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Alternative sources of finance in the agricultural sector

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Acknowledgements

This is the result of my minor MSc thesis in Agricultural Business Economics. In March 2015, I started this thesis at Wageningen University by writing and presenting my research proposal in collaboration with LIBA and ABN AMRO Helmond. In the months thereafter, I obtained results by sending out a questionnaire towards the primary agricultural sector, taking interviews with investors/ equity providers and studying literature. I decided to write a thesis in the field of alternative financing because banks are more reluctant towards providing loans. The contradiction that almost every farmer in the Netherlands is using a bank loan as their major financing source makes it very interesting. Given the fact that there is an increasing need for information on other sources of finance than debt financing in the agricultural sector, I was lucky to write do a thesis on this subject. To work with completely different aspects of research than I was used to, made this a challenging, instructive and very enjoyable part of my study. I would like to thank Miranda Meuwissen for the good guidance throughout this thesis and helping me where necessary. In addition, I would thank Niels Achten from LIBA and Maurice Vossen from ABN AMBRO for their expertise and their client contacts which I was able to use. I have learned a lot and I hope that these results are a step forward towards the upcoming trend of alternative finance use in the agricultural sector. Unfortunately, this research ends, while I have plenty ideas left. This leaves plenty of new opportunities for further research.

Sanne Klerx
July 2015

Management samenvatting

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Er is groeiende vraag naar grootschalige productie in de agrarische sector. Investeringen zijn nodig om deze grootschalige productie te financieren. Tegenwoordig is in Nederland financiering via een lening bij de bank een van de meest gebruikte externe bronnen van financiering. De financiële crisis van 2007 heeft een grote impact gehad op de verkrijgbaarheid van leningen. Deze financiële crisis kan look leiden tot nieuwe niet-bancaire vormen van financiering. In de VS neemt de vraag naar de mogelijkheid om te investeren met alternatieve bronnen in de agrarische sector toe. Echter is in Europa (Nederland), waardevolle informatie over het gebruik van alternatieve financieringsbronnen binnen de agrarische sector schaars.

Doel

Het hoofddoel van deze studie is het analyseren van de perceptie van agrarische ondernemers en mogelijke investeerders op de mogelijkheid om alternatieve financieringsbronnen te gebruiken binnen de agrarische sector van Nederland. Daarnaast is de invloed van de grootte van de investering, de grootte van de agrarische onderneming, de sector, de kennis van de boer en het vertrouwen van de boer geanalyseerd voor het huidige gebruik van alternatieve financieringsvormen en voor het gebruik in de toekomst. Als laatste is geanalyseerd in welke objecten agrarische ondernemers zouden willen investeren in de toekomst met behulp van alternatieve financiering.

Methode

De perceptie van de primaire agrarische sector in Nederland op het gebruik van alternatieve financieringsbronnen is beoordeeld door een vragenlijst te verspreiden via e-mail en per post, naar 1,014 agrarische ondernemers. Uit de sectoren akkerbouw, tuinbouw, varkenshouderij, pluimveehouderij, melkveehouderij of anders hebben in totaal 139 respondenten meegedaan. Aan de andere kant is de mening verzameld van vijf verschillende investeerders over investeringen in de agrarische sector door het afnemen van diepte-interviews.

Resultaten

In de agrarische sector is de meest populaire bron voor investering een bancaire financiering; agrarische ondernemers hebben vertrouwen in het verkrijgen van een lening bij de bank. De resultaten van de lijst van alternatieve financieringsvormen laat zien dat op dit moment familielening en financial lease de meest gebruikte alternatieve financieringsvormen zijn. Daarnaast speelt de grootte van de investering een rol. Erfpacht, financial lease, aandelen en durfkapitaal worden significant meer gebruikt voor een grote investering (€ 500,000), dan overige vormen van financiering. Echter, familieleningen worden meer gebruikt bij een kleine investering (€ 25,000) en er kan geen significant verschil worden aangetoond tussen het gebruik van een bancaire financiering bij een kleine investering vergeleken met een grote investering.

Tabel 1. Vertrouwen, huidig en verwacht gebruik van bancaire financiering uitgezet tegen de verschillende vormen van alternatieve financiering (n=136).

	Vertrouwen (% van de ondernemers)	Huidig gebruik (% van de ondernemers)	Verwacht gebruik (% van totale financiering)	
			Investering van € 25,000	Investering van € 500,000
Bancaire financiering	95	86	63	73
Alternatieve financiering				
Familie-lening	66	32	15	5
Ketenfinanciering	16	3	1	3
Krediet-unies	12	0	1	2
Financial lease	44	12	0	2
Erfpacht	49	7	0	5
Crowdfunding	21	1	2	3
Aandelen	15	2	0	2
Durfkapitaal	12	1	0	2
Geen	-	-	18	3

Bedrijfsomvang, sector van het bedrijf, kennis en vertrouwen in alternatieve financiering in de agrarische sector hebben een significant positieve invloed op het huidige gebruik van alternatieve financieringsvormen in de agrarische sector (Tabel 2). Echter, het verwacht gebruik van alternatieve financiering wordt niet significant beïnvloedt door bedrijfsomvang, sector en kennis. Alleen vertrouwen heeft een significant positieve invloed op het gebruik in de komende vijf jaar. Grond is het meest populaire investeringsobject om te financieren in de toekomst.

Tabel 2. Verwacht en huidig gebruik van alternatieve financiering in de komende vijf jaar, verklarende factoren en het type investering (n=136).

Huidig en verwacht gebruik van alternatieve financiering (% van totale externe financiering)	Huidig: 45	Verwacht: 15
Verklarende factoren[1]		
– Bedrijfsomvang[2]	*+	+
– Sector [3]	*+	-
– Kennis omtrent alternatieve financiering[4]	*+	-
– Vertrouwen in alternatieve financiering[5]	*+	*+
Gefinancierde investering (% van ondernemers)		
– Grond		43
– Machines		19
– Gebouwen		23
– Anders[6]		27

[1]Relaties zijn aangegeven met + (positief) or – (negatief). * = significant (P ≤.001)
[2] Bedrijfsomvang is de jaarlijkse omzet gecategoriseerd in drie groepen. 25 % laagste, 25% hoogste en de 50 % er tussenin.
[3] Sector is de sector waardoor het meeste van het inkomen van het bedrijf gegeneerd wordt gemeten, gecategoriseerd in zes groepen.
[4] Kennis is de voorafgaande kennis van de boeren ten opzichte van alternatieve financiering
[5] Vertrouwen is het vertrouwen van de boeren ten opzichte van alternatieve financiering.
[6] Inclusief geen investering

De resultaten van de diepte interviews laten zien dat mogelijke investeerders een positief gevoel hebben over het gebruik van alternatieve financieringsbronnen in de agrarische sector, maar dat er een groeiende vraag is naar interactie tussen de primaire sector en de mogelijke investeerders.

Conclusies

- Momenteel gebruikt 45 % van de ondernemers alternatieve financiering. Tweederde van dit percentage bestaat uit familie-leningen. Het overige deel is voornamelijk financial lease (12 %).
- Grootte van het bedrijf, kennis en vertrouwen van de boer hebben een positieve invloed op het huidige gebruik van alternatieve financieringsvormen in de agrarische sector; alleen vertrouwen heeft positieve invloed op het gebruik in de toekomst.
- Volgens de investeerders is er een groeiende vraag naar interactie tussen de primaire sector en de mogelijke investeerders.

Summary

There is an increasing demand for large-scale production in agriculture. Investments are needed to make this large-scale production possible. Nowadays, debt financing is in the Netherlands still a greatly used external source of finance. However, the 2007 financial crisis had a major effect on the availability of debt finance. This financial crisis may lead to the use of external non-banking finance sources. There has been an increasing demand for the possibility to invest with alternative sources in agriculture in the US over the recent years, because the sector is still growing fast. However, in Europe (Netherlands) valuable information about the use of alternative financial sources in the agricultural sector is scarce.

Aim

The overall objective of this study is to assess possible alternative forms of financing for agriculture in the Netherlands. Therefore, the first aim is to identify the sources that can be used as alternative finance. Then, the pros and cons of a shortlist of alternative sources of finance in literature are reviewed and assessed. The next aim is to review and assess the opinion of the primary sector and the opinion of the investors/ equity providers about the current and future use of alternative finance sources within the agriculture in the Netherlands. Another aim is to investigate the influence of size, sector, knowledge, trust and size of investment on alternative finance sources. The last aim is to investigate whether it is clear which steps should be taken by the primary sector when they want to start with funding through alternative finance sources and what their opinion is about the role of the bank for alternative finance.

Method

The opinion of the primary sector within the agriculture in the Netherlands on the use of alternative sources of finance is assessed by sending a questionnaire towards 1,014 agricultural entrepreneurs. In total 139 farmers from the segments, agriculture, horticulture, pig farms, poultry farms, dairy farms and others, did respond to the questionnaire. Besides that, the opinion of several investors and equity providers on investments for the agricultural sector is assessed by the use of in-depth interviews.

Results

Debt finance is the most popular source for investing in the agricultural sector; farmers still have a lot of trust in obtaining a bank loan. The results of the list of alternative finance sources show that current family loan and financial lease are mostly used. In addition, the size of the investment plays a role. The use of leasehold, financial lease, shares and venture capitalists as alternative finance source is significantly higher for a large investment compared to other sources. However, family loans are more used for small investments compared to large investments and no significant difference can be seen for using a bank loan as financing source.

Table 1. Trust, current and expected use of debt finance versus different sources of alternative finance (n=136).

	Trust (% of farmers)	Current use (% of farmers)	Planned use (% of Total finance)	
			Investment of € 25,000	Investment of € 500,000
Debt finance	95	86	63	73
Alternative finance				
Family loan	66	32	15	5
Value Chain Finance	16	3	1	3
Credit unions	12	0	1	2
Financial lease	44	12	0	2
Leasehold	49	7	0	5
Crowdfunding	21	1	2	3
Shares	15	2	0	2
Venture capitalists	12	1	0	2
None	-	-	18	3

Size of the farm, sector of the farm, knowledge and trust of the farmer have a significance influence on the current use of alternative finance in the agricultural sector (Table 2). However, the expected use of alternative finance is not significantly affected by size, sector and knowledge (Table 2). Only trust had a significant influence on the use of alternative finance in the next five years. In addition, land is the most popular type of investment financed in the future.

Table 2. Expected (n = 136) and current use (n = 139) of alternative finance in the next 5 years, explanatory factors and type of investment.

Use of alternative finance (% of the total extern finance)	**Current: 45**	**Expected: 15**
Explanatory factors[1]		
– Size[2]	*+	+
– Sector[3]	*+	-
– Knowledge[4]	*+	-
– Trust[5]	*+	*+
Type of investment financed in the future (% of farmers)		
– Land		43
– Machinery		19
– Buildings		23
– Other[6]		27

[1]Associations are indicated as + (positive) or – (negative). * = significant (P <.001)
[2]Size is the annual turnover categorized by three groups, 25 % lowest, 25% highest and 50 % in between
[3]Sector is the segment in which the bulk income of the farm is generated, categorized in six groups
[4]Knowledge is the previous knowledge of the farmers of alternative finance
[5]Trust is the trust of farmers regarding to alternative finance in the Agricultural sector
[6]Including no investment

Results of the in-depth interviews show that the possible investors\ equity providers have overall a positive feeling towards alternative finance sources in the agricultural sector and that there is a growing demand for interaction between the primary sector and possible investors.

Conclusions

Primary sector

- Family loans, value chain finance, credit unions, financial lease, leasehold, crowdfunding, shares and venture/angel capitalists were identified as possible alternative financing sources in the agricultural sector
- Currently 45 % of the farmers is using a form of alternative finance and of this percentage two-third consisted of family loan; the other part was mainly composed of financial lease.
- Size of the farm, knowledge and trust of the farmer have a positive influence on the use of alternative financing sources.
- The primary sector has trust in the use of alternative sources in the future. Overall, alternative finance sources except family loans are expected to be more used for funding a big investment. However, expected is that only 14.5 % of the total amount of money invested is financed by alternative financing sources.
- For more than half of the respondents it is not clear which steps to perform to start with funding by alternative finance.
- According to 50 % of the primary sector, the bank is not playing any role in alternative financing sources in the future.
- Farmers expect that investors are going to interfere with the daily management and this is expected to be a somewhat uncomfortable experience.

Investors/ equity providers

- Investors/ equity providers have indicated that there was a growing demand for interaction between the primary sector and possible investors.

Abbreviations

AC – Angel Capitalists
CU – Credit Unions
SMF - Small and Medium-sized Firms
VC – Venture Capitalists
VCF – Value Chain Finance

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1. Introduction
Agriculture is the cultivation of plants, fungi, animals and other life forms for food, fibre, medicinal products and other products used to sustain and enhance human life (Murphy, 1992). The current world population is increasing from 6.8 billion people in 1992 towards 9 billion people in 2050 (Murphy, 1992). Further, also the prosperity is increasing. It may be possible that over 40 years, 70 % more feed is needed to maintain the world population. This enormous increase is not feasible without large-scale production in agriculture (Murphy, 1992). Investments are needed to make this large-scale production possible.

An important question for agricultural companies is which kind of sources of finance can be used to fund their investments. Agriculture is a capital intensive industry (Barry and Ellinger, 2012). In agriculture, investments have always been predominantly financed by owner equity and credit was obtained by bank loans (Kay et al., 2012). Nowadays, debt financing is still the most commonly used external source of finance in the Netherlands (Zhengfei and Lansink, 2006). With this financial source, entrepreneurs are however dependent on banks that provide loans (Treur, 2012).

Entrepreneurs in agriculture may have two reasons for asking alternative ways to finance their activities or business. First, some entrepreneurs are not qualified for debt financing because of insufficient certainties and lack of trust (Veen et al., 2009). Second, some entrepreneurs do not want debt financing because other sources of financing better fit their business strategy (Veen et al., 2009). For both reasons those other sources could be external non-banking finance sources.

Equity financing is generally seen as a useful external finance source, because it involves investors which put up cash in return for a stake in business and for a share of profits when business begins to create a return (Blommaert, 2008). However, equity financing is not regularly used in the agricultural sector (Zhengfei and Lansink, 2006). Where private equity refers to investments in later-stage firms, venture capitalists (VC) and angel capitalists (AC) focus on the financing and advising of young innovative start-ups. Their main goal is to let the company excel and to make profit from that (Metrick and Yasuda, 2011). On the other hand, also investment funds can be used as an alternative finance source. A form of private money investment that is currently used in the agricultural sector is family loans (Berkhout, 2013). In particular, for the landless agriculture and for dairy farms, family loans are popular on acquired farms (Berkhout, 2013). In addition, financial leasing may be an interesting form of alternative finance. More working capital can be obtained when assets are leased instead of purchased. On the other hand, value chain financing (VCF) may be an option to use as alternative finance source. The financial processes between the company and their clients, suppliers and financial supporters are optimized (Wenner and Arias, 2006). Credit Unions (CU) are an upcoming source of alternative finance. CU are corporations of entrepreneurs within the same sector or region. It can be defined as financing for entrepreneurs by entrepreneurs. The fastest upcoming alternative finance source is crowdfunding that already has promising results. It is a collective effort of people who network and pool their money together usually via internet platforms (Fisk et al., 2011). At last, leasehold financing is a traditionally source of finance in the agricultural sector.

1.1 Problem statement
Investments are needed to do large-scale productions. However, the 2007 financial crisis had a major effect on the availability of debt finance. In addition, insolvency declines by credit availability, decreased capacity of borrowers to repay loan and damaged investor confidence had a negative effect on the lending market. As a result, default rates of loans increased, and some banks were hit with significant losses in their credit business (Fidrmuc and Hainz, 2010). Banks are more traditional and

conservative towards funding compared to alternative financing sources. Roel van Vucht from Rabobank Tilburg (Regiobusiness, 2015) confirmed that the market of finance and the role of banks is changing. If a business plan is not well supported; banks are reluctant to provide loans. This financial crisis may lead to new ways of finance (Diamond and Rajan, 2001). In addition, there has been an escalating demand for the possibility to invest in agriculture over the recent years in the US (Chen et al., 2014). In the US, about 70 % of the farms were already financed by alternative forms of finance than debt finance in 1970 (Hopkin et al., 1973). On the other hand, VC and private equity are further developed in the US. However in Europe, information about the use of alternative financial sources in the agricultural sector is scarce.

1.2 Objective

In this context, the overall objective of this thesis is to assess possible alternative forms of financing for agriculture in the Netherlands. More specifically, the objectives are to:

I) Identify the sources that can be used as alternative finance.

II) Review and assess the pros and cons of a shortlist of alternative sources of finance in literature.

III) Review and assess the opinion of the primary sector within the agriculture in the Netherlands that has an influence on the current use and future use of alternative sources of finance.
   a. Investigate the influence of size, sector, knowledge and trust on alternative finance sources.
   b. Investigate if size of an investment has influence on the use of alternative finance sources in the agricultural sector
   c. Investigate whether it is clear which steps should be taken by the primary sector when they want to start with funding through alternative finance sources and what their opinion is about the role of the bank for alternative finance.

IV) Review and assess the opinion of investors/equity providers about the current use and the future use of alternative sources of finance within the agriculture in the Netherlands.

1.3 Thesis outline

The second chapter will describe the difference between equity financing and debt financing and will describe the characteristics of a list of alternative finance sources. In addition, an assessment of pros, cons and the return on investment of those alternative sources of finance will be shown. With the materials and methods described in chapter three, chapter four will give results about the farm analysis, the opinion of the equity providers/investors and the opinion of primary agricultural sector towards the use and opportunities of alternative finances sources by the agricultural sector in the Netherlands. This research ends with chapter five in which the conclusion, discussion and recommendations will be included.

2. Literature

Access towards good funding for investments is crucial for the development and the professionalization of the agricultural sector. Those developments may lead to a better market position for the firm. Investments may lower marginal costs or improve product quality. In agriculture, different external sources are available to raise money for investments. Debt and equity financing are two basic options for financing. Farms in the Netherlands are mainly financed by debt while in other sectors equity financing is more common (Zhengfei and Lansink, 2006).

2.1 Debt financing versus equity financing

When debt financing is used as external finance source, entrepreneurs are dependent on banks that provide their loans (Treur, 2012). Debt financing is a financing method that involves interest payments, which are not directly related profit achieving activities. For many cases in the agricultural sector; farm land or other assets are required as collateral (Hisrich et al., 2008). Debt financing requires entrepreneurs to pay back the amount borrowed as well as interest rate. When the interest rate is low, debt financing allows the entrepreneur to have a greater return on equity (Hisrich et al., 2008). In conventional lending, collateral is used to mitigate risks for the lender. However, the typical mortgage type of collateral commonly required by banks is not always available for farms (Miller and Jones, 2010). Stable cash flows are needed to pay back debt acquired. According to Smolarski and Kut (2011), high earnings volatility decreases the debt capacity, as it is harder to forecast cash flows that are needed to pay off the debt due to its fixed nature. For small firms, it is harder to borrow money from a commercial bank in comparison to larger firms, due to lower collateral value of the assets and a less stable cash flow. Moreover, even if a small firm obtains a loan from a commercial bank, the interest rate can be higher than for a large firm. This will lower the profitability that a small firm can earn from conducting an investment (Fu et al., 2002). In addition, firms with lower earnings, higher asset volatilities or lower cash flow are less able to support debt and are less able to deal with financial uncertainties (Smolarski and Kut, 2011). Within agriculture, debt financing is no longer an easy way to finance investments, because of the reluctance of banks for providing loans. An application from a farmer for a loan can also be rejected (Roozen, 2013). A new investment that needs financing from the bank requires extensive support. A reason for this can be also that banks are more reluctant because they have to deal with tighter international standards for the equity of banks compared to outstanding loans (Roozen, 2013).

The other way to raise capital is to issue shares or stocks, called equity financing. Equity is money that the firm attracts from different sources. Equity financing is generally seen as a useful external finance source, because it involves investors to put up cash in return for a stake in firm or for a share of profits when business begins to create a return (Blommaert, 2008). No repayment is necessary and the sums of money are most of the time permanent. Dividends have to be paid during good times only (Blommaert, 2008). Raising money through equity as funding source that is a more convenient and less expensive way of financing (Fu et al., 2002). In contrast to debt financing, equity financing has no need for collateral and offers investors some form of ownership of the firm. Fu et al. (2002) described that a positive relationship exists between equity financing and profitability, caused by the high leverage that companies obtain from equity financing.

The main problem with debt finance compared to equity finance is the fixed stream of interest payments that have be made afterwards. This interest payment of debt finance may put pressure on the financial performance of the firm. A big disadvantage of equity financing is the partial ownership of the equity funders (Clayton, 2009). The study of Clayton (2009) stated that firms with higher equity financing compared to debt financing can handle decreases in demand and other fluctuations better.

The reason can be that in case of debt financing the costs are always there, in more or less the same amount, while in case of equity financing the costs can deviate with the financial performance of the firm. There are many alternative forms of equity financing. In the next paragraph, alternative sources of equity finance are defined.

2.2 Alternative sources of finance

2.2.1 Private equity

Firms may sell shares to investors (shareholders). This may result in an increased pool of capital available for the business and the obligation of the business to share earnings with investors. When profit is made, shareholders can receive a dividend (Kay et al., 2012). High risk is associated with this form of investment; shareholders receive a relative high rate of return (Atrill and McLaney, 2011).

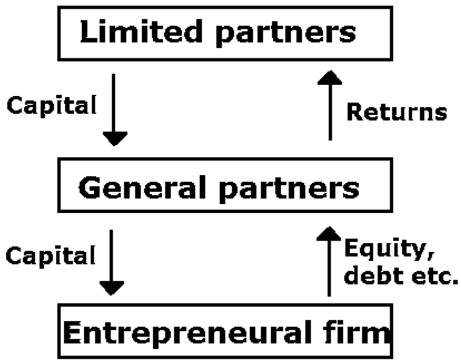

Figure 1. The basic intermediation structure of private equity funding

Private equity funds are financial intermediaries between sources and entrepreneurial firms (Figure 1) (Cumming and Johan, 2013). Private equity funds invest in non-listed companies and include investments in mature firms. As the name suggests, private equity is largely exempt from public disclosure requirements (Kaplan and Schoar, 2005). Private equity can divided in two divisions; limited partners, consisting of institutional investors and wealthy individuals that provide the bulk, and in general partners. General partners search for specific investments and tend to specialize in venture capital investments (more in-depth information can be found in paragraph 2.2.2), angels capital investments (more in-depth information can be found in paragraph 2.2.3) or buyouts. Commonly, when a general partner identifies an investment opportunity, it may obtain money from its limited partners such as endowments or pension funds. In addition, when the investment is liquidated the general partners, distributes the proceeds to its limited partners (Kaplan and Schoar, 2005). Overall, private equity funds play an increasingly important role in the financial sector (Metrick and Yasuda, 2010). The difference between the overall equity funds, angels capitalists and venture capitalists is that venture capitalists and angel capitalists refers to investments in earlier-stage firms (seed or start-up firms), whereas private equity is a broader term, that also refers to investments in later-stage firms (Figure 2) (Metrick and Yasuda, 2011).

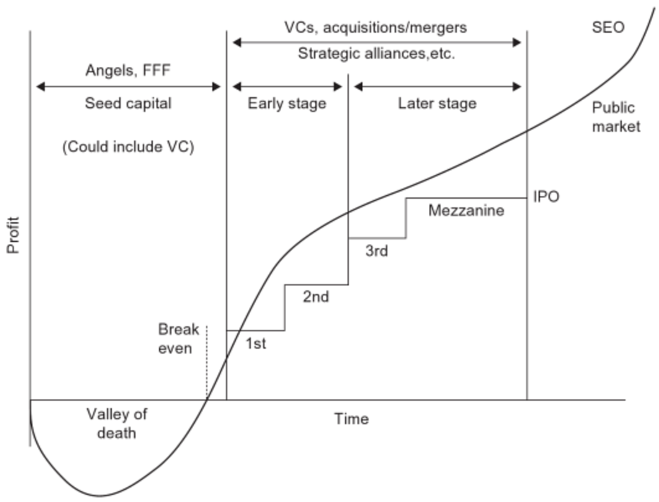

Figure 2. The stages of entrepreneurial firm development in private equity funding(Cumming and Johan, 2013)

The costs for the farmer when private equity is used as alternative financial source is the dividend that the investors received when the firm is making profit (Kay, 2012).

2.2.2 Venture capital

As stated in a previous paragraph, venture capitalists (VC) focus on financing and advising young innovative start-ups. In order to make investments in start-ups, VCs firms raise money from institutional investors through 'vehicles' called funds and through the deal flow between the entrepreneurs and VC fund. Thereby, through the flow between the VC fund and its investors, relating to fundraising compensation structure and distributions of the returns to VCs (figure 3). The contract, underlying the fund, is traditionally a partnership (Cumming and Johan, 2013).

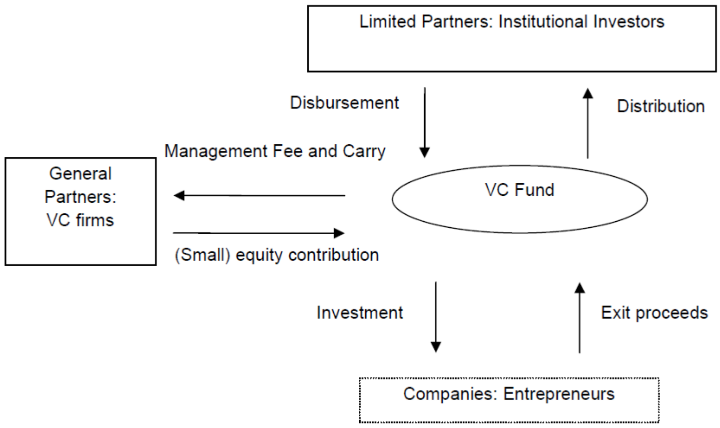

Figure 3. Comparable to equity financing in general, VC has three main streams; VC fund and Limited Partners, VC fund and VC firms and VC fund and companies (Cumming and Johan, 2013).

In short, VCs perform different actions as investing and monitoring (Metrick and Yasuda, 2011). One of the basic premises of VC is leverage; adding money or other sources to speed up growth (Smolarski and Kut, 2011). It is important for VCs to monitor the different opportunities for investments. They must decide if they should invest in projects where the outcome uncertainty is high. Initial risks associated with financing the entrepreneurial firms are based on asymmetric information, which makes governance and selection paramount to success of the VC firm (Smolarski and Kut, 2011). VC use syndication (when two or more VCs share a single financing round) to minimize investment risk through participating as co-investor, which decreases the adverse selection problems (Smolarski and Kut, 2011). According to Lerner (1994), syndication can be efficient when high information asymmetry is present in a VC financing round. It may also decrease opportunistic behaviour of the entrepreneur (Wright and Lockett, 2003).

Two main ways to invest as VC are lump-sum and incremental investing. When lump-sum financing is arranged all funds are received at one time (Smolarski and Kut, 2011). Incremental investing is also known as stage financing and means that VC first invest a pre-agreed amount of capital and add further capital when certain milestones are met. According to Metrick and Yasuda (2011) a VC has five main characteristics:

- The main goal is to maximize its financial return by exiting investments through a sale or an initial public offering.
- A VC is a financial intermediary, by taking the investors' capital and investing it directly in firms.
- VCs invest to fund internal growth of firms.
- A VC invest only in private companies. Therefore, once the investments are made, the firm cannot be immediately traded on public exchange.
- VCs take an active role in monitoring and helping firms in the portfolio.

Some distinctions can be made between VC and mainstream corporate finance. The key distinction may be related to the problem of asymmetric information. The investments of VC are made in firms not quoted on stock markets, where investors trades-off short term illiquidity in the shares held for prospects of a greater return in the future (Robbie and Mike, 1998). According to the study of Robbie and Mike (1998) more distinctions can be found in table 1.

Table 1. Distinctions between Mainstream Corporate Finance and Venture Capital Funding (Robbie and Mike, 1998)

Attribute	**Mainstream Corporate Finance**	**Venture Capital**
Tradability of shares	Liquid	Illiquid
Monitoring of management by shareholders	Passive/indirect	Active/direct
Role of market for corporate control	High	Low
Access to capital	Competitive 'anonymous' capital market	1. Early stage: access limited to set of financiers with highly specialised skills 2. Later stage: closer to competitive market but active monitoring skills
Asset specificity	Generally relatively low	Firms with non-redeployable/ highly specialised assets
Project valuation	Application of a wide range of techniques	Restricted range of techniques and/or need for greater range of sensitivity analysis because of greater uncertainty of cash flows
Investment decisions	Single stage	Multi-stage
Information availability	Private information is rare; provision of public information is mandatory	Private information widespread and difficult to reveal, hence requirement for close monitoring of managers

The costs for the farmer when using VC as alternative financial source is the dividend that the investors receive when the firm is making profit and on the other hand, possibly a management fee for the advice and active monitoring of the management by shareholders (Cumming and Johan, 2013).

2.2.3 Angel capital

The equally important source for start-up capital are angel capitalists (AC) (Wong et al., 2009). AC are also called 'business angels' and are individuals who invest a part of their personal wealth in an equity stake of an entrepreneurial venture. AC can be compared to VC. However, AC use their own private money for investing, while VC use money of many different investors bundled into an organisation (limited partnership) to invest together (Metrick and Ayako, 2011). AC fill the financial gap between funding by family or friends and VC firms. AC exist primarily because it is difficult for friends and family to contribute more than a few thousand Euros and VC rarely consider the smaller deals (Wong et al., 2009).

The majority of angel-baked firms receive their VC funding before the business has derived any revenue from its product. Therefore, angel-baked firms are younger when they receive their first funding compared to venture-baked firms (Wong et al., 2009). Taken together, this may indicate that AC are willing to accept more risk in financing firms with greater uncertainty than VC.

The costs for the farmer when using AC as alternative financial source is the dividend that the investors receive when the firm is making profit and on the other hand, possibly a management fee for the advice and active monitoring of the management by shareholders (Applegate et al., 2010).

2.2.4 Family loans

Family loans are loans financed by family. Due to the fact that entrepreneurs have difficulties obtaining bank loans, they might search more often for a source of finance in family atmosphere (van der Meulen and Venema, 2005). On the other hand, in agriculture and horticulture, traditionally family loans play a major role as financing source by a firm takeover, as former owners leave a portion of their assets in the firm (van der Meulen and Venema, 2005). However, in the service industry, the use of family loans as a source of finance is less likely (Romano et al., 2001). Bank loans often have more stringent conditions than family loans (Romano et al., 2001). Particularly in land-based arable and dairy farming, family loans are popular on small (start-up/growth) family firms (Berkhout, 2013). The explanation can be that family business owners are debt averse, they want to retain control and minimize financial risk (Sonnenfeld and Spence, 1989).

The costs for the farmer when using family loans as alternative financial source is the interest that has to be paid and the repayment when the term of loan is ended (van der Meulen and Venema, 2005).

2.2.5 Financial leases

Financial leases are a form of leasing, commonly used by small and medium-sized firms (SMF) (Deloof et al., 2007). Almost all leases in the rural and agricultural industry are financial leases including operational leases where an asset or machinery is being leased (Kloeppinger-Todd and Sharma, 2010). When financial leasing is used as a form of alternative source of finance, an agreement between the lesser and the lessee has to be made, when the business does not buy the asset but leases it (Kay, 2012).

In most cases, the economic ownership of the asset transfers towards the lessee and the lease agreement transfers to the user with all reward and risks related (Kay, 2012, Deloof et al., 2007). A lease contract can be classified depending whether the lesser or lessee technically owns the leased item and the attendant benefits and risks (Sharpe and Nguyen, 1995). The risks and costs of ownership include the responsibility of the asset. While the benefits of ownership like, ultimate possession of the asset and entitlement to gains from asset value appreciation, entail the right of use,. When operational leases are used, the lesser retains ownership. This depends on whether it has a meaningful residual interest in the equipment under lease agreement (Sharpe and Nguyen, 1995). However, the division between ownership or not is complicated by the fact that determination of ownership may differ depending on whether it is made for financial accounting purposes or for legal/tax considerations (Sharpe and Nguyen, 1995).

Traditional finance theories suggest that leases and corporate debt are substitutes; more use of financial leases is associated with more debt financing. Leases and debt are both fixed, contractual obligations that reduce the firm's debt capacity (Deloof et al., 2007). The advantage of financial leasing is that it allows the business to obtain possession of an asset without paying the cost of acquiring the asset, which results in more working capital. It is a flexible source of finance, useful when the sector undergoes rapid changes in the amount of type of assets that is used from year to year (Wolfson, 1985). In addition, according to Kay et al. (2012) it is often cheaper by leasing or renting assets rather than owning them. For instance, beginning farmers can lease land more easy than owning it.

Additionally, according to Sharpe and Nguyen (1995) the most common set of motivation involves the use of leases to minimize costs of transaction that arise when a firm expects the life of capital equipment to exceed its prospective usefulness. However, this investment can contribute to a general feeling of uncertainty about the future of the business. Because of the danger that the part of land being farmed can be lost on short notice or slow equity accumulation, without the ownership of land, equity only can be accumulated by machinery, livestock or cash savings (Kay, 2012). Finally, cash flow problems and poor liquidity have found to be an important influence on the decision to lease (Beattie et al., 2000).

The costs for the farmer when using financial leases as alternative financial source is the lease payment when the term of loan is ended (Kay, 2012).

2.2.6 Value chain finance

Another alternative source of financing is value chain finance (VCF). A value chain consists of a series of value-adding activities to the final product. The valuing chain starts with production, continues with processing or elaborating of the final product and ends with marketing and sales to the end user (Wenner and Arias, 2006). The links of the chain and the security of market-driven demand for final product can provide suppliers, producers, processors and marketing companies with more secure access to the process of products. This reduces costs and risks of doing business and improves access towards services within the chain (Miller and Jones, 2010).

VCF allows integration of all the players within the chain and is based on sharing and trading for example machinery and information. Therefore, it can possibly reduce risks and increase growth in the sector (Wenner and Arias, 2006). VCF is known as the flow of funds to and among the different links inside the value chain (Miller and Jones, 2010). In other words, VCF can be defined as any or all of the financial services, products or support services flowing to or through a value chain to address the needs and constraints of the chain. For example, services to procure products, to secure sales, to reduce risk and/or improve efficiency within the chain. It is an extensive approach, that not only focuses on the direct borrower but analyses the whole chain and its linkages (Miller and Jones, 2010). VCF can be divided in two strains;

I) Internal value of chain finance takes place within the value chain. For example when a leading firm advances funds to a market intermediary or when an input supplier provides credit to a farmer.

II) External value of chain finance is made possible by value chain relationships and mechanisms. For example when a bank issues a loan to farmers that is based on a contract with trusted buyer.

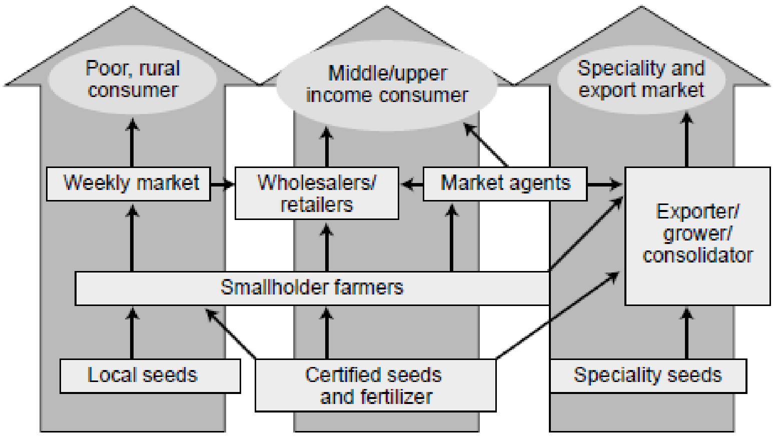

Figure 4. A simplified framework of the flows of VCF (Miller and Jones, 2010).

For the recipients of VCF, VCF offers a mechanism to obtain finance that may otherwise not be available due to lack of collateral or transactions costs of securing a loan. In addition, it can be a way to guarantee a market for products. According to Miller and Jones (2010) and Wenner and Arias (2006), the main modalities of VCF are;

- Identify financial needs for strengthening in the chain
- Tailor financial products to fit needs of participants in the chain
- Reduce financial transaction costs through direct discount repayments and delivery of financial services
- Use value chain linkage and knowledge of the chain to mitigate risks.

VCF is both an approach to financing as well as a set of financial instruments to expand the chain and to improve the financial needs of those within the chain. It is an approach to finance that recognizes the entire chain and responds to the specific requirements to finance them (Miller and Jones, 2010). Tailor-made approaches can be applied to finance production or harvest, to purchase products or labour, to provide overdrafts in credit lines, to fund investments or to reduce risk and uncertainty (Miller and Jones, 2010). In Figure 4 a simplified framework of VCF in the agricultural sector can be found. This simplified framework illustrates that internal VCF and external VCF can be used in the chain. The products flow in one direction through the chain and within the chain finance flows in two directions.

Factoring is an example of VCF. It is a form of account receivable financing. The entrepreneur transfers his billing and credit risk to the bank. In exchange for a small fee towards the company, the entrepreneur receives his money immediately instead of waiting for example 90 days until the bills are paid (Steeman and Hondel, 2014). The credit for a company grows together with the sales. Therefore, factoring is also called “growthfinancing”.

The costs for the farmer when using VCF as alternative financial source is the interest that has to be paid on the lend asset (Wenner and Arias, 2006). When factoring is used, a small fee towards the company for receiving the money immediately.

2.2.7 Credit Unions

Credit unions (CU) are self-help cooperative financial organizations of entrepreneurs in a particular sector or region. CU accept deposits or shares and make loans. They are geared to attaining economic and social goals by its members (McKillop and Wilson, 2011). Entrepreneurs who want to invest to a maximum of a directive of € 250,000 can lend money of a CU (Berkhout, 2013). In CU every member has an equal voice, regardless of the amount of savings or loans they have with this CU. In addition, CU managers are not awarded bonuses. In contrast to most financial services organizations, CU are not required to simultaneously satisfy shareholders profit expectation and disparate needs of the customer (McKillop and Wilson, 2011). Instead, CU exist to attain social and economic goals of people. Entrepreneurs comprise their membership towards the CU and surplus money generated from related business activities belonging to the members. According to McKillop and Wilson (2011) the distribution of money may take a number of forms;

- Allocation among members in proportion towards their transactions
- Development of common services to benefit all of the members
- Development of the business of the CU

CU conduct business solely with their members (in turn the owners of CU). An amalgamation of coincidence of ownership and consumption takes place. Therefore, there is a risk a potential conflict between borrowing members (who want access to lowest possible credit) and the saving members (who want the highest rate of return on funds invested) (McKillop and Wilson, 2011).

The costs for the farmer when using CU as alternative financial source is the interest that has to be paid and the repayment when the term of loan is ended (McKillop and Wilson, 2011).

2.2.8 Crowdfunding

The fastest upcoming (in number and in size) alternative source of finance is crowdfunding. Crowdfunding is a collective effort of people who network and pool their money together usually via internet platforms from the general public (the “crowd”) instead of approaching AC, VC or banks for loan (Fisk et al., 2011, Schwienbacher and Larralde, 2010). An advantage of crowdfunding is that it can be used for a great variety of purposes,creating profit for all (Fisk et al., 2011).

In this type of investment, according to Fisk et al. (2011) three different kind of players are involved;

- People who propose the ideas or project to be funded
- People who decide to financially support these ideas (the “Crowd”)
- Crowdfunding organization, which brings the two players together

Individuals already finance investments through their savings, since the bank is an intermediary. In contrast, crowdfunding does not act as intermediary. Entrepreneurs raise money directly from individuals. Therefore, there are lagere risks for the investor, because there is less supervision (Schwienbacher and Larralde, 2010).

The costs for the farmer when using crowdfunding as alternative financial source can be the interest that has to be paid, the repayment when the term of loan is ended, the dividend that the investors receive when the firm is making profit, discount on the product or on the other hand product advertisement (Schwienbacher and Larralde, 2010).

2.2.9 *Leasehold*

Leasehold is the business right on the full use of property which belongs to someone else (Peffer et al., 2010). The difference with tenancy is that this is bound to property and not to the person. Therefore, the lessee can alienate the leasehold to third parties or can use it in obtaining a mortgage. For a long lease for farmland, a minimum duration of 26 years is set (ASR, 2015).

The costs for farmers when using leasehold as alternative financial source is the interest that has to be paid and the lessee does not have to buy the land but annually pays a canon. This results in an increased working capital. The canon that is being paid by the lessee to the lesser is at the beginning lower than the mortgage payments but can rise in the course of time by indexing or revision (ASR, 2015).

2.2.10 *Investment Funds*

Various investors (individuals, pension funds or insurance companies) can join an investment fund, to invest their money in firms. There are two different types of investment funds:

- Investment funds by informal investors, where a group of informal investors together form their own investment fund. The majority of the votes decides whether or not to (collectively) invest in an offered proposition (Mulder, 2015).
- Investment funds by investment companies; this fund is led by a fund manager. This manager does not have full rights to make decisions by him- or herself. This all happens in agreement with the management or supervisory board, consisting of persons who invest in the investment fund (Mulder, 2015).

Investment funds spread risks as much as possible by investing in various companies in different sectors. After the amount of money gained from the investment is plotted on a number of entrepreneurs, the investment fund must be in total par value yield for investors (Mulder, 2015).

The costs for farmers when using investment funds as alternative financial source is the dividend that the investors receive when the firm is making profit and on the other hand, possibly a management fee for the advice and active monitoring of the management by shareholders (Mulder, 2015).

The next paragraph provides an assessment of pros, cons and return on investment of the alternatives sources of finance when used in the Netherlands.

2.2.11 Assessment of pros, cons and return on investment of alternative sources of finance

Table 2. Assessment of pros, cons and return on investment of alternative sources of finance

Source of alternative finance	Advantages	Disadvantages	Costs for farmers
Private equity	○ Increased pool of capital available for firm when selling shares[a] ○ Lower level of risk for provider[a]	○ High risk for shares because shareholders receive a relative high rate of return[b] ○ The realized return on equity in the agriculture shows that private equity or venture capital is hardly an option. The low returns do not make it attractive for private equity funds[c] ○ Receive dividend only if profits are available (shareholders)[a] ○ Investors get ownership and profit[a]	○ Dividend[a]
Venture Capital (VC)	○ VC bring high amount of money with them[d] ○ VC provide valuable expertise, industry connections and advice[e]	○ Selfishness; VC leaves the firm when it is the most profitable for them[d] ○ The realized return on equity in the agriculture shows that private equity or venture capital is hardly an option. The low returns do not make it attractive for private equity funds[c]	○ Dividend[s] ○ Management fee[s]
Angel Capital (AC)	○ AC bring relatively high amount of money with them[f] ○ AC bring expertise and advice[f] ○ AC are willing to take more risk for finance[g]	○ Selfishness; AC leaves the firm when it is the most profitable for them[d] ○ AC can influence the management of the firm[g]	○ Dividend[g] ○ Management fee[f]
Family Loans	○ Less stringent conditions then bank loans[h]	○ Only applicable for acquired firms in the form of assets. Otherwise, amount of money that family can provide may be too low[i]	○ Interest[i] ○ Repayment[i]

		○ If things not go well, may risk to damaging long standing relationships[c]	
Financial Leases	○ In the presence of asymmetric information, Financial leases can be very useful[j] ○ Allows the business to obtain possession of an asset without paying the cost of acquiring the asset, which results in more work capital[k] ○ Flexible source of finance[i]	○ General feeling of uncertainty[a] ○ Obligation to continue make payments[a]	○ Lease-payment[a]
Value Chain Financing	○ Reduces costs and risk of doing business[m] ○ Improves access towards services[m] ○ Increase productivity and higher product prices via improved inputs and technical assistance[n]	○ Limited ability to expand due to reliance on close personal contracts[m] ○ Potential for exploitative or monopoly relationships[m] ○ Requires lengthy process of developing regulatory framework[m] ○ Dependent on the other actors in the chain[m]	○ Interest[m]
Credit Unions (CU)	○ Every member has an equal voice, regardless the amount of savings or leans they have with this CU[o] ○ Credit unions are not required to simultaneously satisfy the shareholders profit expectation and disparate the needs of the customer[o] ○ Great commitment, members know each other and therefore can provide better advice[c]	○ CU conduct business solely with their members (in turn the owners of CU)[o] ○ Potential conflict between borrowing members and the saving members[o] ○ More sensitive towards risks because of a specific sector, small group of entrepreneurs and little capital and therefore less spread of risks[c]	○ Interest[o] ○ Repayment[o]
Crowdfunding	○ Great variety of purposes[p] ○ Creating profit for all[p] ○ Brand awareness[q]	○ Small amount of cash[q] ○ It is not a long-term funding strategy[r] ○ Risk of exposure business details[p]	○ Dividend[q] ○ Repayment[q] ○ Interest[q]

		○ Dependent on the crowd[p]	○ Discount on product[q] ○ Product advertisement[q]
Leasehold	○ No interim repayment obligation[t] ○ Improved liquidity position[t] ○ The right of leasehold can be sold to third parties[t] ○ Flexible amount to leasehold[t]	○ It is hard to build up business because of the lack of ownership[t] ○ Uncertainty for the future because no idea of inflation over 26 years[t]	○ Annually canon[t] ○ Interest[t]
Investment Funds	○ Large amount of money available for investment[u] ○ Spreading of risks[u]	○ The decision of an investment usually lasts longer and much time is lost by meetings and consultation[u]	○ Dividend[u] ○ Management fee[u]

A = (Kay, 2012), B = (Atrill and McLaney, 2011), C = (Berkhout, 2013), D = (Metrick and Yasuda, 2011), E = (Smolarski and Kut, 2011), F= (Metrick and Ayako, 2011), G= Applegate et al., 2010), H =(Romano et al., 2001), I =(van der Meulen and Venema, 2005), J = (Sharpe and Nguyen, 1995), K=(Deloof et al., 2007), L = (Wolfson, 1985), M =(Miller and Jones, 2010), N = (Wenner and Arias, 2006), O = (McKillop and Wilson, 2011), P = (Fisk et al., 2011), Q = (Schwienbacher and Larralde, 2010), R = (Belleflamme et al., 2010), S = (Cumming and Johan, 2013), T = (ASR, 2015), U = (Mulder, 2015)

2.3 Current use of the alternative sources of finance in agriculture

Nowadays, most used source of finance in the agricultural sector in Europe is still debt finance. In the Netherlands, the averaged long-term debt of the agricultural and horticultural sector at year-end 2012 was approximately € 765,000, of which almost € 700,000 of debt financing and about € 50,000 of family loans (Berkhout, 2013). According to Wardrop et al. (2015), there is a growth of the use of alternative financing sources in different sectors in the Netherlands.

In addition, the formation of a funding mix is the future for the agricultural sector. A funding mix is the combination of two or more financing sources. It can save a lot of money and thereby the ability to gather enough funding for the investment increases. Alternative sources of finance are combined with debt finance and other alternative sources of finance (Wardrop et al., 2015, Berkhout, 2013). Alternative finance sources can be the solution for lack of financial sources in the agricultural sector, instead of smaller credits additional to bank loans. Small loans are for the bank less interesting because of their relatively high costs with a limited amount of loan (Berkhout, 2013).

2.3.1 Private Equity

When looking over all kind of sectors, the private equity industry has grown intense over the last ten to fifteen years partially because of the high returns on equity (Bernstein et al., 2010). The realized return on equity in the agriculture shows that private equity is hardly an option. The low returns do not make it attractive for private equity funds (Berkhout, 2013). At most, some greenhouse farms can meet the requirements but even then, possibilities are limited. The investment cycle of ten to fifteen years in the greenhouse sector does not reflect the strategy of private equity funds, because they are interested in the business after five year on average with profit (Berkhout, 2013).

2.3.2 Venture Capital

The venture capital (VC) industry has grown tremendous over the past thirty years in all kind of sectors. While the US still dominates the market in all sectors, Europe and Asia now attract about the half of the total investment flow financed by VC (Kaplan and Lerner, 2010). Worldwide in different sectors, VC raised nearly € 150 billion of capital during the boom years of 1999 and 2000 and made early investments in recent successes like Google (US), Skype (EU) and Baidu (Asia) (Metrick and Yasuda, 2011). A market analysis done by NVP (2015) where the investments of VC in different sectors of the Netherlands is shown between 2011 and 2014. In Table 3, the investments for the agricultural sector compared towards the sector of business and industry products in the Netherlands are shown.

Table 3. Investments of VC in agricultural sector within the Netherlands compared to the sector of business and industry products adapted from NVP (2015).

	Amount in € new invested	Amount of VC-baked farms	Amount in € new invested	Amount of VC-baked farms	Amount in € new invested	Amount of VC-baked farms	Amount in € new invested	Amount of VC-baked farms
*** € 1.000**	***2010***		***2011***		***2012***		***2013***	
Agriculture	742	2	225	2	2,991	5	3,118	8
Business and industry products	2,500	6	2,713	8	9,808	7	15,601	22
Total invested of all different sectors	170,398	149	180,873	162	195,071	192	169,258	226

2.3.3 Angel Capital

Nowadays, in the Netherlands spread over all kind of sectors, there are approximately 200 business angels active. They rather operate as real "angels". They do not want to have a lot of publicity. This is a complete opposite than the business angels in the United States; they prefer to be in the centre of attention (Bom, 2010).

An example of a firm that was funded by AC is Amazon.com (Wong et al., 2009). Perhaps, reflecting the technology boom of the late 1990s most AC invest in computer-related industries (Wong et al., 2009). Unfortunately, no further information is available in literature about the use in agriculture.

2.3.4 Family loans

As already stated in a previous sections, in the agriculture and horticulture, traditionally family loans play a major role as financing source by a firm takeover, as former owners leave a portion of their assets in the firm (van der Meulen and Venema, 2005). Nowadays, this form of finance plays an important role by realizing farm takeovers. In 2012, € 50,000 for investments was financed by family loans, the absolute amount of money financed by family loans slightly increase annually (Berkhout, 2013). Berkhout (2013) stated that to finance investments or activities of farms, they largely depend on family loans or own assets.

2.3.5 Financial leases

Financial leasing is mostly used in the agricultural sector for the lease of machinery. During the financial crisis, a decrease of the total lease market occurs (Boerenbusiness.nl, 2011). However, the lease market for agricultural machinery was constant. The total lease market in the Netherlands decreased from € 5,3 billion in 2008 towards € 3,2 billion in 2010. On the other hand, the lease market for agricultural machinery increased from € 130 million in 2008 towards € 172 million in 2009 (Boerenbusiness.nl, 2011).

2.3.6 Value Chain Finance

Currently VCF is growing annually with 20 % to 30 % in different sectors within the Netherlands. There are some big Dutch investors developing better VCF. They mentioned that working capital will be increased, but also machinery will be financed and relations between with their suppliers will be improved (Douma, 2012). In Spain, VCF is a common financing source also in the agricultural sector (Douma, 2012). In the Netherlands, it is not commonly used only for some big strategic suppliers. There is no standardization for VCF and lack of procedure for payment, which makes it hard to start with VCF for SMF (Steeman and Hondel, 2014). However, no further information about the agricultural sector is available.

An example is Superunie, which is using factoring as VCF method. Superunie is a purchase organization for grocery stores like “Spar”. This Superunie is prepaying with the help of banks supplier invoices. Superunie can still pay for the invoice following the usual thirty, sixty or ninety days, however not transfers the money towards the supplier but towards the bank. The local brewery, which supplies the supermarket in beer, receives their money already after five to fifteen days after the invoice has been approved. This invoice is then paid by the bank. The supplier pays for the prepay of the bill a fee to the bank, which is usually lower than the cost of financing for outstanding invoices (Steeman and Hondel, 2014).

2.3.7 Credit Unions

Credit unions (CU) are an opportunity as alternative financial source in the agricultural sector. They are based in a particular sector or region. This connects to the growing local-food initiatives. The concept is very attractive, especially when quitted farmers use this. Those farmers are committed to invest their equity in start-up farmers (peer-to-peer investments). Nowadays, the interest for founding a CU is still rising in the Netherlands. However, in the agricultural sector there are not any CU in the Netherlands (Berkhout, 2013). This is caused by the fact that it is complicated to establish a CU in the Netherlands due to legislation.

Indeed, it is unclear whether a CU in accordance with the law as a 'closed circle' may be considered. If De Nederlandsche Bank believes that, the CU cannot be considered as a ‘closed circle’. Then a banking license is needed for CU (Dijsselbloem, 2013). The Dutch Lower House and Upper House are currently still debating on this subject. However, an example abroad of an agricultural credit union is the ‘Community 1st’ Credit Union in Iowa.

Worldwide there were in 2009, 49.330 CU across 98 countries over all types of sectors. However, there is a great diversity within those CU across these countries, reflected by various economic, cultural and historic contexts (McKillop and Wilson, 2011).

2.3.8 Crowdfunding

Crowdfunding may be a good additional alternative financing source in the agricultural sector, when banks are reserved. However in the Netherlands, this type of financing does not play a significant role in agriculture yet but it is an upcoming source and there are examples of small sized crowdfunding; burgersvoorbijen.nl, koopeenkoe.nl or buitengewonevarkens.nl (Roozen, 2013). On the other hand, nowadays there are also crowdfunding platforms specified on agriculture (farmersfunding.nl) and horticulture (fundaplant.nl) started in the Netherlands. In 2013, around € 30 billion is financed by crowdfunding for start-ups or innovations for entrepreneurs over all kind of sectors (Douw&Koren, 2013). This is substantially increased compared to 2011 and 2012, when respectively € 0,7 billion and € 4,1 billion over all sectors was financed by crowdfunding (Douw&Koren, 2013).

According to Belleflamme et al. (2010), the market of crowdfunding is very young in all sectors. The most initiatives are founded 3-4 years ago till now, with about 60% of this taking place in Western countries. The sector of crowdfunding range is broad. Crowdfunding is mostly used as addition to the own equity of the entrepreneur, anticipatory to a bank loan and is applicable for an amount of money until € 500,000 (Schwienbacher and Larralde, 2010). Until recently, there were thoughts that crowdfunding was not appropriate to finance an acquisition of a farm. However, as a part of the overall funding mix crowdfunding can play a role (Wardrop et al., 2015). Crowdfunding can be used to test a new product and/or to gather starting capital. After which banks can provide regular funding and additional funding from suppliers or leasing companies can be obtained. It is important that the project leaves a good feeling to potential participants. The intangible reward can be an important incentive for depositing money.

While some of the fundraising initiatives are based on donations, around 80 % appears to offer a form of reward to the crowd. This can be issuance of shares, credit on the product or the product itself as advertisement (Schwienbacher and Larralde, 2010). In addition, raising money is their major motivation but another motivation can be the flow of information between the organization and their customers. This type of investment is a kind of social network, these days important way to make brand awareness. People can actively participate in online communities and share knowledge, information and suggestions (Fisk et al., 2011). It can be used as a promotion device (Schwienbacher and Larralde, 2010). The highest perspectives of crowdfunding are in niche markets of the agricultural sector, because the customer want to support important initiatives that has a certain personal feeling towards initiatives (Berkhout, 2013).

2.3.9 Leasehold

The three highest top providers (ASR, Fagoed and Rhoon, Pendrecht and Cortgene) of leasehold financing showed that farmers are more and more interested in leasehold financing. However, they are only committed to use leasehold financing when obtaining a loan by the bank is impossible (ASR, 2015). Currently, leasehold financing is used in approximately 5 % of the culture acreage in the Netherlands (ASR, 2015). The use of leasehold financing is not equally spread in the Netherlands. Particularly, in the east of the Netherlands entrepreneurs are more reluctant. The ownership of farmland is in this region very important. Most of the leasehold financing in agriculture is done in Flevoland. Traditionally, entrepreneurs in this area are used to lease land (ASR, 2015).

2.3.10 Investment Funds

The reluctance of banks to provide loans in the agricultural sector caused the investment funds are growing as alternative financing source (Mulder, 2015). An example in the Netherlands is the ‘Israëlische GreenSoil Investments’ which started in the Netherlands an investment fund with a size of € 50 million for European food and agribusiness. Co-founder Gideon Soesman expects that in the upcoming five years, half of this money is invested in Dutch agricultural firms (Smit, 2015).

2.3.11 Assessment of use of alternative financing sources

In Europe and specifically the Netherlands, information about the use of alternative financial sources in the agricultural sector is scarce. On the other hand in the US, about 70 % of the farms were already financed by alternative forms of finance than debt finance in 1970 (Hopkin et al., 1973). Therefore, in the next table a comparison is made between the different alternative forms of finance in the Netherlands and in the US.

Table 4. Assessment of use of alternative finance in agriculture in Europe compared to United States

Source of alternative finance	Europe	United States
Private equity	○ Private equity is hardly used in agriculture[a] ○ The realized return on equity in the agriculture shows that private equity is hardly an option. The low returns do not make it attractive for private equity funds[b]	○ 70 % of the agricultural firms is financed by another source than debt finance[a]
Venture Capital (VC)	○ Investments of VC in agricultural sector within the Netherlands (* 1.000) was €3,118 of the total invested €169,258[c]	○ The number of VC investments in agriculture and forestry rose from five in 2000 towards eleven in 2009[g] ○ The amount of money flowing into that sector rose from € 40 million in 2000 towards € 42,5 million in 2009[g]
Angel Capital (AC)	○ N.a.	○ N.a.
Family Loans	○ In agriculture, 90% is financed (partly) by family investments[b] ○ At year-end 2012 the long-term debt of agricultural sector was partly family loans with an amount of € 50.000[b]	○ N.a.
Financial Leases	○ Financial leasing is mostly used in the agricultural sector for the lease of machinery. The lease market for agricultural machinery increased from € 130 million in 2008 towards € 172 million in 2009 in the Netherlands[d]	○ N.a.
Value Chain Financing	○ N.a.	○ N.a.
Credit Unions (CU)	○ Nowadays, the attention for founding a CU is still rising in the Netherlands. However, in the agricultural sector there aren't any CU in the Netherlands[b]	○ There are CU investing in the agricultural sector in US. However, exact numbers are unknown

Crowdfunding	○ This type of financing does not play a significant role in agriculture in the Netherlands yet, only in niche markets[e] ○ It is an upcoming source and there are examples of small sized crowdfunding, like burgersvoorbijen.nl, koopeenkoe.nl and buitengewonevarkens.nl[e]	○ This type of financing is still rising in size and number. Currently the website Agfunder.com is an important pillar of crowdfunding. Agfunder currently focusses on agriculture technology and robotics applications but in the future as the platform grows, Agfunder may add farmland projects[h]
Leasehold	○ Farmers are more and more interested in leasehold financing[f]	○ N.a.
Investment Funds	○ N.a.	○ N.a.

A = (Hopkin et al., 1973), B = (Berkhout, 2013), C = (NVP, 2015), D = (Boerenbusiness.nl, 2011), E = (Roozen, 2013), F = (ASR, 2015), G = (VentureSource, 2010), H = (www.agfunder.com). N.a. = Not available

3. Materials & Methods

To assess the opinion of the primary sector within the agricultural sector in the Netherlands on the use of alternative sources of finance, a questionnaire was spread by LIBA. In addition, a questionnaire by mail is send towards farmers in the south of the Netherlands, which are clients of ABN AMRO Helmond. These farmers of different segment in the agricultural sector can help to define the potential of alternative financial sources in the agricultural sector. On the other hand, also the opinion of several investors (investment funds) and equity providers about investments for the agricultural sector was assessed by the use of in-depth interviews.

3.1 Conceptual framework for farm analysis

A schematic representation of the conceptual framework for current farm analysis and for farm analysis in the future can be found in figure 5. More detailed information can be found in the following paragraphs.

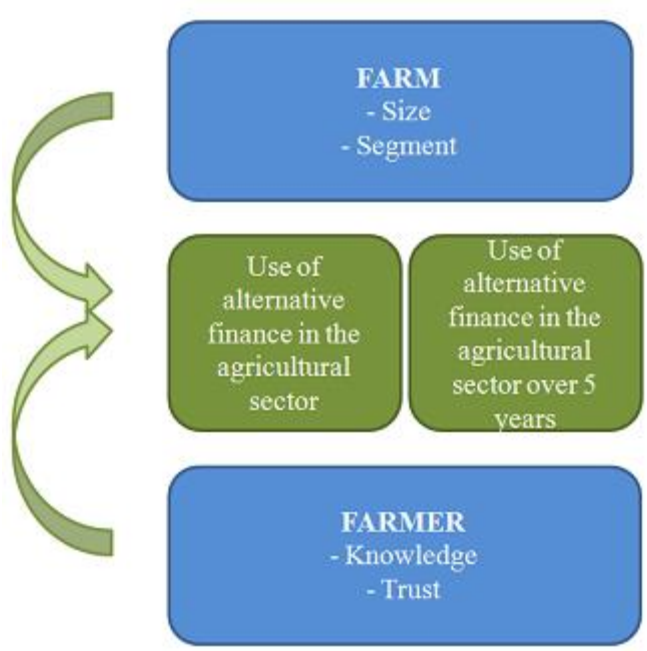

Figure 5. Conceptual framework for farm analysis

3.2 Variables in the model

3.2.1 Farm size

From the farmers point of view the size might have an influence on the use of alternative finance in de agricultural sector. For larger farms the cost of capital and land is relatively lower than for smaller farms (Griffin et al., 2002). Therefore, larger farms use more capital and land. On the other hand, the investment pattern of smaller firms is more socially optimal (Ellis, 1993). In general when using the “common” way in the Netherlands, an investment for a small farm is harder to obtain than for a large firm (Woodhouse, 2010). For small firms, it is harder to borrow money from a commercial bank in comparison to larger firms, due to lower collateral value of the assets and a less stable cash flow. Moreover, even if a small firm obtained a loan from a commercial bank; the loan rate can be higher than for a large firm. This will lower profitability that a small firm can earn from conducting an investment (Fu et al., 2002). Thereby, large farms can make large investement more easy compared to small farms. Therefore hypothesized is that small farms invest less with the help of alternative financing sources compared to larger farms.

3.2.2 Farm segment
The different segments might play also a role in the use of alternative finance in the agricultural sector. The importance of horticulture in the agriculture in the Netherlands is rising (Silvis et al., 2009). At most, some greenhouse farms can meet the requirements for investing with alternative finance sources. However, possibilities are limited. The investment cycle of ten to fifteen years in the greenhouse sector does not reflect the strategy of private equity funds, because private equity investors are interested in the business after five year on average with profit (Berkhout, 2013). In addition, the importance of soil-bound dairy farms is decreasing. Those dairy farms are more conservative compared to other kinds of segments. Therefore, hypothesized is that the segment has influence on the willingness of trying to use alternative financial sources.

3.2.3. Farmer knowledge
Knowledge might have an influence on the use of alternative financing sources. In a study of Gu et al. (2011), knowledge plays a significant role in the practices for cervical cancer prevention. Although it is another field of study, comparisons can be made when the knowledge is increased a better estimation of risks and benefits can be made. Therefore, the hypothesis is that when a farmer knows the ins-and-outs of alternative financing sources, there is an ability to make a positive deliberately decision about the use of alternative financing sources.

3.2.3 Farmer trust
Trust might play an important role in the use of alternative financing sources, because farmers are unlikely to use alternative finance sources if they do not trust this sources. This is conform the study about trust in e-commerce of Ponte et al. (2015). Together with farmers' trust, more use of alternative financing sources in the agricultural sector in the future is expected.

3.2.4 Size of investment
It might be that alternative financing sources are more used in combination with bigger investments, because a funding mix for bigger investments is the future (Wardrop et al., 2015). Therefore, the hypothesis is that the size of investments might have a positive influence on the use of alternative financing sources in the agricultural sector.

3.3 Questionnaire for farmers
The key objective for the questionnaire was to assess the opinion of the primary agricultural sector on the use of alternative financing sources by investigating the influence of size, sector, knowledge and trust by dividing this questionnaire in four different blocks. Those blocks resemble the four core subjects of this questionnaire and those are knowledge, trust, application and expectation. This questionnaire was made by using Qualtrics (provider for Online Survey Software) and was send by e-mail (clients LIBA) and send by mail (clients ABN AMRO Helmond). The detailed format, however only in Dutch, can be found in appendix I.

3.3.1 Sample
The samples for farm analysis were connections of LIBA and ABN AMRO Helmond. In total 1.114 questionnaires were send and 139 did participate to the questionnaire. The samples for the in-depth interviews were investors and equity providers. Detailed information can be found in Table 5 for the primary sector and Table 6 for the equity providers.

Table 5. Sample of farmers of primary sector

Bulk income of farms	#	%
Arable farm	5	4
Horticulture	11	8
Pig farm	21	15
Poultry farm	12	9
Dairy farm	84	60
Other	6	4
Total	139	100

Table 6. Sample selection of investors/equity providers

Firms	Firm characteristics/expert	#	Telephone/e-mail or In person
Puijenbroek Hilvarenbeek	Expert: Jan Neutkens Large mixed farm with 460 dairy cows and associated youngstock. The farm has around 400 ha of land, of which 190 ha is for production of feed for the cows and the rest is for the cultivation of different crops.	1	By e-mail
Koepon	Expert: Cees Hartmans Private Dutch company that contributes to improve management programs for dairy farms. The company is strongly growing with 30 % of the market share in USA and 8 % of the market share in the Netherlands.	1	In person
CBL	Expert: Marc Jansen Industry coordinating company for supermarkets in the Netherlands	1	By telephone
Jumbo	Expert: Ed van de Weerd One of the leading supermarket in the Netherlands. Jumbo has approximately 600 stores in the Netherlands.	1	In person
Anonymous*	Expert: - Dairy farm with 530 cows and 180 ha land. The annual turnover is 5,5 billion euros.	1	In person

* Anonymous on request of the respondent

3.3.2 Analytical approach for farm analysis

Data is collected by sending a questionnaire to firms in the primary agricultural sector. Data was subject to analysis of multivariate regression. A multivariate regression analysis is used to analyse the influence of independent variables on the dependent variable. Significance of effects was declared at $P < 0.05$. Statistical program SPSS (IBM Software Inc.) was used to analyse the data. Difference in investment size is analyzed by a paired sample T-test. The analysis of the role of the bank, the opinion about interfering with the management and clearness about steps to take when starting to search for alternative finance sources were performed by counting frequencies. In Appendix 2, descriptive statistics of farm analysis can be found.

In equations 1 and 2 the form of the regression series for the current use and the future use can be found.

$$USE\_ALT = \alpha + b_1SIZE + b_2SEC + b_3KNOW + b_4TRUST + \varepsilon \quad (1)$$

$$USE\_ALT\_FUT = \alpha + b_1SIZE + b_2SEC + b_3KNOW + b_4TRUST + \varepsilon \quad (2)$$

3.3.2.1 Dependent variable

USE_ALT = use of alternative financing sources in the agricultural sector is the dummy variable of application of alternative finance by the farmers. This variable is composed of the response of one question of the survey. Additionally, another question was asked which form of alternative financing is used. This question can be used as consistency check.

Q8a: Are you currently using any form of alternative financing? Q8b: Which of the alternative financing sources are you currently using? *Bank loan, shares, financial lease, venture/angel capitalists, value chain financing, credit unions, crowdfunding, lease hold, family loans, none of them or different…*

USE_ALT_FUT = use of alternative financing sources in the agricultural sector over five year is the mean variable of the amount of percentage given by the farmers for use of alternative financing sources over five years. This question is composed of one question of the survey. Additionally, another question was asked in which objects the primary sector wants to invest in with alternative finance sources.

Q9: What percentage of your total external finance do you expect to finance through alternative finance sources over five years? Q10: Which objects do you expect to finance with alternative finance sources over five years? *Buildings, machinery, land or different...*

3.3.2.2 Independent variables

SIZE = size is the dummy variable of the annual turnover classified in three groups. Within the variable of SIZE, groups were made based on 25% lowest, 25% highest and the values between those groups. This was composed of one question of the survey.

Q2: What is the estimate annual turnover of your company?

SEC = sector is the dummy variable of the segment of the agricultural sector. This was composed of one question of the survey.

Q1: Which of the segments represents the bulk of the income of your farm? *Agriculture* *Horticulture*

Pig farm *Poultry farm* *Dairy farm* *Other...*

KNOW = knowledge is the mean variable of the previous knowledge of farmers on alternative financing forms. This was composed of one question of the survey

Q3: Are you familiar with alternative sources of financing in the agricultural sector? *1: not at all* *2: a little* *3: average* *4: somewhat* *5: yes*

TRUST = trust is the mean variable of the confidence of farmers on alternative finance. This was composed of one question of the survey. A second question (Q7) is composed of a dummy variable of the confidence of farmers towards the different forms of financing to use as a consistency check. Another question in the survey is asked for explanation.

Q4: Do you have confidence in a future with alternative sources of finance in the agricultural sector? *1: not at all* *2: a little* *3: average* *4: somewhat* *5: yes* Q7: In which of the following sources of finance do you have confidence? *Bank loan, shares, financial lease, venture/angel capitalists, value chain financing, credit unions, crowdfunding, lease hold, family loans, none of them or different…*

SIZEINV = size of investment is the dummy variable of the alternative form of finance used by farmers for different sizes of investments. This variable is divided in two segments; big and small. This question is composed of two questions in the survey.

Q11: A funding of € 500,000 is needed for upscaling. Which of the finance forms would you use? Divide 100 % towards the different financing forms *Bank loan, shares, financial lease, venture/angel capitalists, value chain financing, credit unions, crowdfunding, lease hold, family loans or different…* Q12: A funding of € 25,000 is needed to build a storage shed. Which of the finance forms would you use? Divide 100 % towards the different financing forms *Bank loan, shares, financial lease, venture/angel capitalists, value chain financing, credit unions, crowdfunding, lease hold, family loans or different…*

3.4 In-depth interviews for investors and equity providers

For evaluating the opinion of several investors (investment funds) and equity providers on investments for the agricultural sector, in-depth interviews were held. Data collection was done per telephone or in person. The focus of the questionnaire was on the level of investments. The key questions are noted below:

- Is it for your firm or sector an option to finance the primary agricultural sector by alternative financing? And why?
- Which of the alternative finance sources are an option for financing the primary agricultural sector? For example family loans, VCF, CU, financial lease, leasehold, crowdfunding, shares, VC/AC or investment funds?
- Which of the alternative finance sources do you prefer?
- What are the selection criteria for your firm to invest?
- Are those criteria to invest in the agricultural sector different compared to the non-agricultural sector?
- What are the objects in which your firm invests? For example, land, machinery or buildings?
- How do you see the future of alternative financing for the agricultural sector?

4. Results

4.1 Farmer perception of the use of alternative financing sources

As shown in Table 8, a large part of the primary sector is currently using bank loan as financing source. Currently, 45 % of the primary sector is using a form of alternative financing. Two-third of this percentage is consisted as family loan. The other part is mainly composed of financial lease. No one of the primary sector in my study is using credit unions as alternative finance source.

Remarkable is that overall the participants to this question have trust in a lot of different financing sources, but currently farmers do not use it. More logically, the most used sources are also the sources in which the primary sector had most confidence.

Table 7. The current use and trust in percentages for the different financing sources

	Current use (%)	Trust (%)
	(n = 138)	*(n = 138)*
Bank loan	86	95
Family loan	32	66
Value Chain Finance	2.9	16
Credit Unions	0	12
Financial lease	12	44
Leasehold	6.5	49
Crowdfunding	1.4	21
Shares	2.2	15
Venture/Angel capitalists	1.4	12
Total of alternative finance	45	91

4.1.1 The influence of size, sector, knowledge and trust

Size of the farm has a positive influence on the current use of alternative finance (Table 8). The higher the annual turnover, the more of alternative finance is currently used. However, also the sector has influence in this research. More knowledge of the farmer on alternative financing sources leads to more current use of those sources in the agricultural sector. In addition, trust has a positive influence on more current use of alternative finance sources in the agricultural sector as shown in Table 8. Trust has a significant positive influence on family loans. Other sources of finance were not significant. This can be caused by the fact that only a little percent was using that source as showed in Table 7. No information is available about CU, because nobody of the participants did use funding by credit unions. All the 139 participants answered the question of general current use and therefore this is a more reliable factor.

Table 8. Influence of size, sector, knowledge and trust on current use of different sources of finance

	Size	**Sector**	**Knowledge**	**Trust** *(n =139)*
Bank loan	.068(.045)	.040(.027)	.036(0.026)	-.059(0.031)
Family loan	.130(.057)*	.061(.034) †	.071(.033)*	.114(.040)**
Value Chain Finance	.005(.022)	.009(.013)	.008(.013)	-.013(.015)
Credit Unions	-	-	-	-
Financial lease	.082(.042) †	.017(.026)	.029(.025)	.023(.029)
Leasehold	.019(.032)	-.003(.019)	.027(.019)	-.012(.022)
Crowdfunding	.025(.015)	.000(.009)	.007(.009)	.010(.011)
Shares	-.004(.019)	-.004(.012)	-.001(.011)	.011(.013)
Venture/Angel capitalists	.030(.015) †	.006(.009)	.001(.009)	.012(.011)
General current use	.148(.06)**	.081(.036)*	.106(.035)**	.109(.041)**

B-value (STD), P <0.05 *, P <0.01**, P <0.001***

According to the results of this study, farmers are reluctant to use alternative financing sources, because of the lack of knowledge. In addition, questions were raised regarding to reliability. On the other hand, the primary sector overall believes that banks are not the ideal solution for the future, because of high interest rate on outstanding loans and the reluctance for providing loans. However, it is not clear what kind of solution is perfect. Funding with alternative sources first needs to prove itself.

4.1.2 The influence of size, sector, knowledge and trust on the future use

The size, sector and knowledge did not have any significance influence on the future use of alternative finance in the agriculture. Trust had a positive influence towards more use over 5 years of alternative finance sources in the agricultural sector as shown in Table 9.

Table 9. Influence of size, sector, knowledge and trust on future use over 5 years

	Future use *(n = 139)*
Size	1.17 (2.717)
Sector	-.311(1.597)
Knowledge	-.684(1.571)
Trust	6.45(1.848)***

B-value (STD) P <0.05 *, P <0.01**, P <0.001***

Throughout the agricultural sector, business decisions were made for several years and many farmers think several years forward. Some farmers are reluctant to have trust in alternative finance sources; in their opinion it is too risky to think several years forward with alternative financing. On the other hand, there is an indication that the use of alternative finance sources requires another business plan, which is difficult to set up. Regarding to the primary sector, on average 14.5 % of the money needed for their investments is financed by alternative financing sources. The other part is still financed by a bank loan.

One of the most interesting objects for farmers to invest in for the future is land. Almost 45 % of the farmers (43,4 %) would invest in land when using alternative financing sources. Land is a logical choice, because it preserved its value and has no depreciation. In the category “other”, most people filled in that they did not wanted to invest at all. In addition, a small part wants to invest in generating sustainable energy.

Table 10. Distribution of objects, in which primary sector would like to invest in by the use of alternative financing sources over 5 years

	%
(n = 136)	
Land	43
Machinery	19
Buildings	23
Other...	27

4.1.3 Influence of small investments versus large investments

No significance difference can be seen when a bank loan is used as external finance source. This is more used for financing large investments than small investments. The use of VCF and crowdfunding is not significantly lower for small investments (€ 25,000) compared to large investments (€ 500,000) (Table 11). On the other hand, for the use of leasehold as alternative finance source a p-value of <.001 is found for increased use when a large investment is made compared to a small investment. Financial lease, shares and VC/AC are significantly more used by large investments than small investments. However, family loans are more used by small investments compared to large investments. Not any use of external finance sources is highly increasing by small investments compared to large investments with a p-value of <0.001.

Table 11. Influence of small (€ 25.000) or large (€ 500.000) investments on the use of different financial sources

	Small inv. $\bar{X}$ **(%)**	**Large inv.** $\bar{X}$ **(%)**	**Sign.**
(n = 137)			
Bank loan	63.0	73.0	NS
Family loan	14.5	4.5	*
Value Chain Finance	1.3	2.3	NS
Credit Unions	0.9	1.8	NS
Financial lease	0.2	2.3	**
Leasehold	0.0	4.7	***
Crowdfunding	1.8	2.9	NS
Shares	0.0	1.7	**
Venture/Angel capitalists	0.2	2.2	*
No use external financing sources	18	3.1	***

Not Significant NS, P <0.05 *, P <0.01**, P <0.001***

4.1.4 Opinion of primary sector about equity providers interfering with the daily management

Around one-third (29 %) of the farmers shares the expectation that investors/equity providers are going to interfere with the daily management of the primary sector (Table 12). In addition, in Table 12 the perception of this interfering can be found. The experience about interfering with the daily management by investors/equity providers is that it will yield an uncomfortable (35 %) or a neutral (39 %) feeling for the primary sector.

Table 12. Expectation and perception of the primary about investors/equity providers interfering with the daily management

	Expectation of interfering (%)		Perception of interfering (%)
	(n = 137)		*(n = 137)*
No interfering	15	**Very comfortable**	2.2
A little interfering	21	**Comfortable**	6.6
Neutral interfering	20	**Neutral**	39
Somewhat interfering	29	**Uncomfortable**	35
A lot of interfering	15	**Very uncomfortable**	17

4.1.5 Next steps and role of the bank

It is clear for 47.7 % of the participants, which steps to perform when they want to start using alternative finance sources. However, for the other percentages it is not clear. The most known troubles are that farmers do not have a clue where to start; they do not know how to get into touch with investors/equity providers. In addition, they want to know which of the different financing options is most interesting for a certain investment and which party is able to finance certain investment. Regarding to the primary sector, liability of new investors\ equity providers play a large role.

According to 49.6 % of the primary sector, the bank is not playing any role for alternative financing sources in the future. However, 45.1 % of the primary sector considers the bank in the future as a kind of intermediary between the investor/equity provider and the primary sector. It is interesting to note that part of the primary sector shares the opinion that they have more trust in accounting firms or notaries as intermediary compared to banks. An overall opinion is that banks should be more broad-minded, should better take care of their clients, that banks are too slow with their assessment, are too reserved and have too high interest rates on outstanding loans.

4.2 Investors/equity provider perception of the use of alternative financing sources

In Table 13, the detailed in-depth interviews for investors and equity providers in the agricultural sector can be found. There were three main segments; use, selection criteria and the future of alternative financing in the Netherlands.

Table 13. Detailed in-depth interviews with investors and equity providers in the agricultural sector

	Option to use alternative financial sources in company or sector	**Selection criteria for making investments**	**The future of alternative financing in the Netherlands**
CBL (Marc Jansen, 27-5-2015)	According to Marc Jansen, it is not an option for CBL to use alternative finance sources. CBL is not a commercial firm. Suspected is that there is limited use of factoring. The links in the chain are working more together; long-term agreements are made to reduce costs. However, this is depending more on the fact that the links in the chain are more connected to each other instead of financing each other, due to the sustainability and transparency trend. **Overall: -**	-	In the future, debt financing is still the main source of financing in the primary agricultural sector. **Overall: -**

Puijenbroek Landbouw (Jan Neutkens, 29-05-2015)	According to Jan Neutkens, it is definitely an option to use alternative finance sources. Currently, Puijenbroek Landbouw is already using alternative finance sources. At this moment, the company is a Dutch Ltd. The shares are held by the parent company. A portion of the shares is fully paid. Therefore, capital is met. If it is necessary, the shareholder can contribute additional equity. On the other hand, money can be borrowed by the bank. In addition, two years ago a tractor is financed by the use of financial lease with an interest rate of less than one percent. This has to be repaid in three years. Other forms of alternative finance are a possibility. However, they do not use it. Leasehold is the last preference for Puijenbroek Landbouw, because in their opinion, only the purchasing authority has an advantage and the company continues to be limited in freedom. **Overall: +**	Conditions and interest should be no different compared to the common way of finance. The risk has to be as small as possible. Thereby, the freedom to trade has to be ensured. No difference is made between investments in the agricultural sector and non-agricultural sector. Thereby, land, machinery or buildings are major objects to invest in.	There are great opportunities for alternative finance in the agricultural sector. However, communication techniques like social media are necessary to attract new financial sources for example; crowdfunding. **Overall: +**

Dairy farmer (anonymous, 05-06-2015)	According to this person, it is definitely an option to invest with alternative finance sources in the agricultural sector. Currently, the company uses financial lease and family loan as alternative finance sources. A tractor is financed by the use of financial lease. In addition, it can be an option to invest in other companies than their own company. However, at this moment the farm is expanding and growing too fast to be an equity provider. **Overall: +**	Efficiency has to be as high as possible. No difference should be made between investments in the agricultural sector and non-agricultural sector. Thereby, the major objects to invest in are cattle, quota, machinery or buildings.	Banks are more reluctant with providing loans. Therefore, there are some opportunities for alternative financing sources. All different options are possible, every situation needs to be reconsidered which alternative finance source has the best fit. When there is a possibility in the future, it would be an option to form a kind of credit union or investment fund together with other farmers. **Overall: o**
Jumbo (Ed van de Weerd, 17-06-2015)	According to Ed van de Weerd, it is no option to finance with alternative sources for Jumbo. However, some agreements with firms with distinctive products are made; those agreements are based on purchase obligations. This purchase contract can be the basis for a credit for the firm given by the bank. In addition, Jumbo is using factoring as alternative finance source. **Overall: -**	The product should be distinctive and the firm should be a family company. The reason for this is that those companies have more difficulties with entrance to the market of capital.	In the future, there will no difference in financing methods in the retail sector. **Overall: -**

Koepon (Cees Hartmans, 18-06-2015)	According to Cees Hartmans, it is an option to use alternative finance sources in the agricultural sector. This sector is strongly growing and also the interest from private equity investors towards the agricultural sector is growing, especially in countries with many large companies (Australia or USA)/ In the Netherlands, a small amount of money is available. In addition, a different approach exists, because sustainability and animal welfare are very important. However, for Koepon it is not an option to invest in the agricultural sector themselves, because the company would like to be in charge of everything. **Overall: +**	The efficiency should be high. Ideally, this efficiency should be around 10 % - 15 %. They want to invest in objects that preserved value.	There are great possibilities for investing with alternative financing sources, because the sector is expanding fast. In recent years, there is significantly invested in land and buildings. The demand for investing in the agricultural sector is still growing because there is an increasing demand for products produced in the agricultural sector worldwide, for example milk or meat. An option is to form a sort of credit union or an investor fund with a cluster of leading companies within the sector. It is not an option to invest with private equity, because the private equity investors want to expand to fast with too much money. **Overall: +**

5. Discussion and conclusions

The key objective of this study was to assess the possibility of using alternative sources of financing in Dutch agriculture, by analysing the opinion of the primary sector and the opinion of the possible investors/equity providers. Another objective was to investigate the influence of the size of investments, size of the farm, sector, knowledge and trust of the farmer on the use of alternative finance sources. In addition, the primary sectors' opinion about the role of the bank is analysed.

5.1 Discussion

Data was gathered by e-mail (400 addresses) and by mail (614 addresses), of which 57 of 400 respondents filled in the questionnaire online and 82 of 614 respondents responded by mail. The rate of response was for both circa 14 %. Therefore, no remarkable differences can be seen in the manner of gathering data.

Literature has shown that dairy farmers are more conservative compared to other kinds of segments in the agricultural sector. In this study, the population was not normally distributed, more than 60 % of the respondents were dairy farmers. This can be the explanation of the low percentage of expected use in the future. However, this does not give significant results.

Currently in the primary sector, 45 % of the farmers is using any form of alternative financing. Participants of the questionnaire have neutral to some trust in funding with alternative financing sources. However, it turns out that it is difficult to use on a large scale. Only for a small percentage of the money needed for investments, alternative financing sources are chosen. In the next five years, in the primary sector 14.5 % of the investments is financed by alternative financing sources. A reason for this can be that for more than half of the respondents it is not clear which steps to perform when they want to start with funding by alternative finance other than family loans. Currently, family loans are the most popular source of alternative finance.

Size of the farm, knowledge and trust of the farmer has a positive influence on the current use of alternative finance. Woodhouse (2010) can confirm the positive influence of the farm size. This paper stated that it is harder for smaller firms invest compared to large firms. However, for the use of alternative finance sources in the agricultural sector in the next five years, only trust has a significant positive influence.

Many farmers have enough own equity to do a small investment of € 25,000 without the use of external finance sources. In addition, more family loans are used for funding small investments. A reason for this can be that family did not have such a large amount of money available for funding. On the other hand, financial lease and VC/AC are mostly used to fund the large investment (€ 500.000). This is also the result of studies by Metrick and Yasuda (2011) and Metrick and Avako (2011), who state that VC/AC bring high amount of money with them. However, this is in contradiction with the agricultural sector, in which the realized return on equity shows that private equity or VC is hardly an option because of the low returns. This does not make it attractive for private equity funds (Berkhout, 2013). Opinions of the primary sector and the investors/equity providers in this study do not match together.

The results show that the entrepreneurs are reluctant to use alternative financing sources, because a lot of research has to be done on this form of financing before using it. This is confirmed by Jan-Willem Onink (Regiobusiness, 2010), who shows that only 30% of the entrepreneurs in the primary non-agricultural sector is willing to do research on alternative financing sources. To win the trust of the farmers takes time, however an irreversible momentum is going on at this moment. In addition, the primary sector has a strong preference to use land as object to invest in, because of its preserved value and because it has no depreciation.

According to the primary sector, it is expected that the investors/equity providers are going to interfere with the daily management. Thereby, it is expected that this is a somewhat uncomfortable experience. This is interesting because in Table 2 can be found that AC/VC, investment funds and credit unions certainly interfere with the daily management. This feeling of discomfort must be broken, before people would like to use alternative financing sources that interfere with the daily management. In addition, as already stated in paragraph 4.1.2, in the agricultural sector business decisions were made several years on beforehand and the primary sector is reluctant for taking much risk when choosing for alternative financing in the next 5 years. Farmers are reserved to use alternative finance for their investments; these alternative sources first have to prove themselves. In addition, their little knowledge and their feeling of discomfort towards the investors/equity providers play a role in the reserved feeling towards the use of alternative finance. On the other hand, investors/ equity providers have a positive feeling towards the possibility of alternative finance sources in the agricultural sector. The sector is strongly growing, therefore more investors/equity providers are interested to invest in the agricultural sector. This is already showed in Chen et al. (2014). However, this is not in confirmation with the feeling of the primary sector. The possible investors indicated that there is a growing demand for a conversation between the primary sector and possible investors. In the future, new communication techniques as social media are going to play a large role to bring investors and the primary sector together (Vastgoedjournaal.nl, 2015).

5.2 Conclusions

Primary sector

- Family loans, value chain finance, credit unions, financial lease, leasehold, crowdfunding, shares and venture/angel capitalists were identified as possible alternative financing sources in the agricultural sector
- Currently 45 % of the farmers is using a form of alternative finance and of this percentage two-third part consisted of family loan; other part was mainly composed of financial lease.
- Size of the farm, knowledge and trust of the farmer have a positive influence on the use of alternative financing sources.
- The primary sector has trust in the use of alternative sources in the future. Overall, alternative finance sources except family loans are expected to be more used for funding a large investment. However, expected is that only 14.5 % of the total amount of money invested is financed by alternative financing sources.
- For more than half of the respondents it is not clear which steps to perform to start with funding by alternative finance.
- According to 50 % of the primary sector, the bank is not playing any role for alternative financing sources in the future.
- Farmers expect that investors are going to interfere with the daily management and this is expected to be a somewhat uncomfortable experience.

Investors/ equity providers

- Investors/ equity providers have indicated that there was a growing demand for a conversation between the primary sector and possible investors.

5.3 Recommendations for further research

- It is for more than half of the respondents not clear which steps to perform starting with funding by alternative finance. In addition, when research about the different forms is already done it is unclear which next steps should be taken. It may be that this problem can be solved by making a brochure with information about the most commonly used sources of alternative finance by different forms of investments and to make clear the first steps that needs to be done. There is already a brochure written by Maria van Boxtel (2010) (Land & Co, www.landco.nl). However, this booklet does not cover the whole range of alternative financing sources.

- It is interesting to know, what the vision of the banks is about the position as intermediary between the investors/equity providers and the primary sector. This can be done by taking interviews or to start a conversation between those three groups.
- Further research is needed on how to meet supply and demand between the investors/equity providers and the primary sector by generating more knowledge, more clearness and more transparency between both sides.
- When there are more respondents from different segments, it might be interesting in which segment of the primary agricultural sector the most demand is for funding with alternative finance sources. Once this is known, a more tailored advice for funding can be made.
- Alternative finance clearly needs to prove itself in the agricultural sector. It might be a good idea to make and widely spread an advertisement where some examples with proven results are showed.

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Appendix 1. Format questionnaire

Een lening bij de bank is tot nu toe de meest gebruikte externe bron van financiering binnen de agrarische sector. Mogelijk zijn andere externe financiële bronnen echter een interessant alternatief of aanvulling voor het verkrijgen van verschillende financiering types. In deze studie worden externe bronnen anders dan een lening van de bank gezien als *alternatieve financiering*.

Het doel van deze vragenlijst is het in kaart brengen van de opinie binnen de agrarische sector over alternatieve financiering in de praktijk. De volgende alternatieve financieringsvormen komen aan bod:

Familieleningen. Ouders die geld lenen aan u als opvolger. Familie stelt vaak minder hoge eisen dan een bank. U hoeft veelal een lagere rentevergoeding te betalen, omdat de lening gegund wordt aan u. De rentevergoeding is hoger dan de spaarrente van de bank, waardoor het verstrekken van een familielening financieel aantrekkelijk is voor de geldschieter.
Ketenfinanciering. Deze financiering biedt mogelijkheden voor financiering aan primaire bedrijven. Investeringen in een bedrijf kunnen door andere ketenpartijen gefinancierd worden. Kleinere leveranciers in de keten organiseren werkkapitaal door te leunen op de balans van de grootste koper in de keten. Dit zorgt voor een lager rentepercentage dan wanneer een lening wordt genoten van de bank. De financiële processen rondom uw bedrijf en daarbuiten worden geoptimaliseerd.
Kredietunies. Kredietunies zijn coöperaties van ondernemers binnen uw sector of regio. Alle leden leggen geld in. Op deze manier verstrekt de coöperatie krediet aan ledenondernemers die financiering kunnen gebruiken. De rentepercentages zijn lager dan bij een bank.
Financial lease. Dit is een vorm van lening. U kunt bijvoorbeeld denken aan het leasen van machines in plaats van het aanschaffen van deze machines. In het lease-contract wordt vastgesteld wie de kosten voor de risico's draagt en wie de beloning ontvangt. Financial leasing resulteert in een groter werkkapitaal, echter u betaalt een vast bedrag in termijnen.
Erfpacht. Erfpacht is een vorm tussen eigendom en pacht van grond. Wanneer u erfpacht gebruikt als financieringsvorm zijn de jaarlijkse lasten lager dan bij het afsluiten van een hypotheek voor het kopen van grond. Het recht van erfpacht blijft rusten op de grond, dit kan een aantrekkelijke optie zijn om grond in gebruik te nemen voor u als groeiend agrarisch bedrijf.
Crowdfunding. Door uw project of doel op een online crowdfunding platform te zetten kunt u dit project of doel laten financieren door meerdere personen die netwerken en hun geld bij elkaar bundelen. Dit kunnen donaties zijn, maar meestal wordt een vergoeding in de vorm van korting op producten van uw bedrijf en dividend of rente gevraagd, afhankelijk van de exacte afspraken.
Aandelen. Het verkopen of uitgeven van aandelen van uw bedrijf. Dit resulteert in een vergroot werkkapitaal, maar u dient uw verdiensten van het bedrijf te delen met investeerders. Wanneer winst wordt gemaakt, kunnen investeerders een dividend ontvangen.
Durfkapitaal. Deze investeerders focussen op het financieren en adviseren van jonge innovatieve opstartende bedrijven. Het hoofddoel is om uw bedrijf te laten ontplooien, waardoor uw bedrijf winst zal gaan maken. De investeerders zullen vervolgens hiervoor dividend willen ontvangen. Daarnaast wordt mogelijk een vergoeding verwacht voor het advies dat zij u kunnen geven.
Nu volgen de vragen. Kies steeds het voor u meest passende antwoord. Bij sommige vragen zijn meerdere antwoorden mogelijk. Dit wordt dan duidelijk aan gegeven. Het goede antwoord mag omcirkeld of ingevuld worden. Verder zijn er ook vragen waarbij u punten mag verdelen over verschillende antwoorden, ook hier wordt het duidelijk aangegeven wanneer dit van toepassing is.

Alvast hartelijk dank voor uw medewerking.
Sanne Klerx
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1. Welke sector vertegenwoordigt het grootste gedeelte van uw inkomen vanuit uw bedrijf?
0 = Akkerbouw
0 = Tuinbouw
0 = Varkenshouderij
0 = Pluimveehouderij
0 = Melkveehouderij
0 = Anders, namelijk …

2. Wat is de geschatte jaaromzet van uw bedrijf?
Aan de hand hiervan kunnen wij uw bedrijf indelen in een schaalverdeling

3. Bent u bekend met alternatieve vormen van financiering?
1 = helemaal niet, 2 = weinig, 3 = neutraal, 4 = redelijk, 5 = helemaal wel

4. Heeft u vertrouwen in een toekomst met alternatieve financieringsvormen, en waarom?
1 = helemaal niet, 2 = weinig, 3 = neutraal, 4 = redelijk, 5 = helemaal wel

5. In welke financieringsvorm(en) heeft u vertrouwen voor de agrarische sector?
Meerdere antwoorden zijn mogelijk.

	Ik heb vertrouwen in de volgende financieringsvorm(en)
Lening bij de bank	
Familielening	
Ketenfinanciering	
Kredietunies	
Financial lease	
Erfpacht	
Crowdfunding	
Aandelen	
Durfkapitaal	
Geen van alle	
Anders, namelijk…	

6. Gebruikt u op dit moment enige vorm van *alternatieve* financiering en zo ja, welke?
Meerdere antwoorden zijn mogelijk.

	Deze financieringsvorm(en) gebruik ik op dit moment
Lening bij de bank	
Familielening	
Ketenfinanciering	
Kredietunies	
Financial lease	
Erfpacht	
Crowdfunding	
Aandelen	
Durfkapitaal	
Geen van alle	

7a. Verwacht u dat wanneer u alternatieve financiering gebruikt de verstrekkers willen sparren met u over het dagelijks management?
1 = helemaal niet, 2 = weinig, 3 = neutraal, 4 = redelijk, 5 = helemaal wel
7b. Op welke manier zou u dit ervaren?
1 = erg fijn, 2 = fijn, 3 = neutraal, 4 = vervelend, 5 = erg vervelend

8. In onderstaande tabel staan twee verschillende investeringen. Welke financieringsvorm(en) zou u daarvoor willen gebruiken?
Verdeel 100 % over de onderstaande financieringsvormen binnen één investering.

	Een financiering van **€ 25.000** is nodig voor het verbouwen van de opbergschuur	Een financiering van **€ 500.000** is nodig voor schaalvergroting
Lening bij de bank		
Familielening		
Ketenfinanciering		
Kredietunies		
Financial lease		
Erfpacht		
Crowdfunding		
Aandelen		
Durfkapitaal		
Geen van alle		
	100%	100%

9. Hoeveel procent van uw totale externe financiering verwacht u over 5 jaar middels alternatieve financieringsbronnen te hebben geregeld? En hoe wordt dan de rest gefinancierd?

10. Bij welke objecten verwacht u over 5 jaar alternatieve financiering te hebben geregeld?
Meerdere antwoorden zijn mogelijk.
0 = grond
0 = machines
0 = gebouwen
0 = anders, namelijk

11. Ziet u een rol voor de bank binnen de alternatieve financiering? Zo ja, welke rol?
0 = geen rol
0 = als tussenpersoon tussen ondernemers en investeerders
0 = anders, namelijk...

12. Is het voor u duidelijk welke stappen te ondernemen wanneer u alternatieve financiering wilt aantrekken?
0 = ja
0 = nee, waarom?

13. Zou u graag een samenvatting ontvangen na afloop van dit onderzoek?
0 = ja, e-mailadres:

0 = nee
Bedankt voor uw antwoorden en tijd!

Appendix 2. Descriptive statistics for farm analysis

Variable	Label	Unit	Measure
SECTOR	Sector	Values 1-6	Nominal
SECTOR_DIF	Explanation of different sector	Letters	Nominal
SIZEGROUP	Groups of size	Values 1–3 based on annual turnover (€)	Nominal
KNOW	Knowledge	Values 1-5	Scale
TRUST	Trust	Values 1-5	Scale
TRUST_EXP	Explanation of trust	Dummy	Nominal
TRUST_BANK	Trust in banks	Dummy	Nominal
TRUST_SHARES	Trust in shares	Dummy	Nominal
TRUST_FINLEASE	Trust in financial lease	Dummy	Nominal
TRUST_DC	Trust in VC or AC	Dummy	Nominal
TRUST_VCF	Trust in VCF	Dummy	Nominal
TRUST_CU	Trust in credit unions	Dummy	Nominal
TRUST_CROWD	Trust in crowdfunding	Dummy	Nominal
TRUST_LEASEHOLD	Trust in leasehold	Dummy	Nominal
TRUST_FAMILY	Trust in family loans	Dummy	Nominal
TRUST_NO	No trust	Dummy	Nominal
USE_ALT	Use of alternative finance	Dummy	Nominal
USE_BANK	Use of bank loan	Dummy	Nominal
USE_SHARES	Use of shares	Dummy	Nominal
USE_FINLEASE	Use of financial lease	Dummy	Nominal
USE_DC	Use of VC or AC	Dummy	Nominal
USE_VCF	Use of VCF	Dummy	Nominal
USE_CU	Use of credit unions	Dummy	Nominal
USE_CROWD	Use of crowdfunding	Dummy	Nominal
USE_LEASEHOLD	Use of leasehold	Dummy	Nominal
USE_FAMILY	Use of family loans	Dummy	Nominal
USE_NO	No use of financing sources	Dummy	Nominal
USE_NO_EXP	Explanation of no use	Dummy	Nominal
SPAR	Interfering expectation	Values 1-5	Scale
SPAR_ERV	Perception interfering	Values 1-5	Scale
KINV_BANK	Use of bank loan by small investment	%	Scale
KINV_SHARES	Use of shares by small investment	%	Scale
KINV_FINLEASE	Use of financial lease by small investment	%	Scale

KINV_DC	Use of VC or AC by small investment	%	Scale
KINV_VCF	Use of VCF by small investment	%	Scale
KINV_CU	Use of credit unions by small investment	%	Scale
KINV_CROWD	Use of crowdfunding by small investment	%	Scale
KINV_LEASEHOLD	Use of leasehold by small investment	%	Scale
KINV_FAMILY	Use of family loans by small investment	%	Scale
KINV_NO	No use of financing sources by small investment	%	Scale
GINV_BANK	Use of bank loan by large investment	%	Scale
GINV_SHARES	Use of shares by large investment	%	Scale
GINV_FINLEASE	Use of financial lease by large investment	%	Scale
GINV_DC	Use of VC or AC by large investment	%	Scale
GINV_VCF	Use of VCF by large investment	%	Scale
GINV_CU	Use of credit unions by large investment	%	Scale
GINV_CROWD	Use of crowdfunding by large investment	%	Scale
GINV_LEASEHOLD	Use of leasehold by large investment	%	Scale
GINV_FAMILY	Use of family loans by large investment	%	Scale
KINV_NO	No use of financing sources by large investment	%	Scale
PROC	Procent use of alternative finance over 5 years	%	Nominal
PROC_EXP	Explanation about the procent of use	Letters	Nominal
OBJ_LAND	Ground for object to invest in	Dummy	Nominal
OBJ_MACH	Machinery for object to invest in	Dummy	Nominal
OBJ_BUIL	Buildings for object to invest in	Dummy	Nominal

OBJ_DIF	Other objects to invest in	Dummy	Nominal
OBJ_DIF_EXP	Explanation of other objects to invest in	Letters	Nominal
BANK	Role for the bank	Values 1-5	Nominal
BANK_EXP	Explanation of role for the bank	Values 1-5	Nominal
STAP	Steps to take	Dummy	Nominal
STAP_EXP	Explanation of steps to take	Letters	Nominal