the current generation when managing the farm. The prospective and active farmers valued their time and working conditions highly. They are not reluctant to work a lot, but they also believe that working every day of the year, up to 12-15 hours a day, is not sustainable. Hence, respondent number 5 & 6 means that the younger generation of farmers are willing to do things differently and has a more open mind towards change and the agricultural entrepreneurship. This to be able to combine the farming practises with their family life and all that comes with it. Further, they also view the future of farming as positive and believe in an upswing for the industry in Sweden despite all the external uncertainties, environmental challenges and a more volatile market for both input gods and sales. Jointly among the respondents were the hope and willingness to pass on the farm to their future children.

" - This is where I am supposed to live and work and I hope, if I get children, that they would want to take over, since it is an old family farm" Resp. No1.

5.5   Attitudes towards hybrid loans

As the last part of every interview, the respondents were introduced to the hybrid loan by a short presentation by the interviewer. The overall reaction observed in all the interviews was a curiosity and positive attitude towards the hybrid loan.

In every case, the respondents built upon what they pointed out earlier in the interviews, mostly concerning the socioeconomic aspects of a generational renewal. Mentioning the possibility for the current generation and siblings to get a more reasonable monetary compensation and hence be able to have a decent pension and life after retirement. Respondent number 5 mentioned the financial issues for the current generation where they may not be able to accept a decent monetary compensation due to the willingness to create better conditions for the new generation. Hence, they may have to renounce a financially stable and secure pension. All the respondents pointed at the fact that a hybrid loan solution could help make the farm succession more feasible and flexible, in monetary terms, not only for themselves but for the other stakeholders as well. Respondent number 1 mentioned the possibility a hybrid loan would give to young people without a farm in the family to enter the sector and become a farmer. The respondents had earlier in the interviews expressed a wish for their children/future children to take over the property and hence continue with the tradition of holding the farm within the family. Thus, giving up the value appreciation of the farm for a specified timeframe of 10-15 years was not considered as a hinder for the idea of hybrid loans.

"- Our time horizon is much longer than 10-15 years, so to give up a part of the value appreciation to carry through a sustainable generational renewal should be very interesting" Resp. No4.

Although, the overall attitude towards hybrid loans was positive and optimistic, one aspect caught from the respondents 3-6 was the feeling of uncertainty of raising finance from such an unconventional or unknown institution as Gårdskapital. Respondent 3 expressed an ignorance towards financing in general as the key source of uncertainty against a new financial instrument as a tool for the family farm succession.

Respondent 6 pointed out owning the farm as one of the major purposes of being a farmer, and thus, giving up some of the value appreciation of the farm was at the

first thought a bit implausible. Although, when expressing a wish of handing over the farm to future generations, the respondent argued that keeping a stable cash flow and to be able to develop and reinvest within the farm was crucial to handing over a farm in good condition with further growth potential. Hence, giving up some of the value appreciation was not a concern and could rather be seen as enabling to hand over a well-managed farm and would overcome any eventual gains on the value of the property if the long-term goal of owning the farm does not include selling it.

"- It is exactly this that worries me, the heavy interest burden. To be able to let go of that burden and build a cashflow and maybe even a buffer... That is a huge advantage for a farm business" Resp. No6.

Respondent 5 argued a lot about the time perspective and the purpose of ownership as the key aspect of raising debt by a hybrid loan. If the aim of the succession would be only to act as a land manager where the land would be leased out, the upside of a better cashflow would not be necessary due to negligible need for further investments that require a stable cashflow, and would not overcome the downside from not gaining the whole value appreciation of the property value. In the respondent's case, the farm is rather underdeveloped, which cause a need for reinvestments along the way. Therefore, the upside of raising dept that would not affect the cashflow immediately would be a very useful solution.

5.6 Scenarios for land acquisition under different financing options

To illustrate how a hybrid loan solution could affect a farmers equity, the NPV of three different case scenarios has been calculated. The first case shows a traditional bank loan, the second case shows a hybrid loan, and the third case shows a leasing option. The hypothetical case scenarios are based on a beginning farmer with the opportunity to purchase 150 hectares of farmland from the parents at the value of 18,000,000 SEK by monetarily compensating both the parents and one other sibling. The parents require 40% of the market value of the land to compensate for low savings and to buy a retirement house, whereas the overtaking farmer and the sibling will share the other 60% of the value as an early inheritance. The overtaking farmer, therefore, must pay 40% to the parents and another 30% of the market value to the sibling, which makes the total amount being 70% of the market value for the farmland.

To see the effect from financing the generational renewal by a hybrid loan, the three different case scenarios have been constructed. The case showing the use of a traditional bank loan has been made with three different interest rates, to illustrate different interest scenarios and to explore the sensitivity of the results. The hybrid loan case is displayed with an annual coupon payment of 1% and the third case shows the outcome from selling the family farm, invest the profit and then lease the same amount of land for cropping.

The two different debt scenarios compare the outcome from buying the land by raising debt from a regular first lien loan where the interest and amortisation are paid annually compared to using the hybrid loan where there is no amortisation, and the interest is based on the value increase on the land and will be paid after ten years. The two different financing scenarios are then compared to a third scenario where the family sells the farm and split the profit on the same ratio as in the succession case. Further, in this case, the prospective farmer will invest the part of the profit in securities with an expected return of 4% and then lease the same amount of land. The leasing cost assumes to be 1,600 SEK/hectare which is the average leasing cost in the region (Jordbruksverket, 2020).

Table 4 and 5 below show the discounted cashflows from buying and operating on the land by using a hybrid loan or a regular bank loan and the calculations assume an investment period of ten years. The gross margin from the operation is assumed to be slightly higher in the debt cases due to ownership cost of 50 SEK/hectare that comes with the ownership of the land and these costs assumes to be relative due to no property taxes. The cashflow from the different options are then discounted to the present value. In the hybrid loan scenario as well as in the leasing case, the discount rate assumes to reflect a risk-free investment of 1.5%. In the bank loan scenario, we are using a discount rate of 1.5% for a standard risk-free investment in a setting where the interest rate is 2%. We then adjust the discount rate to 3.5% in the case of a higher interest rate of 4% (assuming that returns on risk-free investments and interest rates are macro-economically strongly correlated). Both the interest rates, the discount rate, and the rate of return on investment are given in nominal terms and are therefore threated equally. Detailed information regarding the calculations is found in the appendix.

Table 4. Case scenario bank loan. Own processing.

Bankloan		Value increase in land		
		4%	2%	-2%
NPV on operation	Interest 2%	-68 138 kr	-68 138 kr	-68 138 kr
NPV on operation + Investment	Interest 2%	8 768 754 kr	6 290 976 kr	2 367 853 kr
LTV year 10		43%	51%	73%
NPV on operation	Interest 4%	-1 129 578 kr	-1 129 578 kr	-1 129 578 kr
NPV on operation + Investment	Interest 4%	5 823 041 kr	3 784 500 kr	556 832 kr
LTV year 10		45%	54%	77%

Table 5. Case scenario hybrid loan. Own processing.

Hybrid loan	Value increase in land	4%	2%	-2%
NPV on operation		2 043 175 kr	2 043 175 kr	2 043 175 kr
NPV on operation + Investment		6 679 047 kr	5 935 714 kr	3 495 275 kr
LTV Year 10		49%	59%	84%

In the short-term perspective, the outcome from financing the land investment with debt capital depends highly on the given interest rate, as shown in table 4 above. In both bank loan scenarios, the NPV of the cashflow from the operation is negative and the operation is in need for extra money for not going bankrupt. The use of a hybrid loan to finance land investment gives the farmer liquidity advantages compared to the regular bank loan where the amortisation and interest are paid annually.

Long-term effects from financing via bank loan is that the NPV of the investment has a greater upside due to amortisation and the fact that the farmers keep 100% of the value increase. If a farmer uses a hybrid loan to finance a purchase of arable land, the idea is to refinance the hybrid loan with a regular first lien bank loan after ten years (Gårdskapital, 2020). When the land value increases, the LTV ratio goes down, while on the other hand the ratio increases in case of depreciating land prices. As stated in table 5 above, the case of a decreasing land value of 2%, the LTV at year 10 will be 84%.

Looking at the option of selling the land and further invest the money and become a tenant farmer, the cashflow is greater compared to the option of using a bank loan for purchasing the farmland, which tables 4 & 6 shows. The option of leasing land gives a stable cashflow but could bring the agency problems connected to leasing of farmland (Jensen & Meckling,1979; Barry, 2000). As stated in the literature and confirmed in the interviews, the reason for ownership is not mainly connected to financial incentives and hence the financial benefits become harder to assess.

Table 6. Case scenario leasing. Own processing.

Leasing	
NPV on operation	1 260 421 kr
NPV on operation + investment	6 081 728 kr

6. Analysis & discussion

6.1 The reason for owning farmland

To gain a deeper understanding on how young farmers look at the financing issues of taking over the family farm, there is a good reason to look at their incentives of ownership. The social aspect of ownership connects with the socioeconomic treats brought up by Waldman et al (2021) who states that, e.g., stress and industry consolidations are prominent among farmers. Bunkus & Theesefeld (2018) also mention social aspects of owning farmland, which are in line with the respondents' views, and argues that ownership leads to empowerment and well-being for the farmers and that these social and cultural values gets lost when other natural persons, enterprises or governments owns the land. Hence, the empirical result indicate that the reasons for owning farmland are due to social values and long-term security in ensuring capital rather than financially beneficial incentives for beginning famers.

The respondents view on the relationship towards other landowners can be explained with the agency theory developed by Jensen & Meckling (1979) by applying Marks-Bielska's (2021) perspective of the agency relationship and information asymmetry. Marks-Bielska (2021) states that within the relationship between farmer and landowner information asymmetry may occur and hence affects the farmers perspectives on leasing land. The information asymmetry is connected to the respondent's uncertainties of keeping the land and the risk of conflicts due to the information sharing and difficulties in monitoring various tasks for both landowner and tenant. By analysing this further, the respondent's reluctance of leasing land is highly connected to their negative experiences and views on the relationship towards other landowners, and especially outside landowners, as well as the maintenance of land. Thus, the agency problem of information asymmetry highly affects the farmers perspective on leasing land which is not solely connected to financial incentives. The ownership itself is rather seen as a security and an opportunity to implement investments that will create higher profitability on farm level and to cater the social values of ownership and carrying on the family farm. This contradicts Barry (2000) findings stating that

farmers rather leases than owns due to the less agency problems with other land owners than the bank.

6.2 The successors view on external finance

The capitalisation of farmland, driven by outside investors has had a large impact on the land prices in the areas where all the respondents are operating. Further the issues connected to the financing problems leads to a complexed succession process were both the parents and siblings should be fairly monetarily compensated.

The lack of access to capital are stated as one of the major challenges for young people who are willing to enter the farm sector (Amanullah et al., 2020; Rompaey et al., 2018). Except from the low profitability in the sector, another reason behind the lack of access to capital and further the possibilities for young people to enter the farm sector are partly the Basel III regulations that restrict the banks for lending out money without a certain level of equity (The Confederation of Swedish Enterprise, 2019). There is a consistent view among the respondents about their impossibilities to acquire their family farms at market value. The respondents have all brought up that there is a need for the current generation and the siblings to accept an unfair monetary compensation to make the succession feasible and enable the inheritor to continue as a farmer. By looking at this statement further, what it really implies is that the business model of today's farm´s within the region of Mälardalen needs to be developed to carry the costs of purchasing farmland. Thus, Kauffman's (2019) statement that the conventional business model of farming needs to be challenged is pressing.

When discussing external funding for proceeding the succession process, bank loans was the only source of capital that was reflected upon, and other solutions were not mentioned by any of the respondents. This implies that the lack of alternatives is a fact and that alternative solutions may fulfil an important role. Most importantly it implies that alternatives which do not affect the cash flow of the business would be very beneficial for farm successions. The farm succession was viewed as dependent on a lower level of bank loans to manage and solve the issue regarding financial stress and ensuring a decent life quality for the inheritors. The concern regarding higher interest rates becomes extensive in times of inflation and even more so, arguably, in a branch with tied values and relatively low profits. Thus, a decent life quality and less financial stress becomes hard to tackle with today's current financial solutions.

Other concerns are connected to the centralisation of the banks and the lack of agricultural knowledge which indicates that there is a demand for a financial actor

with focus and knowledge about farming practises and an understanding of the unique business environment for the farmers. Arguments that contradicts previous stated concerns are the huge loyalty that farmers shows their banker. By analysing this empirical result, it could point at an information asymmetry between the banks and the farmers. Were the farmers are not being aware of the terms they are given and assumes that it is the best available deal. The financial knowledge that the banker has, compared to the knowledge of the farmers are also affecting the relationship and creates an imbalance in power between the two actors. The formal principal-agent theory can then be used to tackle the information asymmetry occurring between farmers and the financial actor. Although, the theory does not explain or take into account the value of loyalty and why farmers are reluctant to approach different banks and bankers.

The preferences of using retained earnings before debt agree with the assumptions of the pecking order of a firm by Meyer (1984). The theory thus far proves it is applicable on Swedish farming. When given equity as an alternative for Swedish farmers the theory loses its utility. According to Shyam-Sunder and Meyer (1999), there is a question of whether the farmer would find the external investors willing to invest due to a larger information asymmetry between investors and SME's. Further, issuing equity cannot be seen as a suitable solution to finance Swedish farmland acquisition due to the regulations that restrict ownership of farmland for legal entities, and thus the farmland must be owned by a natural person which makes issuing equity impossible (SFS, 1979:230). Thus, the POT as it stands, are not quite adequate to explain the Swedish farmers financial pecking order. To gain a better understanding within the context of farming, the financial pecking order for farmers are specifically explained by Barry (2000) who are looking at the farmers attitude towards debt for acquiring, versus leasing farmland. According to Barry (2000), farmers usually prefer the upside of leasing instead of raising debt to acquire farmland to ensure a better cash flow and less agency problems towards landowners than bankers. When analysing the financing issue related to the succession process, the arguments of cash flow advantages connected to leasing instead of buying farmland agrees with the statements by Barry (2000). The difference comes with the view on agency problems towards external financiers versus the relation to other landowners. There is a significant anxiety of being dependent on other landowners, whereas the relation to the banker was seen as something not as problematical if the banker was well loaded into farming.

6.3 Hybrid loan as an alternative financial solution

A need for unconventional ideas, an easier access to capital for young farmers and to cherish the social values for the new generation of farmers has been emphasised many times in this study as well as from other researchers (Convey et al., 2021; Waldman et al., 2021; Amanullah et al., 2020; Van Rompaey et al., 2018; Williams, 2017; Coopmans et al., 2016; Zagata & Zutherland, 2015; Fischer & Burton, 2014; Kauffman, 2013; Glauben et al., 2009; Williams, 2006; Burton, 2004 & Gasson & Errington, 1993). Kauffman (2013) argued that the main reason for young farmers lack of access to capital was the commercial lenders perception of the risk due to low farm equity and few assets. Further, the Confederation of Swedish Enterprise (2019) emphasis the fact that the risk weight can only be amended if there is access to property as collateral. Property as collateral is hard to use for a young farmer without a farm, and due to above mentioned entry barriers and the unique acquisition environment in Sweden, it calls for new alternative solutions to ensure generational renewal and hence a new generation of young farmers in Sweden. The reason behind the banks demands on interests and amortisations is connected to the bank regulations. Despite the fact that Swedish agricultural enterprises (0.05%) have a substantially lower bankruptcy rate than other SME's (0.62%) (SCB, 2022) it is possible to argue that the banks should not ease their regulations and that they in fact should have strict regulations to ensure their purpose and that access to venture capital should come from other sources, because in part these low bankruptcy rates may be caused by high equity and liquidity rather than positive and high returns on investment and profits. Other sources for venture capital create a need for new companies providing the agricultural sector with new alternative solutions to ensure generational renewal.

In case of a hybrid loan, the prominent risk is that the solution provides a higher risk in case of land value decreases and a lower upside in land value increases, compared to bank loans. A value decease can make it difficult for the farmer to refinance via a traditional bank loan due to a high loan to value ratio. The risk is that the farmer needs to cash out a substantial amount of money to pay back the hybrid loan. In case of value increase, the farmer still needs to refinance the hybrid loan, and despite the fact that the hybrid loan should leave room for the farmer to build up a cashflow to be able to handle a first lien loan from the bank, here there is risks that the bank would not grant a loan, or that the LTV becomes too high and therefore affects the repayment capacity. Hence, a hybrid loan will have long-term effects on the LTV and the future cashflow. Although, it will give short-term usage of the cashflow to reinvest and develop the business by using retained earnings. What this really means is that the farmer weighs the value of a free cashflow higher than the possible LTV risks and future cashflow hoping that the investments in operations, made possible due the hybrid loan, will increase the cashflow well

enough to be able to handle the amortisations and interest rates more satisfying in the future.

When using a traditional bank loan as a financing source, an increase in interest rate is a more prominent risk than a decrease of the land value although the upside is not realised, the downside is. The return on investment when purchasing farmland is not realised if the purpose is to operate as a farmer and carry on the farm for future generations. Hence, the farmer uses cashflow from the operation to gain a higher NPV of an investment which return will never be realised. Thus, the two different scenarios both includes a financial stress for the farmer, despite them being of a different character.

Arguments against the hybrid loan is regarding land price development, the reluctance towards new financial actors within the farm sector and the financial risk. The idea of hybrid loans builds upon the fact that land prices will always increase and therefore, the question of what happens when land prices does not increase needs to be taken into account when analysing the risks. The probability for a decrease in land prices or only a very little increase may be low, but it is not zero, especially not in times with increasing inflation and keeping in mind that increasing interest rates may also decrease the real prices of land and real estate. Hence, maybe the risk of a modest increase in land prices, or a decrease, should fall on the hybrid loan investors combined with a possibility for the farmer to reinvest in a new hybrid loan. If the land price risk falls on the farmer, it overturns the benefits of an alternative solution in terms of not increasing the financial stress for the farmer and the willingness to use hybrid loans may decrease due to the higher perceived risk.

A new financial solution provided by a non-bank credit issuer may have a barrier to overcome in terms of competing with the farmers loyalty towards their bank. In combination, there is questions regarding if the farming community will understand the principle of hybrid loans well enough to feel safe and secure to use the solution as well as using a new financial actor and break part of their loyalty towards the bank. Further, there is a need to touch upon the fact that a farmer could neglect the arable land and hence affect the land price. Which leads to an information asymmetry towards the investor due to the difficulties for the investor to monitor the farm management. If the farmer does neglect the land to the certain level of a decrease or stagnate price development, it may lead to financial issues for the farmer when the hybrid loan should be repaid. It will affect the farmers possibility to obtain a first lien loan with the bank, since it also is dependent on a value increase to ensure the financial benefits of a hybrid loan. The farmers profitability and cashflow may also be affected by not managing the land well. Thus, the probability of neglection from the farmer is low, but not non-existent. To mitigate this

information asymmetry, Gårdskapital's credit assessment becomes crucial and is an important tool to ensure the investors that it is a good case and to show the farming community that they are a responsible and serious actor. Another aspect that the farmer taking a hybrid loan would need to understand is the fact that a hybrid loan will have long-term effects on the LTV. To have a high LTV for a farmer leads to difficulties in accessing capital to implement heavy investments, since the collateral space is limited.

6.4 Limitations

To analyse the collected data, the researcher must be aware of the external circumstances effecting the respondents' answers and thus the analysis of the study (Bryman & Bell, 2013). Both regarding former preconceptions and knowledge as well as the fact that the researchers have a deeper insight on the researched issue which hence creates a power imbalance between respondent and researcher.

Factors that may affect the empirical results in this study is a homogeneity amongst the respondents. All have a family farm which they plan to take over, the respondents have siblings, and all operate in the centre of Sweden. Living in a rural area near two of Sweden's biggest cities, Stockholm and Uppsala, gives the rural dwellers a safety regarding access to various infrastructure facilities such as healthcare, schools and kindergartens. Although, it affects the respondents in other ways, such as high land prices and better opportunities for off-farm employments. These aspects may all influence the respondents' perspectives and mindsets which are included in the empirical results.

What further will influence the answers from the interviews are the aspects that separates the respondents. The age range amongst the respondents are narrow, with a range of 10 years. The respondents are between 22 and 34 years which leads to them being in different places in the personal life and thus the process of the generational renewal. The farms where the respondents operate are of different characteristics, some have cattle and crop production and others have solely crop production. Jointly among the farms are forestry in different sizes. Other aspects that distinguish the respondents and effect their perceptions and circumstances of the farm succession are the different perquisites regarding other assets, loan-to-value ratios and the conditions of the farms. Further, the current generation of farmers have not been interviewed and hence those perspectives are not included within the analysis. The result would most likely have been different if other stakeholders were interviewed. For example, if interviewing the current generation, the question regarding motives for monetary compensation and social values of passing on the farm could have been more precise. To examine the perspective on

monetary compensation, the sibling's views and ideas would have improved the results further. To further strengthen the results, banks and different kind of investors would have provided valuable insights when analysing the hybrid loan solution.

One should also keep in mind that the scenarios for the NPV analysis were based on highly stylised and simplified assumptions. For instance, owning and renting land may lead to different farm management or investment decisions: One could think of investments such as irrigation, in which a farmer may be less likely to invest with short-term lease contracts. The NP scenarios are meant to provide a general intuition under different macro-economic scenarios, but one would have to do more to explore the sensitivity to changes in cash flows emerging from the sketched changes in farming practices and investments.

7. Conclusions

The aim of this thesis was to develop an understanding of capital financing for farm successions in conditions with high market value increases and constrained cashflows. The research questions focuses on understanding entering farmers perspectives towards capital financing for the generational renewals process and how an alternative financial solution, hybrid loan, could improve young farmers possibilities to purchase arable land. To answer the research questions, the study has elaborated following conclusions, drawn from the analysis.

Reasons for ownership are rather connected to social values and agency problems than direct financial incentives. Owning farmland is seen as a security towards accessing capital for farm investments but may not be the most preferable option regarding building up a stable cashflow. Hence, the business model of farming in the region of Mälardalen is not profitable enough to meet the banks requirements and to purchase land at market value. Due to the above statements, the study finds that a financial solution constructed to fulfil the social values of owning land is to prefer. An example of this alternative solution can be a hybrid loan.

It is more financially risky to take out a hybrid loan than to lease land, despite this, leasing land is viewed as a more stressful due to the potential agency problems. Further, hybrid loans may be less financially risky than a traditional bank loan in terms of the requirements regarding equity, interest and repayment capacity if the land continues to increase in value. The financial stress and risk for the hybrid loan is highly connected to the value development of arable land. Although, hybrid loans have a long-term effect on the farmers LTV which effects future cashflow and the possibilities of further raising external capital.

Another finding from the study is that the current generation and siblings may have to accept an unfair monetary compensation if the social values of keeping the farm in the family is valued higher. Hence, the solution of hybrid loans may only be of use when the monetary values of the parties receiving compensation is valued higher than the social values.

To answer the research question from the above conclusions, the study finds that entering farmers views the capital financing process of generational renewal as stressful and connected to various forms of difficult questions regarding both capital and social aspects. It is hard to monetarily compensate the other stakeholders since the financial stress and the ability to have a decent life quality is top priorities. The ability to ease these burdens could be managed by using a hybrid loan as an alternative financial solution. Hence, the hybrid loan can improve the possibilities for young farmers to purchase farmland since it releases cashflow for the operations. Despite this, hybrid loans still creates a financial stress because it is borrowed money that will be paid back on a given date.

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Appendix

Appendix A: Assumptions & introduction

Assumptions and introduction to the case

To analyse the effect of using hybrid loan, three different fictive case scenarios has been constructed. One showing a traditional bank loan, one on hybrid loan and the third case shows leasing as an option. The different finacing options has been calculated whit three different interest rates and three different expected value increases. The discount rate is given as 1,5% when the interest rate is 2% and assumes to be 3,5% when the interest rate goes up to 4%.

The discout rate in the hybrid loan case as well as the leasing scenario will be 1,5% which will reflect the a standard risk free investment.

The fictive case scenario is based on a beginning farmer whit the opportunity to purchase 150 hectares of farmland at the value of 18,000,000 SEK from the parents by monetarily compensating both the parents and another sibling. The parents will have 40% of the market value of the land to compensate for low savings and to buy a retirement house, whereas the overtaking farmer and the sibling will share the other 60% of the value as an early inheritance and the overtaking farmer, therefore must pay in total 70% of the market value for the land. The three different scenarios compare the outcome of buying the land by raising debt from a regular first lien loan where the interest and amortisation are paid annually, compared to using the hybrid loan, where there is no amortisation, and the interest is based on the value increase on the land and will be paid after ten years. The two different financing scenarios are then compared to a scenario where the family sells the farm and split the profit on the same ratio as in the succession case. Further, in this case, the prospective farmer will invest the part of the profit in securities with an expected return of 4% and then lease the land from the future owner. The gross margin is slightly greater in the leasing case due to ownership cost that assumes to come with the ownership of the land. In this case, the ownerhip cost in set to be 50SEK per hectare and year, which gives a total ownership cost of 7500SEK per year.

		Annuitetslån									
		Period	ing balans	interest	Amort	utg balans	Ack ränta	Cash flow	farm value		
Annuity		1	12600000	504000	82 532,53 kr	12 517 467,47 kr	504000	586 532,53 kr	18 000 000 kr		
Tract size (hectare)	150	2	12 517 467,47 kr	500698,699	85 833,83 kr	12 431 633,65 kr	1004698,699	586 532,53 kr	17 640 000 kr	- 252 000 kr	- 17 640 kr	-0,14%
		3	12 431 633,65 kr	497265,3459	89 267,18 kr	12 342 366,47 kr	1501964,045	586 532,53 kr	17 287 200 kr	- 246 960 kr	- 17 287 kr	-0,14%
Loan volyme	12600000	4	12 342 366,47 kr	493694,6587	92 837,87 kr	12 249 528,60 kr	1995658,704	586 532,53 kr	16 941 456 kr	- 242 021 kr	- 16 941 kr	-0,13%
Ownership cost	50	5	12 249 528,60 kr	489981,144	96 551,38 kr	12 152 977,22 kr	2485639,848	586 532,53 kr	16 602 627 kr	- 237 180 kr	- 16 603 kr	-0,13%
Leasing fee	1600	6	12 152 977,22 kr	486119,0888	100 413,44 kr	12 052 563,78 kr	2971758,936	586 532,53 kr	16 270 574 kr	- 232 437 kr	- 16 271 kr	-0,13%
Value of farmland	120000	7	12 052 563,78 kr	482102,5513	104 429,97 kr	11 948 133,81 kr	3453861,488	586 532,53 kr	15 945 163 kr	- 227 788 kr	- 15 945 kr	-0,13%
		8	11 948 133,81 kr	477925,3523	108 607,17 kr	11 839 526,63 kr	3931786,84	586 532,53 kr	15 626 260 kr	- 223 232 kr	- 15 626 kr	-0,12%
Annual increase in land pric	-2%	9	11 839 526,63 kr	473581,0654	112 951,46 kr	11 726 575,17 kr	4405367,905	586 532,53 kr	15 313 734 kr	- 218 768 kr	- 15 314 kr	-0,12%
Tax rate	30%	10	11 726 575,17 kr	469063,007	117 469,52 kr	11 609 105,66 kr	4 874 430,91 kr	586 532,53 kr	15 007 460 kr	- 214 392 kr	- 15 007 kr	-0,12%
Interest rate	4%	11	11 609 105,66 kr	464364,2262	122 168,30 kr	11 486 937,36 kr	5338795,139	586 532,53 kr	14 707 311 kr	- 210 104 kr	- 14 707 kr	-0,12%
Number of periods	50	12	11 486 937,36 kr	459477,4943	127 055,03 kr	11 359 882,32 kr	5798272,633	586 532,53 kr	14 413 164 kr	- 205 902 kr	- 14 413 kr	-0,11%
Cupon rate	1%	13	11 359 882,32 kr	454395,293	132 137,23 kr	11 227 745,09 kr	6252667,926	586 532,53 kr	14 124 901 kr	- 201 784 kr	- 14 125 kr	-0,11%
Discount rate	3,5%	14	11 227 745,09 kr	449109,8037	137 422,72 kr	11 090 322,37 kr	6701777,73	586 532,53 kr	13 842 403 kr	- 197 749 kr	- 13 842 kr	-0,11%
		15	11 090 322,37 kr	443612,8948	142 919,63 kr	10 947 402,74 kr	7 145 390,62 kr	586 532,53 kr	13 565 555 kr	- 193 794 kr	- 13 566 kr	-0,11%
		16	10 947 402,74 kr	437896,1096	148 636,42 kr	10 798 766,32 kr	7583286,734	586 532,53 kr	13 294 244 kr	- 189 918 kr	- 13 294 kr	-0,11%
		17	10 798 766,32 kr	431 950,65 kr	154 581,87 kr	10 644 184,45 kr	8015237,387	586 532,53 kr	13 028 359 kr		- 230 582 kr	-1,83%
		18	10 644 184,45 kr	425767,378	160 765,15 kr	10 483 419,30 kr	8441004,765	586 532,53 kr	12 767 792 kr			
		19	10 483 419,30 kr	419336,7721	167 195,75 kr	10 316 223,55 kr	8860341,537	586 532,53 kr	12 512 436 kr			
		20	10 316 223,55 kr	412648,942	173 883,58 kr	10 142 339,97 kr	9272990,479	586 532,53 kr	12 262 187 kr			
		21	10 142 339,97 kr	405693,5986	180 838,93 kr	9 961 501,04 kr	9678684,078	586 532,53 kr	12 016 943 kr			
		22	9 961 501,04 kr	398460,0415	188 072,48 kr	9 773 428,55 kr	10077144,12	586 532,53 kr	11 776 605 kr			
		23	9 773 428,55 kr	390937,1422	195 595,38 kr	9 577 833,17 kr	10468081,26	586 532,53 kr	11 541 073 kr			
		24	9 577 833,17 kr	383113,3268	203 419,20 kr	9 374 413,97 kr	10851194,59	586 532,53 kr	11 310 251 kr			
		25	9 374 413,97 kr	374976,5589	211 555,97 kr	9 162 858,01 kr	11226171,15	586 532,53 kr	11 084 046 kr			
		26	9 162 858,01 kr	366514,3202	220 018,21 kr	8 942 839,80 kr	11592685,47	586 532,53 kr	10 862 365 kr			
		27	8 942 839,80 kr	357713,592	228 818,93 kr	8 714 020,87 kr	11950399,06	586 532,53 kr	10 645 118 kr			
		28	8 714 020,87 kr	348560,8347	237 971,69 kr	8 476 049,18 kr	12298959,89	586 532,53 kr	10 432 215 kr			
		29	8 476 049,18 kr	339041,967	247 490,56 kr	8 228 558,62 kr	12638001,86	586 532,53 kr	10 223 571 kr			
		30	8 228 558,62 kr	329142,3447	257 390,18 kr	7 971 168,44 kr	12967144,21	586 532,53 kr	10 019 100 kr			
		31	7 971 168,44 kr	318846,7374	267 685,79 kr	7 703 482,65 kr	13285990,94	586 532,53 kr	9 818 718 kr			
		32	7 703 482,65 kr	308139,3059	278 393,22 kr	7 425 089,43 kr	13594130,25	586 532,53 kr	9 622 343 kr			
		33	7 425 089,43 kr	297003,5771	289 528,95 kr	7 135 560,48 kr	13891133,83	586 532,53 kr	9 429 897 kr			
		34	7 135 560,48 kr	285422,4192	301 110,11 kr	6 834 450,37 kr	14176556,25	586 532,53 kr	9 241 299 kr			
		35	6 834 450,37 kr	273378,0149	313 154,51 kr	6 521 295,86 kr	14449934,26	586 532,53 kr	9 056 473 kr			
		36	6 521 295,86 kr	260851,8345	325 680,69 kr	6 195 615,17 kr	14710786,09	586 532,53 kr	8 875 343 kr			
		37	6 195 615,17 kr	247824,6068	338 707,92 kr	5 856 907,25 kr	14958610,7	586 532,53 kr	8 697 836 kr			
		38	5 856 907,25 kr	234276,2901	352 256,24 kr	5 504 651,02 kr	15192886,99	586 532,53 kr	8 523 880 kr			
		39	5 504 651,02 kr	220186,0407	366 346,49 kr	5 138 304,53 kr	15413073,03	586 532,53 kr	8 353 402 kr			
		40	5 138 304,53 kr	205532,1813	381 000,34 kr	4 757 304,19 kr	15618605,21	586 532,53 kr	8 186 334 kr			
		41	4 757 304,19 kr	190292,1675	396 240,36 kr	4 361 063,83 kr	15808897,38	586 532,53 kr	8 022 607 kr			
		42	4 361 063,83 kr	174442,5531	412 089,97 kr	3 948 973,86 kr	15983339,93	586 532,53 kr	7 862 155 kr			
		43	3 948 973,86 kr	157958,9542	428 573,57 kr	3 520 400,28 kr	16141298,89	586 532,53 kr	7 704 912 kr			
		44	3 520 400,28 kr	140816,0114	445 716,51 kr	3 074 683,77 kr	16282114,9	586 532,53 kr	7 550 814 kr			
		45	3 074 683,77 kr	122987,3508	463 545,17 kr	2 611 138,60 kr	16405102,25	586 532,53 kr	7 399 798 kr			
		46	2 611 138,60 kr	104445,5438	482 086,98 kr	2 129 051,61 kr	16509547,79	586 532,53 kr	7 251 802 kr			
		47	2 129 051,61 kr	85162,06455	501 370,46 kr	1 627 681,15 kr	16594709,86	586 532,53 kr	7 106 766 kr			
		48	1 627 681,15 kr	65107,24611	521 425,28 kr	1 106 255,87 kr	16659817,1	586 532,53 kr	6 964 630 kr			
		49	1 106 255,87 kr	44250,23492	542 282,29 kr	563 973,58 kr	16704067,34	586 532,53 kr	6 825 338 kr			
		50	563 973,58 kr	22558,94329	563 973,58 kr	0,00 kr	16726626,28	586 532,53 kr	6 688 831 kr			

Bank loan	0	1	2	3	4	5	6	7	8	9	10
Gross margin	0	442500	442500	442500	442500	442500	442500	442500	442500	442500	442500
Leasing	0	0	0	0	0	0	0	0	0	0	0
Interest	0	-504000	-500698,699	-497265,3459	-493694,6587	-489981,144	-486119,0888	-482102,5513	-477925,3523	-473581,0654	-469063,007
Amortisation	0	-82 532,53 kr	-85 833,83 kr	-89 267,18 kr	-92 837,87 kr	-96 551,38 kr	-100 413,44 kr	-104 429,97 kr	-108 607,17 kr	-112 951,46 kr	-117 469,52 kr
Pretax return	0	-61500	-58198,69897	-54765,34591	-51194,65872	-47481,14404	-43619,08877	-39602,5513	-35425,35232	-31081,06539	-26563,00698
Tax	0	18450	17459,60969	16429,60377	15358,39761	14244,34321	13085,72663	11880,76539	10627,6057	9324,319617	7968,902093
After tax return	0	-43050	-40739,08928	-38335,74213	-35836,2611	-33236,80083	-30533,36214	-27721,78591	-24797,74663	-21756,74577	-18594,10488
Discounted cash flow	0	-122 792 kr	-120 866 kr	-118 850 kr	-116 739,10 kr	-114 530,47 kr	-112 219,76 kr	-109 802,80 kr	-107 275,29 kr	-104 632,73 kr	-101 870,46 kr
NPV from operation	-1 129 577,69 kr										
NPV operation + value increase	556 832,30 kr										

Value increase on the property	
Intial value	18 000 000 kr
Value y=10	15 007 460 kr
Loan value Y=10	11 609 106 kr
Equtiy	3 398 354 kr
After tax value	2 378 848 kr
NPV	1 686 410 kr

Annuitetslån (Table 1)

Parameters:
- Tract size (hectare): 150
- Loan volyme: 12600000
- Ownership cost: 50
- Value of farmland: 120000
- Annual increase in land price: -2%
- Tax rate: 30%
- Interest rate: 2%
- Number of periods: 50
- Cupon rate: 1%
- Discount rate: 1,5%

Period	ing balans	interest	Amort	utg balans	Ack ränta	Cash flow	farm value			
Annuity										
1	12600000	252000	148 972,44 kr	12 451 027,56 kr	252000	400 972,44 kr	18 000 000 kr			
2	12 451 027,56 kr	249020,5512	151 951,89 kr	12 299 075,67 kr	501020,5512	400 972,44 kr	17 640 000 kr	-252 000 kr	- 17 640 kr	-0,14%
3	12 299 075,67 kr	245981,5133	154 990,93 kr	12 144 084,74 kr	747002,0645	400 972,44 kr	17 287 200 kr	-246 960 kr	- 17 287 kr	-0,14%
4	12 144 084,74 kr	242881,6948	158 090,75 kr	11 985 993,99 kr	989883,7592	400 972,44 kr	16 941 456 kr	-242 021 kr	16 941 kr	-0,13%
5	11 985 993,99 kr	239719,8798	161 252,56 kr	11 824 741,43 kr	1229603,639	400 972,44 kr	16 602 627 kr	-237 180 kr	- 16 603 kr	-0,13%
6	11 824 741,43 kr	236494,8286	164 477,61 kr	11 660 263,81 kr	1466098,468	400 972,44 kr	16 270 574 kr	-232 437 kr	- 16 271 kr	-0,13%
7	11 660 263,81 kr	233205,2763	167 767,17 kr	11 492 496,65 kr	1699303,744	400 972,44 kr	15 945 163 kr	-227 788 kr	- 15 945 kr	-0,13%
8	11 492 496,65 kr	229849,933	171 122,51 kr	11 321 374,14 kr	1929153,677	400 972,44 kr	15 626 260 kr	-223 232 kr	- 15 626 kr	-0,12%
9	11 321 374,14 kr	226427,4828	174 544,96 kr	11 146 829,18 kr	2155581,16	400 972,44 kr	15 313 734 kr	-218 768 kr	- 15 314 kr	-0,12%
10	11 146 829,18 kr	222936,5836	178 035,86 kr	10 968 793,32 kr	2 378 517,74 kr	400 972,44 kr	15 007 460 kr	-214 392 kr	- 15 007 kr	-0,12%
11	10 968 793,32 kr	219375,8664	181 596,58 kr	10 787 196,74 kr	2597893,61	400 972,44 kr	14 707 311 kr	-210 104 kr	- 14 707 kr	-0,12%
12	10 787 196,74 kr	215743,9349	185 228,51 kr	10 601 968,24 kr	2813637,545	400 972,44 kr	14 413 164 kr	-205 902 kr	- 14 413 kr	-0,11%
13	10 601 968,24 kr	212039,3647	188 933,08 kr	10 413 035,16 kr	3025676,909	400 972,44 kr	14 124 901 kr	-201 784 kr	- 14 125 kr	-0,11%
14	10 413 035,16 kr	208260,7032	192 711,74 kr	10 220 323,42 kr	3233937,612	400 972,44 kr	13 842 403 kr	-197 749 kr	- 13 842 kr	-0,11%
15	10 220 323,42 kr	204406,4684	196 565,97 kr	10 023 757,45 kr	3 438 344,08 kr	400 972,44 kr	13 565 555 kr	-193 794 kr	- 13 566 kr	-0,11%
16	10 023 757,45 kr	200475,1489	200 497,29 kr	9 823 260,15 kr	3638819,23	400 972,44 kr	13 294 244 kr	-189 918 kr	- 13 294 kr	-0,11%
17	9 823 260,15 kr	196 465,20 kr	204 507,24 kr	9 618 752,91 kr	3835284,433	400 972,44 kr	13 028 359 kr		- 230 582 kr	-1,83%
18	9 618 752,91 kr	192375,0583	208 597,38 kr	9 410 155,53 kr	4027659,491	400 972,44 kr	12 767 792 kr			
19	9 410 155,53 kr	188203,1106	212 769,33 kr	9 197 386,20 kr	4215862,602	400 972,44 kr	12 512 436 kr			
20	9 197 386,20 kr	183947,724	217 024,72 kr	8 980 361,48 kr	4399810,326	400 972,44 kr	12 262 187 kr			
21	8 980 361,48 kr	179607,2296	221 365,21 kr	8 758 996,27 kr	4579417,555	400 972,44 kr	12 016 943 kr			
22	8 758 996,27 kr	175179,9254	225 792,52 kr	8 533 203,75 kr	4754597,481	400 972,44 kr	11 776 605 kr			
23	8 533 203,75 kr	170664,075	230 308,37 kr	8 302 895,38 kr	4925261,556	400 972,44 kr	11 541 073 kr			
24	8 302 895,38 kr	166057,9077	234 914,53 kr	8 067 980,85 kr	5091319,463	400 972,44 kr	11 310 251 kr			
25	8 067 980,85 kr	161359,617	239 612,83 kr	7 828 368,02 kr	5252679,08	400 972,44 kr	11 084 046 kr			
26	7 828 368,02 kr	156567,3605	244 405,08 kr	7 583 962,94 kr	5409246,441	400 972,44 kr	10 862 365 kr			
27	7 583 962,94 kr	151679,2588	249 293,18 kr	7 334 669,76 kr	5560925,7	400 972,44 kr	10 645 118 kr			
28	7 334 669,76 kr	146693,3952	254 279,05 kr	7 080 390,71 kr	5707619,095	400 972,44 kr	10 432 215 kr			
29	7 080 390,71 kr	141607,8142	259 364,63 kr	6 821 026,08 kr	5849226,909	400 972,44 kr	10 223 571 kr			
30	6 821 026,08 kr	136420,5217	264 551,92 kr	6 556 474,16 kr	5985647,431	400 972,44 kr	10 019 100 kr			
31	6 556 474,16 kr	131129,4833	269 842,96 kr	6 286 631,20 kr	6116776,914	400 972,44 kr	9 818 718 kr			
32	6 286 631,20 kr	125732,6241	275 239,82 kr	6 011 391,39 kr	6242509,538	400 972,44 kr	9 622 343 kr			
33	6 011 391,39 kr	120227,8277	280 744,61 kr	5 730 646,77 kr	6362737,366	400 972,44 kr	9 429 897 kr			
34	5 730 646,77 kr	114612,9354	286 359,51 kr	5 444 287,26 kr	6477350,301	400 972,44 kr	9 241 299 kr			
35	5 444 287,26 kr	108885,7453	292 086,70 kr	5 152 200,57 kr	6586236,046	400 972,44 kr	9 056 473 kr			
36	5 152 200,57 kr	103044,0113	297 928,43 kr	4 854 272,14 kr	6689280,058	400 972,44 kr	8 875 343 kr			
37	4 854 272,14 kr	97085,44272	303 887,00 kr	4 550 385,14 kr	6786365,501	400 972,44 kr	8 697 836 kr			
38	4 550 385,14 kr	91007,70273	309 964,74 kr	4 240 420,40 kr	6877373,203	400 972,44 kr	8 523 880 kr			
39	4 240 420,40 kr	84808,40794	316 164,03 kr	3 924 256,36 kr	6962181,611	400 972,44 kr	8 353 402 kr			
40	3 924 256,36 kr	78485,12726	322 487,32 kr	3 601 769,05 kr	7040666,738	400 972,44 kr	8 186 334 kr			
41	3 601 769,05 kr	72035,38096	328 937,06 kr	3 272 831,99 kr	7112702,119	400 972,44 kr	8 022 607 kr			
42	3 272 831,99 kr	65456,63973	335 515,80 kr	2 937 316,18 kr	7178158,759	400 972,44 kr	7 862 155 kr			
43	2 937 316,18 kr	58746,32368	342 226,12 kr	2 595 090,07 kr	7236905,083	400 972,44 kr	7 704 912 kr			
44	2 595 090,07 kr	51901,80131	349 070,64 kr	2 246 019,42 kr	7288806,884	400 972,44 kr	7 550 814 kr			
45	2 246 019,42 kr	44920,38849	356 052,05 kr	1 889 967,37 kr	7333727,273	400 972,44 kr	7 399 798 kr			
46	1 889 967,37 kr	37799,34741	363 173,09 kr	1 526 794,28 kr	7371526,62	400 972,44 kr	7 251 802 kr			
47	1 526 794,28 kr	30535,88552	370 436,56 kr	1 156 357,72 kr	7402062,506	400 972,44 kr	7 106 766 kr			
48	1 156 357,72 kr	23127,15438	377 845,29 kr	778 512,43 kr	7425189,66	400 972,44 kr	6 964 630 kr			
49	778 512,43 kr	15570,24862	385 402,19 kr	393 110,24 kr	7440759,909	400 972,44 kr	6 825 338 kr			
50	393 110,24 kr	7862,20475	393 110,24 kr	0,00 kr	7448622,113	400 972,44 kr	6 688 831 kr			

Bank loan	0	1	2	3	4	5	6	7	8	9	10
Gross margin	0	442500	442500	442500	442500	442500	442500	442500	442500	442500	442500
Leasing	0	0	0	0	0	0	0	0	0	0	0
Interest	0	-252000	-249020,5512	-245981,5133	-242881,6948	-239719,8798	-236494,8286	-233205,2763	-229849,933	-226427,4828	-222936,5836
Amortisation	0	-148 972,44 kr	-151 951,89 kr	-154 990,93 kr	-158 090,75 kr	-161 252,56 kr	-164 477,61 kr	-167 767,17 kr	-171 122,51 kr	-174 544,96 kr	-178 035,86 kr
Pretax return	0	190500	193479,4488	196518,4867	199618,3052	202780,1202	206005,1714	209294,7237	212650,067	216072,5172	219563,4164
Tax	0	-57150	-58043,83465	-58955,546	-59885,49157	-60834,03606	-61801,55143	-62788,41712	-63795,02011	-64821,75517	-65869,02492
After tax return	0	133350	135435,6142	137562,9407	139732,8137	141946,0841	144203,62	146506,3066	148855,0469	151250,7621	153694,3915
Discounted cash flow	0	-13 420,88 kr	-12 058,27 kr	-10 657,52 kr	-9 217,80 kr	-7 738,27 kr	-6 218,10 kr	-4 656,40 kr	-3 052,31 kr	-1 404,91 kr	286,73 kr
NPV from operation	-68 137,73 kr										
NPV operation + value increase	2 367 852,82 kr										

Value increase on the property
Intial value	18 000 000 kr
Value y=10	15 007 460 kr
Loan value Y=10	10 968 793 kr
Equtiy	4 038 666 kr
After tax value	2 827 066 kr
NPV	2 435 991 kr

Annuitetslån (Table 2)

Parameters:
- Tract size (hectare): 150
- Loan volyme: 12600000
- Ownership cost: 50
- Leasing fee: 1600
- Value of farmland: 120000
- Annual increase in land price: 4%
- Tax rate: 30%
- Interest rate: 4%
- Number of periods: 50
- Cupon rate: 1%
- Discount rate: 3,5%

Period	ing balans	interest	Amort	utg balans	Ack ränta	Cash flow	farm value			
Annuity										
1	12600000	504000	82 532,53 kr	12 517 467,47 kr	504000	586 532,53 kr	18 000 000 kr			
2	12 517 467,47 kr	500698,699	85 833,83 kr	12 431 633,65 kr	1004698,699	586 532,53 kr	18 720 000 kr	504 000 kr	35 280 kr	0,28%
3	12 431 633,65 kr	497265,3459	89 267,18 kr	12 342 366,47 kr	1501964,045	586 532,53 kr	19 468 800 kr	524 160 kr	36 691 kr	0,29%
4	12 342 366,47 kr	493694,6587	92 837,87 kr	12 249 528,60 kr	1995658,704	586 532,53 kr	20 247 552 kr	545 126 kr	38 159 kr	0,30%
5	12 249 528,60 kr	489981,144	96 551,38 kr	12 152 977,22 kr	2485639,848	586 532,53 kr	21 057 454 kr	566 931 kr	39 685 kr	0,31%
6	12 152 977,22 kr	486119,0888	100 413,44 kr	12 052 563,78 kr	2971758,936	586 532,53 kr	21 899 752 kr	589 609 kr	41 273 kr	0,33%
7	12 052 563,78 kr	482102,5513	104 429,97 kr	11 948 133,81 kr	3453861,488	586 532,53 kr	22 775 742 kr	613 193 kr	42 924 kr	0,34%
8	11 948 133,81 kr	477925,3523	108 607,17 kr	11 839 526,63 kr	3931786,84	586 532,53 kr	23 686 772 kr	637 721 kr	44 640 kr	0,35%
9	11 839 526,63 kr	473581,0654	112 951,46 kr	11 726 575,17 kr	4405367,905	586 532,53 kr	24 634 243 kr	663 230 kr	46 426 kr	0,37%
10	11 726 575,17 kr	469063,007	117 469,52 kr	11 609 105,66 kr	4 874 430,91 kr	586 532,53 kr	25 619 613 kr	689 759 kr	48 283 kr	0,38%
11	11 609 105,66 kr	464364,2262	122 168,30 kr	11 486 937,36 kr	5338795,139	586 532,53 kr	26 644 397 kr	717 349 kr	50 214 kr	0,40%
12	11 486 937,36 kr	459477,4943	127 055,03 kr	11 359 882,32 kr	5798272,633	586 532,53 kr	27 710 173 kr	746 043 kr	52 223 kr	0,41%
13	11 359 882,32 kr	454395,293	132 137,23 kr	11 227 745,09 kr	6252667,926	586 532,53 kr	28 818 580 kr	775 885 kr	54 312 kr	0,43%
14	11 227 745,09 kr	449109,8037	137 422,72 kr	11 090 322,37 kr	6701777,73	586 532,53 kr	29 971 323 kr	806 920 kr	56 484 kr	0,45%
15	11 090 322,37 kr	443612,8948	142 919,63 kr	10 947 402,74 kr	7 145 390,62 kr	586 532,53 kr	31 170 176 kr	839 197 kr	58 744 kr	0,47%
16	10 947 402,74 kr	437896,1096	148 636,42 kr	10 798 766,32 kr	7583286,734	586 532,53 kr	32 416 983 kr	872 765 kr	61 094 kr	0,48%
17	10 798 766,32 kr	431 950,65 kr	154 581,87 kr	10 644 184,45 kr	8015237,387	586 532,53 kr	33 713 662 kr		706 432 kr	5,61%
18	10 644 184,45 kr	425767,378	160 765,15 kr	10 483 419,30 kr	8441004,765	586 532,53 kr	35 062 209 kr			
19	10 483 419,30 kr	419336,7721	167 195,75 kr	10 316 223,55 kr	8860341,537	586 532,53 kr	36 464 697 kr			
20	10 316 223,55 kr	412648,942	173 883,58 kr	10 142 339,97 kr	9272990,479	586 532,53 kr	37 923 285 kr			
21	10 142 339,97 kr	405693,5986	180 838,93 kr	9 961 501,04 kr	9678684,078	586 532,53 kr	39 440 217 kr			
22	9 961 501,04 kr	398460,0415	188 072,48 kr	9 773 428,55 kr	10077144,12	586 532,53 kr	41 017 825 kr			
23	9 773 428,55 kr	390937,1422	195 595,38 kr	9 577 833,17 kr	10468081,26	586 532,53 kr	42 658 538 kr			
24	9 577 833,17 kr	383113,3268	203 419,20 kr	9 374 413,97 kr	10851194,59	586 532,53 kr	44 364 880 kr			
25	9 374 413,97 kr	374976,5589	211 555,97 kr	9 162 858,01 kr	11226171,15	586 532,53 kr	46 139 475 kr			
26	9 162 858,01 kr	366514,3202	220 018,21 kr	8 942 839,80 kr	11592685,47	586 532,53 kr	47 985 054 kr			
27	8 942 839,80 kr	357713,592	228 818,93 kr	8 714 020,87 kr	11950399,06	586 532,53 kr	49 904 456 kr			
28	8 714 020,87 kr	348560,8347	237 971,69 kr	8 476 049,18 kr	12298959,89	586 532,53 kr	51 900 634 kr			
29	8 476 049,18 kr	339041,967	247 490,56 kr	8 228 558,62 kr	12638001,86	586 532,53 kr	53 976 660 kr			
30	8 228 558,62 kr	329142,3447	257 390,18 kr	7 971 168,44 kr	12967144,21	586 532,53 kr	56 135 726 kr			
31	7 971 168,44 kr	318846,7374	267 685,79 kr	7 703 482,65 kr	13285990,94	586 532,53 kr	58 381 155 kr			
32	7 703 482,65 kr	308139,3059	278 393,22 kr	7 425 089,43 kr	13594130,25	586 532,53 kr	60 716 401 kr			
33	7 425 089,43 kr	297003,5771	289 528,95 kr	7 135 560,48 kr	13891133,83	586 532,53 kr	63 145 057 kr			
34	7 135 560,48 kr	285422,4192	301 110,11 kr	6 834 450,37 kr	14176556,25	586 532,53 kr	65 670 860 kr			
35	6 834 450,37 kr	273378,0149	313 154,51 kr	6 521 295,86 kr	14449934,26	586 532,53 kr	68 297 694 kr			
36	6 521 295,86 kr	260851,8345	325 680,69 kr	6 195 615,17 kr	14710786,09	586 532,53 kr	71 029 602 kr			
37	6 195 615,17 kr	247824,6068	338 707,92 kr	5 856 907,25 kr	14958610,7	586 532,53 kr	73 870 786 kr			
38	5 856 907,25 kr	234276,2901	352 256,24 kr	5 504 651,02 kr	15192886,99	586 532,53 kr	76 825 617 kr			
39	5 504 651,02 kr	220186,0407	366 346,49 kr	5 138 304,53 kr	15413073,03	586 532,53 kr	79 898 642 kr			
40	5 138 304,53 kr	205532,1813	381 000,34 kr	4 757 304,19 kr	15618605,21	586 532,53 kr	83 094 588 kr			
41	4 757 304,19 kr	190292,1675	396 240,36 kr	4 361 063,83 kr	15808897,38	586 532,53 kr	86 418 371 kr			
42	4 361 063,83 kr	174442,5531	412 089,97 kr	3 948 973,86 kr	15983339,93	586 532,53 kr	89 875 106 kr			
43	3 948 973,86 kr	157958,9542	428 573,57 kr	3 520 400,28 kr	16141298,89	586 532,53 kr	93 470 110 kr			
44	3 520 400,28 kr	140816,0114	445 716,51 kr	3 074 683,77 kr	16282114,9	586 532,53 kr	97 208 915 kr			
45	3 074 683,77 kr	122987,3508	463 545,17 kr	2 611 138,60 kr	16405102,25	586 532,53 kr	101 097 271 kr			
46	2 611 138,60 kr	104445,5438	482 086,98 kr	2 129 051,61 kr	16509547,79	586 532,53 kr	105 141 162 kr			
47	2 129 051,61 kr	85162,06455	501 370,46 kr	1 627 681,15 kr	16594709,86	586 532,53 kr	109 346 809 kr			
48	1 627 681,15 kr	65107,24611	521 425,28 kr	1 106 255,87 kr	16659817,1	586 532,53 kr	113 720 681 kr			
49	1 106 255,87 kr	44250,23492	542 282,29 kr	563 973,58 kr	16704067,34	586 532,53 kr	118 269 508 kr			
50	563 973,58 kr	22558,94329	563 973,58 kr	0,00 kr	16726626,28	586 532,53 kr	123 000 289 kr			

Bank loan

Bank loan	0	1	2	3	4	5	6	7	8	9	10
Gross margin	0	442500	442500	442500	442500	442500	442500	442500	442500	442500	442500
Leasing	0	0	0	0	0	0	0	0	0	0	0
Interest	0	-504000	-500698,699	-497265,3459	-493694,6587	-489981,144	-486119,0888	-482102,5513	-477925,3523	-473581,0654	-469063,007
Amortisation	0	-82 532,53 kr	-85 833,83 kr	-89 267,18 kr	-92 837,87 kr	-96 551,38 kr	-100 413,44 kr	-104 429,97 kr	-108 607,17 kr	-112 951,46 kr	-117 469,52 kr
Pretax return	0	-61500	-58198,69897	-54765,34591	-51194,65872	-47481,14404	-43619,08877	-39602,5513	-35425,35232	-31081,06539	-26563,00698
Tax	0	18450	17459,60969	16429,60377	15358,39761	14244,34321	13085,72663	11880,76539	10627,6057	9324,319617	7968,902093
After tax return	0	-43050	-40739,08928	-38335,74213	-35836,2611	-33236,80083	-30533,36214	-27721,78591	-24797,74663	-21756,74577	-18594,10488
Discounted cash flow	0	-122 791,57 kr	-120 865,88 kr	-118 849,62 kr	-116 739,10 kr	-114 530,47 kr	-112 219,76 kr	-109 802,80 kr	-107 275,29 kr	-104 632,73 kr	-101 870,46 kr
NPV from operation	-1 129 577,69 kr										
NPV operation + value increase	5 823 040,70 kr										

Value increase on the property	
Intial value	18 000 000 kr
Value y=10	25 619 613 kr
Loan value Y=10	11 609 106 kr
Equtiy	14 010 507 kr
After tax value	9 807 355 kr
NPV	6 952 618 kr

Annuitetslån

Annuity		
Tract size (hectare)	150	
Loan volyme	12600000	
Ownership cost	50	
Leasing fee	1600	
Value of farmland	120000	
Annual increase in land price	4%	
Tax rate	30%	
Interest rate	2%	
Number of periods	50	
Discount rate	1,5%	

Period	ing balans	interest	Amort	utg balans	Ack ränta	Cash flow	farm value			
1	12600000	252000	148 972,44 kr	12 451 027,56 kr	252000	400 972,44 kr	18 000 000 kr			
2	12 451 027,56 kr	249020,5512	151 951,89 kr	12 299 075,67 kr	501020,5512	400 972,44 kr	18 720 000 kr	504 000 kr	35 280 kr	0,28%
3	12 299 075,67 kr	245981,5133	154 990,93 kr	12 144 084,74 kr	747002,0645	400 972,44 kr	19 468 800 kr	524 160 kr	36 691 kr	0,29%
4	12 144 084,74 kr	242881,6948	158 090,75 kr	11 985 993,99 kr	989883,7592	400 972,44 kr	20 247 552 kr	545 126 kr	38 159 kr	0,30%
5	11 985 993,99 kr	239719,8798	161 252,56 kr	11 824 741,43 kr	1229603,639	400 972,44 kr	21 057 454 kr	566 931 kr	39 685 kr	0,31%
6	11 824 741,43 kr	236494,8286	164 477,61 kr	11 660 263,81 kr	1466098,468	400 972,44 kr	21 899 752 kr	589 609 kr	41 273 kr	0,33%
7	11 660 263,81 kr	233205,2763	167 767,17 kr	11 492 496,65 kr	1699303,744	400 972,44 kr	22 775 742 kr	613 193 kr	42 924 kr	0,34%
8	11 492 496,65 kr	229849,933	171 122,51 kr	11 321 374,14 kr	1929153,677	400 972,44 kr	23 686 772 kr	637 721 kr	44 640 kr	0,35%
9	11 321 374,14 kr	226427,4828	174 544,96 kr	11 146 829,18 kr	2155581,16	400 972,44 kr	24 634 243 kr	663 230 kr	46 426 kr	0,37%
10	11 146 829,18 kr	222936,5836	178 035,86 kr	10 968 793,32 kr	2 378 517,74 kr	400 972,44 kr	25 619 613 kr	689 759 kr	48 283 kr	0,38%
11	10 968 793,32 kr	219375,8664	181 596,58 kr	10 787 196,74 kr	2597893,61	400 972,44 kr	26 644 397 kr	717 349 kr	50 214 kr	0,40%
12	10 787 196,74 kr	215743,9349	185 228,51 kr	10 601 968,24 kr	2813637,545	400 972,44 kr	27 710 173 kr	746 043 kr	52 223 kr	0,41%
13	10 601 968,24 kr	212039,3647	188 933,08 kr	10 413 035,16 kr	3025676,909	400 972,44 kr	28 818 580 kr	775 885 kr	54 312 kr	0,43%
14	10 413 035,16 kr	208260,7032	192 711,74 kr	10 220 323,42 kr	3233937,612	400 972,44 kr	29 971 323 kr	806 920 kr	56 484 kr	0,45%
15	10 220 323,42 kr	204406,4684	196 565,97 kr	10 023 757,45 kr	3 438 344,08 kr	400 972,44 kr	31 170 176 kr	839 197 kr	58 744 kr	0,47%
16	10 023 757,45 kr	200475,1489	200 497,29 kr	9 823 260,15 kr	3638819,23	400 972,44 kr	32 416 983 kr	872 765 kr	61 094 kr	0,48%
17	9 823 260,15 kr	196 465,20 kr	204 507,24 kr	9 618 752,91 kr	3835284,433	400 972,44 kr	33 713 662 kr		706 432 kr	5,61%
18	9 618 752,91 kr	192375,0583	208 597,38 kr	9 410 155,53 kr	4027659,491	400 972,44 kr	35 062 209 kr			
19	9 410 155,53 kr	188203,1106	212 769,33 kr	9 197 386,20 kr	4215862,602	400 972,44 kr	36 464 697 kr			
20	9 197 386,20 kr	183947,724	217 024,72 kr	8 980 361,48 kr	4399810,326	400 972,44 kr	37 923 285 kr			
21	8 980 361,48 kr	179607,2296	221 365,21 kr	8 758 996,27 kr	4579417,555	400 972,44 kr	39 440 217 kr			
22	8 758 996,27 kr	175179,9254	225 792,52 kr	8 533 203,75 kr	4754597,481	400 972,44 kr	41 017 825 kr			
23	8 533 203,75 kr	170664,075	230 308,37 kr	8 302 895,38 kr	4925261,556	400 972,44 kr	42 658 538 kr			
24	8 302 895,38 kr	166057,9077	234 914,53 kr	8 067 980,85 kr	5091319,463	400 972,44 kr	44 364 880 kr			
25	8 067 980,85 kr	161359,617	239 612,83 kr	7 828 368,02 kr	5252679,08	400 972,44 kr	46 139 475 kr			
26	7 828 368,02 kr	156567,3605	244 405,08 kr	7 583 962,94 kr	5409246,441	400 972,44 kr	47 985 054 kr			
27	7 583 962,94 kr	151679,2588	249 293,18 kr	7 334 669,76 kr	5560925,7	400 972,44 kr	49 904 456 kr			
28	7 334 669,76 kr	146693,3952	254 279,05 kr	7 080 390,71 kr	5707619,095	400 972,44 kr	51 900 634 kr			
29	7 080 390,71 kr	141607,8142	259 364,63 kr	6 821 026,08 kr	5849226,909	400 972,44 kr	53 976 660 kr			
30	6 821 026,08 kr	136420,5217	264 551,92 kr	6 556 474,16 kr	5985647,431	400 972,44 kr	56 135 726 kr			
31	6 556 474,16 kr	131129,4833	269 842,96 kr	6 286 631,20 kr	6116776,914	400 972,44 kr	58 381 155 kr			
32	6 286 631,20 kr	125732,6241	275 239,82 kr	6 011 391,39 kr	6242509,538	400 972,44 kr	60 716 401 kr			
33	6 011 391,39 kr	120227,8277	280 744,61 kr	5 730 646,77 kr	6362737,366	400 972,44 kr	63 145 057 kr			
34	5 730 646,77 kr	114612,9354	286 359,51 kr	5 444 287,26 kr	6477350,301	400 972,44 kr	65 670 860 kr			
35	5 444 287,26 kr	108885,7453	292 086,70 kr	5 152 200,57 kr	6586236,046	400 972,44 kr	68 297 694 kr			
36	5 152 200,57 kr	103044,0113	297 928,43 kr	4 854 272,14 kr	6689280,058	400 972,44 kr	71 029 602 kr			
37	4 854 272,14 kr	97085,44272	303 887,00 kr	4 550 385,14 kr	6786365,501	400 972,44 kr	73 870 786 kr			
38	4 550 385,14 kr	91007,70273	309 964,74 kr	4 240 420,40 kr	6877373,203	400 972,44 kr	76 825 617 kr			
39	4 240 420,40 kr	84808,40794	316 164,03 kr	3 924 256,36 kr	6962181,611	400 972,44 kr	79 898 642 kr			
40	3 924 256,36 kr	78485,12726	322 487,32 kr	3 601 769,05 kr	7040666,738	400 972,44 kr	83 094 588 kr			
41	3 601 769,05 kr	72035,38096	328 937,06 kr	3 272 831,99 kr	7112702,119	400 972,44 kr	86 418 371 kr			
42	3 272 831,99 kr	65456,63973	335 515,80 kr	2 937 316,18 kr	7178158,759	400 972,44 kr	89 875 106 kr			
43	2 937 316,18 kr	58746,32368	342 226,12 kr	2 595 090,07 kr	7236905,083	400 972,44 kr	93 470 110 kr			
44	2 595 090,07 kr	51901,80131	349 070,64 kr	2 246 019,42 kr	7288806,884	400 972,44 kr	97 208 915 kr			
45	2 246 019,42 kr	44920,38849	356 052,05 kr	1 889 967,37 kr	7333727,273	400 972,44 kr	101 097 271 kr			
46	1 889 967,37 kr	37799,34741	363 173,09 kr	1 526 794,28 kr	7371526,62	400 972,44 kr	105 141 162 kr			
47	1 526 794,28 kr	30535,88552	370 436,56 kr	1 156 357,72 kr	7402062,506	400 972,44 kr	109 346 809 kr			
48	1 156 357,72 kr	23127,15438	377 845,29 kr	778 512,43 kr	7425189,66	400 972,44 kr	113 720 681 kr			
49	778 512,43 kr	15570,24862	385 402,19 kr	393 110,24 kr	7440759,909	400 972,44 kr	118 269 508 kr			
50	393 110,24 kr	7862,20475	393 110,24 kr	0,00 kr	7448622,113	400 972,44 kr	123 000 289 kr			

Bank loan

Bank loan	0	1	2	3	4	5	6	7	8	9	10
Gross margin	0	442500	442500	442500	442500	442500	442500	442500	442500	442500	442500
Leasing	0	0	0	0	0	0	0	0	0	0	0
Interest	0	-252000	-249020,5512	-245981,5133	-242881,6948	-239719,8798	-236494,8286	-233205,2763	-229849,933	-226427,4828	-222936,5836
Amortisation	0	-148 972,44 kr	-151 951,89 kr	-154 991 kr	-158 090,75 kr	-161 252,56 kr	-164 477,61 kr	-167 767,17 kr	-171 122,51 kr	-174 544,96 kr	-178 035,86 kr
Pretax return	0	190500	193479,4488	196518,4867	199618,3052	202780,1202	206005,1714	209294,7237	212650,067	216072,5172	219563,4164
Tax	0	-57150	-58043,83465	-58955,546	-59885,49157	-60834,03606	-61801,55143	-62788,41712	-63795,02011	-64821,75517	-65869,02492
After tax return	0	133350	135435,6142	137562,9407	139732,8137	141946,0841	144203,62	146506,3066	148855,0469	151250,7621	153694,3915
Discounted cash flow	0	-13 420,88 kr	-12 058,27 kr	-10 657,52 kr	-9 217,80 kr	-7 738,27 kr	-6 218,10 kr	-4 656,40 kr	-3 052,31 kr	-1 404,91 kr	286,73 kr
NPV from operation	-68 137,73 kr										
NPV operation + value increase	8 768 753,91 kr										

Value increase on the property	
Intial value	18 000 000 kr
Value y=10	25 619 613 kr
Loan value Y=10	10 968 793 kr
Equtiy	14 650 819 kr
After tax value	10 255 574 kr
NPV	8 836 892 kr

Bank loan schedule (Annuity)

Parameter	Value
Annuity	
Tract size (hectare)	150
Loan volyme	12600000
Ownership cost	50
Leasing fee	1600
Value of farmland	120000
Annual increase leasing cost	4%
Expected increase in land price	2%
Tax rate	30%
Interest rate	4%
Number of periods	50
Discount rate	3,5%

Period	ing balans	interest	Amort	utg balans	Ack ränta	Cash flow	farm value		
1	12600000	504000	82 532,53 kr	12 517 467,47 kr	504000	586 532,53 kr	18 000 000 kr		
2	12 517 467,47 kr	500698,699	85 833,83 kr	12 431 633,65 kr	1004698,699	586 532,53 kr	18 360 000 kr	252 000 kr	17 640 kr
3	12 431 633,65 kr	497265,3459	89 267,18 kr	12 342 366,47 kr	1501964,045	586 532,53 kr	18 727 200 kr	257 040 kr	17 993 kr
4	12 342 366,47 kr	493694,6587	92 837,87 kr	12 249 528,60 kr	1995658,704	586 532,53 kr	19 101 744 kr	262 181 kr	18 353 kr
5	12 249 528,60 kr	489981,144	96 551,38 kr	12 152 977,22 kr	2485639,848	586 532,53 kr	19 483 779 kr	267 424 kr	18 720 kr
6	12 152 977,22 kr	486119,0888	100 413,44 kr	12 052 563,78 kr	2971758,936	586 532,53 kr	19 873 454 kr	272 773 kr	19 094 kr
7	12 052 563,78 kr	482102,5513	104 429,97 kr	11 948 133,81 kr	3453861,488	586 532,53 kr	20 270 924 kr	278 228 kr	19 476 kr
8	11 948 133,81 kr	477925,3523	108 607,17 kr	11 839 526,63 kr	3931786,84	586 532,53 kr	20 676 342 kr	283 793 kr	19 866 kr
9	11 839 526,63 kr	473581,0654	112 951,46 kr	11 726 575,17 kr	4405367,905	586 532,53 kr	21 089 869 kr	289 469 kr	20 263 kr
10	11 726 575,17 kr	469063,007	117 469,52 kr	11 609 105,66 kr	4874430,912	586 532,53 kr	21 511 666 kr	295 258 kr	20 668 kr
11	11 609 105,66 kr	464364,2262	122 168,30 kr	11 486 937,36 kr	5338795,139	586 532,53 kr	21 941 900 kr	301 163 kr	21 081 kr
12	11 486 937,36 kr	459477,4943	127 055,03 kr	11 359 882,32 kr	5798272,633	586 532,53 kr	22 380 738 kr	307 187 kr	21 503 kr
13	11 359 882,32 kr	454395,293	132 137,23 kr	11 227 745,09 kr	6252667,926	586 532,53 kr	22 828 352 kr	313 330 kr	21 933 kr
14	11 227 745,09 kr	449109,8037	137 422,72 kr	11 090 322,37 kr	6701777,73	586 532,53 kr	23 284 919 kr	319 597 kr	22 372 kr
15	11 090 322,37 kr	443612,8948	142 919,63 kr	10 947 402,74 kr	7 145 390,62 kr	586 532,53 kr	23 750 618 kr	325 989 kr	22 819 kr
16	10 947 402,74 kr	437896,1096	148 636,42 kr	10 798 766,32 kr	7583286,734	586 532,53 kr	24 225 630 kr	332 509 kr	23 276 kr
17	10 798 766,32 kr	431 950,65 kr	154 581,87 kr	10 644 184,45 kr	8015237,387	586 532,53 kr	24 710 143 kr		305 056 kr
18	10 644 184,45 kr	425767,378	160 765,15 kr	10 483 419,30 kr	8441004,765	586 532,53 kr	25 204 346 kr		
19	10 483 419,30 kr	419336,7721	167 195,75 kr	10 316 223,55 kr	8860341,537	586 532,53 kr	25 708 432 kr		
20	10 316 223,55 kr	412648,942	173 883,58 kr	10 142 339,97 kr	9272990,479	586 532,53 kr	26 222 601 kr		
21	10 142 339,97 kr	405693,5986	180 838,93 kr	9 961 501,04 kr	9678684,078	586 532,53 kr	26 747 053 kr		
22	9 961 501,04 kr	398460,0415	188 072,48 kr	9 773 428,55 kr	10077144,12	586 532,53 kr	27 281 994 kr		
23	9 773 428,55 kr	390937,1422	195 595,38 kr	9 577 833,17 kr	10468081,26	586 532,53 kr	27 827 634 kr		
24	9 577 833,17 kr	383113,3268	203 419,20 kr	9 374 413,97 kr	10851194,59	586 532,53 kr	28 384 187 kr		
25	9 374 413,97 kr	374976,5589	211 555,97 kr	9 162 858,01 kr	11226171,15	586 532,53 kr	28 951 870 kr		
26	9 162 858,01 kr	366514,3202	220 018,21 kr	8 942 839,80 kr	11592685,47	586 532,53 kr	29 530 908 kr		
27	8 942 839,80 kr	357713,592	228 818,93 kr	8 714 020,87 kr	11950399,06	586 532,53 kr	30 121 526 kr		
28	8 714 020,87 kr	348560,8347	237 971,69 kr	8 476 049,18 kr	12298959,89	586 532,53 kr	30 723 957 kr		
29	8 476 049,18 kr	339041,967	247 490,56 kr	8 228 558,62 kr	12638001,86	586 532,53 kr	31 338 436 kr		
30	8 228 558,62 kr	329142,3447	257 390,18 kr	7 971 168,44 kr	12967144,21	586 532,53 kr	31 965 204 kr		
31	7 971 168,44 kr	318846,7374	267 685,79 kr	7 703 482,65 kr	13285990,94	586 532,53 kr	32 604 509 kr		
32	7 703 482,65 kr	308139,3059	278 393,22 kr	7 425 089,43 kr	13594130,25	586 532,53 kr	33 256 599 kr		
33	7 425 089,43 kr	297003,5771	289 528,95 kr	7 135 560,48 kr	13891133,83	586 532,53 kr	33 921 731 kr		
34	7 135 560,48 kr	285422,4192	301 110,11 kr	6 834 450,37 kr	14176556,25	586 532,53 kr	34 600 165 kr		
35	6 834 450,37 kr	273378,0149	313 154,51 kr	6 521 295,86 kr	14449934,26	586 532,53 kr	35 292 169 kr		
36	6 521 295,86 kr	260851,8345	325 680,69 kr	6 195 615,17 kr	14710786,09	586 532,53 kr	35 998 012 kr		
37	6 195 615,17 kr	247824,6068	338 707,92 kr	5 856 907,25 kr	14958610,7	586 532,53 kr	36 717 972 kr		
38	5 856 907,25 kr	234276,2901	352 256,24 kr	5 504 651,02 kr	15192886,99	586 532,53 kr	37 452 332 kr		
39	5 504 651,02 kr	220186,0407	366 346,49 kr	5 138 304,53 kr	15413073,03	586 532,53 kr	38 201 378 kr		
40	5 138 304,53 kr	205532,1813	381 000,34 kr	4 757 304,19 kr	15618605,21	586 532,53 kr	38 965 406 kr		
41	4 757 304,19 kr	190292,1675	396 240,36 kr	4 361 063,83 kr	15808897,38	586 532,53 kr	39 744 714 kr		
42	4 361 063,83 kr	174442,5531	412 089,97 kr	3 948 973,86 kr	15983339,93	586 532,53 kr	40 539 608 kr		
43	3 948 973,86 kr	157958,9542	428 573,57 kr	3 520 400,28 kr	16141298,89	586 532,53 kr	41 350 400 kr		
44	3 520 400,28 kr	140816,0114	445 716,51 kr	3 074 683,77 kr	16282114,9	586 532,53 kr	42 177 408 kr		
45	3 074 683,77 kr	122987,3508	463 545,17 kr	2 611 138,60 kr	16405102,25	586 532,53 kr	43 020 957 kr		
46	2 611 138,60 kr	104445,5438	482 086,98 kr	2 129 051,61 kr	16509547,79	586 532,53 kr	43 881 376 kr		
47	2 129 051,61 kr	85162,06455	501 370,46 kr	1 627 681,15 kr	16594709,86	586 532,53 kr	44 759 003 kr		
48	1 627 681,15 kr	65107,24611	521 425,28 kr	1 106 255,87 kr	16659817,1	586 532,53 kr	45 654 183 kr		
49	1 106 255,87 kr	44250,23492	542 282,29 kr	563 973,58 kr	16704067,34	586 532,53 kr	46 567 267 kr		
50	563 973,58 kr	22558,94329	563 973,58 kr	0,00 kr	16726626,28	586 532,53 kr	47 498 612 kr		

Bank loan	0	1	2	3	4	5	6	7	8	9	10
Gross margin	0	442500	442500	442500	442500	442500	442500	442500	442500	442500	442500
Leasing	0	0	0	0	0	0	0	0	0	0	0
Interest	0	-504000	-500698,699	-497265,3459	-493694,6587	-489981,144	-486119,0888	-482102,5513	-477925,3523	-473581,0654	-469063,007
Amortisation	0	-82 532,53 kr	-85 833,83 kr	-89 267,18 kr	-92 837,87 kr	-96 551,38 kr	-100 413,44 kr	-104 429,97 kr	-108 607,17 kr	-112 951,46 kr	-117 469,52 kr
Pretax return	0	-61500	-58198,69897	-54765,34591	-51194,65872	-47481,14404	-43619,08877	-39602,5513	-35425,35232	-31081,06539	-26563,00698
Tax	0	18450	17459,60969	16429,60377	15358,39761	14244,34321	13085,72663	11880,76539	10627,6057	9324,319617	7968,902093
After tax return	0	-43050	-40739,08928	-38335,74213	-35836,2611	-33236,80083	-30533,36214	-27721,78591	-24797,74663	-21756,74577	-18594,10488
Discounted cash flow	0	-122 791,57 kr	-120 865,88 kr	-118 849,62 kr	-116 739,10 kr	-114 530,47 kr	-112 219,76 kr	-109 802,80 kr	-107 275,29 kr	-104 632,73 kr	-101 870,46 kr
NPV from operation	-1 129 577,69 kr										
NPV operation + value increase	3 784 500,36 kr										

Value increase on the property	
Intial value	18 000 000 kr
Value y=10	21 511 666 kr
Loan value Y=10	11 609 106 kr
Equtiy	9 902 561 kr
After tax value	6 931 792 kr
NPV	4 914 078 kr

Annuitetslån

Parameter	Value
Annuity	
Tract size (hectare)	150
Loan volyme	12600000
Ownership cost	50
Leasing fee	1600
Value of farmland	120000
Annual increase leasing cost	4%
Expected rate of return	2%
Tax rate	30%
Interest rate	2%
Number of periods	50
Discount rate	1,5%

Period	ing balans	interest	Amort	utg balans	Ack ränta	Cash flow	farm value			
1	12600000	252000	148 972,44 kr	12 451 027,56 kr	252000	400 972,44 kr	18 000 000 kr			
2	12 451 027,56 kr	249020,5512	151 951,89 kr	12 299 075,67 kr	501020,5512	400 972,44 kr	18 360 000 kr	252 000 kr	17 640 kr	0,14%
3	12 299 075,67 kr	245981,5133	154 990,93 kr	12 144 084,74 kr	747002,0645	400 972,44 kr	18 727 200 kr	257 040 kr	17 993 kr	0,14%
4	12 144 084,74 kr	242881,6948	158 090,75 kr	11 985 993,99 kr	989883,7592	400 972,44 kr	19 101 744 kr	262 181 kr	18 353 kr	0,15%
5	11 985 993,99 kr	239719,8798	161 252,56 kr	11 824 741,43 kr	1229603,639	400 972,44 kr	19 483 779 kr	267 424 kr	18 720 kr	0,15%
6	11 824 741,43 kr	236494,8286	164 477,61 kr	11 660 263,81 kr	1466098,468	400 972,44 kr	19 873 454 kr	272 773 kr	19 094 kr	0,15%
7	11 660 263,81 kr	233205,2763	167 767,17 kr	11 492 496,65 kr	1699303,744	400 972,44 kr	20 270 924 kr	278 228 kr	19 476 kr	0,15%
8	11 492 496,65 kr	229849,933	171 122,51 kr	11 321 374,14 kr	1929153,677	400 972,44 kr	20 676 342 kr	283 793 kr	19 866 kr	0,16%
9	11 321 374,14 kr	226427,4828	174 544,96 kr	11 146 829,18 kr	2155581,16	400 972,44 kr	21 089 869 kr	289 469 kr	20 263 kr	0,16%
10	11 146 829,18 kr	222936,5836	178 035,86 kr	10 968 793,32 kr	2 378 517,74 kr	400 972,44 kr	21 511 666 kr	295 258 kr	20 668 kr	0,16%
11	10 968 793,32 kr	219375,8664	181 596,58 kr	10 787 196,74 kr	2597893,61	400 972,44 kr	21 941 900 kr	301 163 kr	21 081 kr	0,17%
12	10 787 196,74 kr	215743,9349	185 228,51 kr	10 601 968,24 kr	2813637,545	400 972,44 kr	22 380 738 kr	307 187 kr	21 503 kr	0,17%
13	10 601 968,24 kr	212039,3647	188 933,08 kr	10 413 035,16 kr	3025676,909	400 972,44 kr	22 828 352 kr	313 330 kr	21 933 kr	0,17%
14	10 413 035,16 kr	208260,7032	192 711,74 kr	10 220 323,42 kr	3233937,612	400 972,44 kr	23 284 919 kr	319 597 kr	22 372 kr	0,18%
15	10 220 323,42 kr	204406,4684	196 565,97 kr	10 023 757,45 kr	3 438 344,08 kr	400 972,44 kr	23 750 618 kr	325 989 kr	22 819 kr	0,18%
16	10 023 757,45 kr	200475,1489	200 497,29 kr	9 823 260,15 kr	3638819,23	400 972,44 kr	24 225 630 kr	332 509 kr	23 276 kr	0,18%
17	9 823 260,15 kr	196 465,20 kr	204 507,24 kr	9 618 752,91 kr	3835284,433	400 972,44 kr	24 710 143 kr		305 056 kr	2,42%
18	9 618 752,91 kr	192375,0583	208 597,38 kr	9 410 155,53 kr	4027659,491	400 972,44 kr	25 204 346 kr			
19	9 410 155,53 kr	188203,1106	212 769,33 kr	9 197 386,20 kr	4215862,602	400 972,44 kr	25 708 432 kr			
20	9 197 386,20 kr	183947,724	217 024,72 kr	8 980 361,48 kr	4399810,326	400 972,44 kr	26 222 601 kr			
21	8 980 361,48 kr	179607,2296	221 365,21 kr	8 758 996,27 kr	4579417,555	400 972,44 kr	26 747 053 kr			
22	8 758 996,27 kr	175179,9254	225 792,52 kr	8 533 203,75 kr	4754597,481	400 972,44 kr	27 281 994 kr			
23	8 533 203,75 kr	170664,075	230 308,37 kr	8 302 895,38 kr	4925261,556	400 972,44 kr	27 827 634 kr			
24	8 302 895,38 kr	166057,9077	234 914,53 kr	8 067 980,85 kr	5091319,463	400 972,44 kr	28 384 187 kr			
25	8 067 980,85 kr	161359,617	239 612,83 kr	7 828 368,02 kr	5252679,08	400 972,44 kr	28 951 870 kr			
26	7 828 368,02 kr	156567,3605	244 405,08 kr	7 583 962,94 kr	5409246,441	400 972,44 kr	29 530 908 kr			
27	7 583 962,94 kr	151679,2588	249 293,18 kr	7 334 669,76 kr	5560925,7	400 972,44 kr	30 121 526 kr			
28	7 334 669,76 kr	146693,3952	254 279,05 kr	7 080 390,71 kr	5707619,095	400 972,44 kr	30 723 957 kr			
29	7 080 390,71 kr	141607,8142	259 364,63 kr	6 821 026,08 kr	5849226,909	400 972,44 kr	31 338 436 kr			
30	6 821 026,08 kr	136420,5217	264 551,92 kr	6 556 474,16 kr	5985647,431	400 972,44 kr	31 965 204 kr			
31	6 556 474,16 kr	131129,4833	269 842,96 kr	6 286 631,20 kr	6116776,914	400 972,44 kr	32 604 509 kr			
32	6 286 631,20 kr	125732,6241	275 239,82 kr	6 011 391,39 kr	6242509,538	400 972,44 kr	33 256 599 kr			
33	6 011 391,39 kr	120227,8277	280 744,61 kr	5 730 646,77 kr	6362737,366	400 972,44 kr	33 921 731 kr			
34	5 730 646,77 kr	114612,9354	286 359,51 kr	5 444 287,26 kr	6477350,301	400 972,44 kr	34 600 165 kr			
35	5 444 287,26 kr	108885,7453	292 086,70 kr	5 152 200,57 kr	6586236,046	400 972,44 kr	35 292 169 kr			
36	5 152 200,57 kr	103044,0113	297 928,43 kr	4 854 272,14 kr	6689280,058	400 972,44 kr	35 998 012 kr			
37	4 854 272,14 kr	97085,44272	303 887,00 kr	4 550 385,14 kr	6786365,501	400 972,44 kr	36 717 972 kr			
38	4 550 385,14 kr	91007,70273	309 964,74 kr	4 240 420,40 kr	6877373,203	400 972,44 kr	37 452 332 kr			
39	4 240 420,40 kr	84808,40794	316 164,03 kr	3 924 256,36 kr	6962181,611	400 972,44 kr	38 201 378 kr			
40	3 924 256,36 kr	78485,12726	322 487,32 kr	3 601 769,05 kr	7040666,738	400 972,44 kr	38 965 406 kr			
41	3 601 769,05 kr	72035,38096	328 937,06 kr	3 272 831,99 kr	7112702,119	400 972,44 kr	39 744 714 kr			
42	3 272 831,99 kr	65456,63973	335 515,80 kr	2 937 316,18 kr	7178158,759	400 972,44 kr	40 539 608 kr			
43	2 937 316,18 kr	58746,32368	342 226,12 kr	2 595 090,07 kr	7236905,083	400 972,44 kr	41 350 400 kr			
44	2 595 090,07 kr	51901,80131	349 070,64 kr	2 246 019,42 kr	7288806,884	400 972,44 kr	42 177 408 kr			
45	2 246 019,42 kr	44920,38849	356 052,05 kr	1 889 967,37 kr	7333727,273	400 972,44 kr	43 020 957 kr			
46	1 889 967,37 kr	37799,34741	363 173,09 kr	1 526 794,28 kr	7371526,62	400 972,44 kr	43 881 376 kr			
47	1 526 794,28 kr	30535,88552	370 436,56 kr	1 156 357,72 kr	7402062,506	400 972,44 kr	44 759 003 kr			
48	1 156 357,72 kr	23127,15438	377 845,29 kr	778 512,43 kr	7425189,66	400 972,44 kr	45 654 183 kr			
49	778 512,43 kr	15570,24862	385 402,19 kr	393 110,24 kr	7440759,909	400 972,44 kr	46 567 267 kr			
50	393 110,24 kr	7862,20475	393 110,24 kr	0,00 kr	7448622,113	400 972,44 kr	47 498 612 kr			

Bank loan

Bank loan	0	1	2	3	4	5	6	7	8	9	10
Gross margin	0	442500	442500	442500	442500	442500	442500	442500	442500	442500	442500
Leasing	0	0	0	0	0	0	0	0	0	0	0
Interest	0	-252000	-249020,5512	-245981,5133	-242881,6948	-239719,8798	-236494,8286	-233205,2763	-229849,933	-226427,4828	-222936,5836
Amortisation	0	-148 972,44 kr	-151 951,89 kr	-154 990,93 kr	-158 090,75 kr	-161 252,56 kr	-164 477,61 kr	-167 767,17 kr	-171 122,51 kr	-174 544,96 kr	-178 035,86 kr
Pretax return	0	190500	193479,4488	196518,4867	199618,3052	202780,1202	206005,1714	209294,7237	212650,067	216072,5172	219563,4164
Tax	0	-57150	-58043,83465	-58955,546	-59885,49157	-60834,03606	-61801,55143	-62788,41712	-63795,02011	-64821,75517	-65869,02492
After tax return	0	133350	135435,6142	137562,9407	139732,8137	141946,0841	144203,62	146506,3066	148855,0469	151250,7621	153694,3915
Discounted cash flow	0	-13 420,88 kr	-12 058,27 kr	-10 657,52 kr	-9 217,80 kr	-7 738,27 kr	-6 218,10 kr	-4 656,40 kr	-3 052,31 kr	-1 404,91 kr	286,73 kr
NPV from operation	-68 137,73 kr										
NPV operation + value increase	6 290 975,95 kr										

Value increase on the property	
Intial value	18 000 000 kr
Value y=10	21 511 666 kr
Loan value Y=10	10 968 793 kr
Equtiy	10 542 873 kr
After tax value	7 380 011 kr
NPV	6 359 114 kr

Appendix C: Hybrid loan scenario case

Hybrid loan	0	1	2	3	4	5	6	7	8	9	10
Gross margin	0	442500	442500	442500	442500	442500	442500	442500	442500	442500	442500
Leasing	0	0	0	0	0	0	0	0	0	0	0
Interest cupon payment	0	-126000	-126000	-126000	-126000	-126000	-126000	-126000	-126000	-126000	-126000
Accumulated interest payment	0	0	0	0	0	0	0	0	0	0	0
Amortisation	0	0	0	0	0	0	0	0	0	0	0
Pretax return	0	316500	316500	316500	316500	316500	316500	316500	316500	316500	316500
Tax	0	-94950	-94950	-94950	-94950	-94950	-94950	-94950	-94950	-94950	-94950
After tax return	0	221550	221550	221550	221550	221550	221550	221550	221550	221550	221550
Discounted cash flow	0	218275,8621	215050,1104	211872,03	208740,9162	205656,0751	202616,8228	199622,5	196672,4	193765,911	190902,3752
NPV from operation	2 043 175 kr										
NPV operation + investment	3 495 275 kr										

Value increase on the property					
Intial value		18 000 000,00 kr			
Value y=10		15 007 459,72 kr	Tract size (hectare)	150	
Value increase	=	-2 992 540,28 kr			
Interest payment y=10	-	2 094 778,20 kr	Loan volyme	12600000	
Equtiy part of value increase	=	-897 762,08 kr	Ownership cost SEK/hectare	50	
Intial equtiy	+	5 400 000,00 kr			
Value of investment Y=10	=	2 407 459,72 kr	Value of farmland SEK/hectare	120000	
after tax value	=	1 685 221,80 kr	Discount rate	1,5%	
NPV	=	1 452 100,41 kr	Tax rate	30%	
			Interest rate (cupon payment)	1%	
LTV Y=10		84%			
			Rate of return on the land	4%	2%	-2%
			Value of the land Y=10	25 619 613 kr	21 511 666 kr	15 007 460 kr

Hybrid loan	0	1	2	3	4	5	6	7	8	9	10
Gross margin	0	442500	442500	442500	442500	442500	442500	442500	442500	442500	442500
Leasing	0	0	0	0	0	0	0	0	0	0	0
Interest cupon payment	0	-126000	-126000	-126000	-126000	-126000	-126000	-126000	-126000	-126000	-126000
Accumulated interest payment	0	0	0	0	0	0	0	0	0	0	0
Amortisation	0	0	0	0	0	0	0	0	0	0	0
Pretax return	0	316500	316500	316500	316500	316500	316500	316500	316500	316500	316500
Tax	0	-94950	-94950	-94950	-94950	-94950	-94950	-94950	-94950	-94950	-94950
After tax return	0	221550	221550	221550	221550	221550	221550	221550	221550	221550	221550
Discounted cash flow	0	218275,8621	215050,1104	211872,03	208740,9162	205656,0751	202616,8228	199622,5	196672,4	193765,911	190902,3752
NPV from operation	2 043 175 kr										
NPV operation + investment	5 935 714 kr										

Value increase on the property					
Intial value		18 000 000,00 kr			
Value y=10		21 511 666,24 kr			
Value increase	=	3 511 666,24 kr	Tract size (hectare)	150	
Interest payment y=10	-	-2 458 166,36 kr	Loan volyme	12600000	
Equtiy part of value increase	=	1 053 499,87 kr	Ownership cost	50	
Intial equtiy	+	5 400 000,00 kr			
Value of investment Y=10	=	6 453 499,87 kr	Value of farmland	120000	
After tax value	=	4 517 449,91 kr	Discount rate	1,5%	
NPV	=	3 892 538,56 kr	Tax rate	30%	
			Cuopon payment	1%	
LTV Y=10		59%			
			Rate of return on the land	4%	2%	-2%
			Value of the land Y=10	25 619 613 kr	21 511 666 kr	15 007 460 kr

Hybrid loan	0	1	2		3	4	5	6	7	8	9	10
Gross margin	0	442500	442500		442500	442500	442500	442500	442500	442500	442500	442500
Leasing	0	0	0		0	0	0	0	0	0	0	0
Interest cupon payment	0	-126000	-126000		-126000	-126000	-126000	-126000	-126000	-126000	-126000	-126000
Accumulated interest payment	0	0	0		0	0	0	0	0	0	0	0
Amortisation	0	0	0		0	0	0	0	0	0	0	0
Pretax return	0	316500	316500		316500	316500	316500	316500	316500	316500	316500	316500
Tax	0	-94950	-94950		-94950	-94950	-94950	-94950	-94950	-94950	-94950	-94950
After tax return	0	221550	221550		221550	221550	221550	221550	221550	221550	221550	221550
Discounted cash flow	0	218275,8621	215050,1104		211872,03	208740,9162	205656,0751	202616,8228	199622,5	196672,4	193765,911	190902,3752
NPV from operation	2 043 175 kr											
NPV operation + investment	6 679 047 kr											

Value increase on the property						
Intial value		18 000 000,00 kr		Tract size (hectare)	150	
Value y=10		25 619 612,62 kr				
Value increase	=	7 619 612,62 kr		Loan volyme	12600000	
Interest payment y=10	-	-5 333 728,84 kr		Ownership cost	50	
Equtiy part of value increase	=	2 285 883,79 kr				
Intial equtiy	+	5 400 000,00 kr		Value of farmland	120000	
Value of investment Y=10	=	7 685 883,79 kr		Annual increase leasing cost	4%	
After tax value	=	5 380 118,65 kr		Discount rate	1,5%	
NPV	=	4 635 871,94 kr		Tax rate	30%	
				Interest rate (cupon payment)	1%	
LTV y=10		49%				
				Rate of return on the land	4%	2%	-2%
				Value of the land Y=10	25 619 613 kr	21 511 666 kr	15 007 460 kr

Appendix D: Leasing scenario case

Leasing	0	1	2	3	4	5	6	7	8	9	10
Intital investment											
Gross margin	0	450000	450000	450000	450000	450000	450000	450000	450000	450000	450000
Leasing	-240000	-240000	-240000	-240000	-240000	-240000	-240000	-240000	-240000	-240000	0
Ownership cost	0	0	0	0	0	0	0	0	0	0	0
Interest	0	0	0	0	0	0	0	0	0	0	0
Amortisation	0	0	0	0	0	0	0	0	0	0	0
Pretax return	-240000	210000	210000	210000	210000	210000	210000	210000	210000	210000	450000
Tax	0	-63000	-63000	-63000	-63000	-63000	-63000	-63000	-63000	-63000	-135000
After tax return	-240000	147000	147000	147000	147000	147000	147000	147000	147000	147000	315000
Discounted cash flow	-240000	144827,5862	142687,3	140578,6	138501,1	136454,3	134437,7	132450,9	130493,5	128565,1	271425,2
NPV Y=10	1 260 421,22 kr										
NPV operation + invested money	6 081 728,05 kr										

				Tract size (hectares)	150
Money from selling family farm	5 400 000 kr			Leasing price SEK/Hectare	1600
After tax return from selling the farm	3 780 000 kr			Tax rate	30%
Return from invested money Y=10	5 595 323 kr			Expected rate of return	4%
NPV	4 821 307 kr			Discount rate	1,5%

Appendix E: Results

Bankloan		Value increase in land		
		4%	2%	-2%
NPV on operation	Interest 2%	-68 138 kr	-68 138 kr	-68 138 kr
NPV on operation + Investment	Interest 2%	8 768 754 kr	6 290 976 kr	2 367 853 kr
LTV year 10		43%	51%	73%
NPV on operation	Interest 4%	-1 129 578 kr	-1 129 578 kr	-1 129 578 kr
NPV on operation + Investment	Interest 4%	5 823 041 kr	3 784 500 kr	556 832 kr
LTV year 10		45%	54%	77%

Hybrid loan	Value increase in land	4%	2%	-2%
NPV on operation		2 043 175 kr	2 043 175 kr	2 043 175 kr
NPV on operation + Investment		6 679 047 kr	5 935 714 kr	3 495 275 kr
LTV Year 10		49%	59%	84%

Leasing	
NPV on operation	1 260 421 kr
NPV on operation + investment	6 081 728 kr

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