CASE STUDIES OF MODERN AGRICULTURAL CREDIT EVALUATION METHODS FOR DIFFERENT CREDIT PROVIDERS IN SOUTH AFRICA

By:

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Declaration

By submitting this thesis, I declare that the entirety of the work contained therein is my own original work, that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third-party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

Date: December 2019

Opsomming

Landbou is ‘n komplekse sosio-ekonomiese en fisiese-biologiese sisteem, en as gevolg daarvan is daar verskeie aspekte wat die oorhoofse produktiwiteit van landbou in Suid-Afrika beïnvloed. In die afgelop 10 jaar het baie faktore ‘n negatiewe invloed op die winsgewendheid van landbou gehad. Dit sluit in die wisselvallige beleidsveranderinge in terme van grondhervorming, ‘n onstabiele politieke-omgewing wat Staatskaping en tegniese resessies tot gevolg het, asook kritieke droogtes in baie dele van Suid-Afrika, waarvan verskeie geddeltes nog moet herstel. Te idde van hierdie onseker tye benodig boere steeds toegang tot finansiering om te kan aanhou produseer sodat voedselsekeriteit in stand gehou kan word. Die landskap van finasiering het sedert 2005 verander met die instelling Nationale Kredietwet (*NCA)* nr. 34 van 2005. Die *NCA* het alle ander wetgewing vervang wat insluit die *Usury Act* nr. 73 van 1978, die *Credit Agreements Act* nr. 74 van 1980 en al die vrystellingskennisgewings van 1992 en 1999. Die instelling van die genoemde *NCA* het duidelik ‘n groot impak gehad op die toegang tot finansiering in Suid-Afrika. Die *NCA* het ‘n beperkende invloed op die hulpverlening aan boere waar bykomende fiansiering benodig word wanneer dit die nodigste is. In die verlede is navorsing hoofsaaklik uit die boer/aansoeker se oogpunt gedoen en het nie die werklike relevansie van die *NCA* ingesluit nie. Hierdie studie is anders omdat dit die aansoek vanaf die fiansierders se oogpunt benader. Die finansierders waarna verwys word sluit in twee handelsbanke en een Agri-besigheid wat ook landbou-krediet verskaf. Dit bespreek die invloed van die *NCA* en die evalueering van die toeganklikheid ten opsigte van die landbou-krediet vir pimêre landbouprodusente in verskillende produksie-areas ná die *NCA* in 2006 inwerking gestel is. Hierdie ondersoek het daartoe gelei dat daar begrip is waarom vorige gebruikte wetgewing verander het asook om die *NCA* se toepaslikheid te verstaan. Verder het dit duidelik geword dat nie alle entiteite wat krediet gebruik beskerm word deur die *NCA* nie. Verskillende tegnieke en evaluasie-metodes word bestudeer en vergelyk soos wat dit op verskillende gevallestudies getoets word. Sekere kredietverskaffers gebruik tradisionele aanwyssers in die vorm van fiansiële-verhoudingsgetalle wat op die balansstaat gebaseer is, terwyl ander finansiële-aanwyssers gebruik wat op die inkomstestaat gebaseer is. Daar is verder gekyk na ander eienaskappe wat die aansoek mag beïnvloed wat nie fiansieël van aard is nie. Landbouers word aangeraai om verskillende kredietverskaffers te vergelyk sodat die beste kredietinstrumente moontlik vir die korrekte behoeftes aangewend word.

Summary

Agriculture has several aspects influencing its overall productivity as it is a complex socio-economical and physical-biological system. South African agriculture in the past 10 years have experienced many factors that have had a negative influence on the profitability of farming. These include inconsistent policy reforms relating to land insecurity, an unstable political environment relating to, among others, State Capture, technical recessions as well as critical droughts in many parts of South Africa, from which some areas still need to recover. Throughout the periods of uncertainty farmers needs access to finance in order to keep-up production and in extension enable food security in South Africa. The landscape of finance in South Africa had changed in 2005 with the introduction of the National Credit Act (NCA) No. 34 of 2005 that replaced the Acts and customs that previously governed finance and credit activities in South Africa. These include the Usury Act No. 73 of 1968, the Credit Agreements Act No. 74 of 1980 and the exemption notices, 1992 and 1999. The introduction of the NCA has evidently had a large impact on the access to credit and finance in South African agriculture. The NCA is been put forth as a restrictive aspect when it comes to helping farmers in need of additional credit when they need it most. Many of the research previously conducted in this study area had been done from the farmers' perspectives and had not included the actual relevance of the NCA. What makes this study different is that it uses four different case studies as real-farm financial enterprises' applications to be considered by three different credit providers, including two commercial banks and one agricultural credit provider. Furthermore, it also studies the influence of the NCA which led to the formation of the following main research statement namely; to assess the accessibility of agricultural credit for South African primary commercial agricultural producers over various enterprises in various production areas after the introduction of the New Credit Act in 2006. Firstly, by studying the NCA in more depth and gaining an understanding of the necessity of why previous customs and laws had to change as well as the applicability of the NCA, it is also found that not all credit consumers in agriculture is protected by the NCA. Also, by studying credit applications from, the credit providers' perspective, different evaluation techniques are considered and compared. Some credit providers use more traditional financial indicators, in the form of financial ratios, based on balance sheet attributes while others are using financial rations that is based on income statement attributes. It is also found that many attributes not relating to the financial positions of the enterprise, such the farmer`s characteristics play a role in whether the application will be successful or not. Agricultural producers and credit applicants should consider credit access from different perspectives in order to gain access to the correct and best possible credit instruments for their individual needs.

This thesis is dedicated to:

For her unconditional support of my career, this thesis is dedicated to

Betty van Reenen

Biographical Sketch

Johannes Lodewicus (Wicus) Schoeman was born in Oudtshoorn on 23 March 1994. He grew up in De Rust, Western Cape and attended both De Rust Primary school (2001 - 2002) and Van Reede Primary School (2003 - 2007) in Oudtshoorn. Wicus attended Grey College in Bloemfontein for his secondary schooling, from 2008 until he matriculated there in 2012. He started his full-time studies at Stellenbosch University in 2013 and graduated in 2016 with a B.Sc. degree in Agricultural Economic Analysis and Management. Having a passion for agricultural economics and finance, he enrolled for a master's degree in 2016 in this field of study. As part of his master's degree, Wicus studied abroad for six months in 2018 at Wageningen University & Research in The Netherlands, where he broadened his knowledge of international trade, marketing, policy and entrepreneurship.

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Preface

This thesis is presented as a compilation of five chapters. Each chapter is introduced separately and is written according to the style of the Faculty of AgriSciences at Stellenbosch University. The chapters are as follows:

Chapter 1 General Introduction

Chapter 2 Literature Review

Chapter 3 Case Studies and Evaluation Methods for Credit Applications

Chapter 4 Implications and Credit Evaluation

Chapter 5 Conclusion, Summary and Recommendations

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Chapter 1: General Introduction

1.1 Background and Problem Statement

Most observers today agree that the contribution of agriculture to economic development is important. However, economic growth potentially reduces the role of primary agriculture in the Gross Domestic Product (GDP) (Alliance of Green evolution in Africa, 2018, p. viii and Meijerink & Roza, 2007, p. 1). Credit access in agriculture is one of the most significant facilitating factors in agricultural development (Alliance of Green evolution in Africa, 2018, p. 6 and Ogundeji, et al., 2018, p. 1) For many developing countries, like South Africa, the economy is largely dependent on agriculture. Credit is regarded as a major economic component of agriculture and, by extension, rural development programmes. Many programmes in sub-Saharan Africa have been established with the goal of assisting agricultural credit institutions and agricultural banks in making credit more accessible to all farmers, not just for their production needs, but also for consumption and investments (Ogundeji, et al., 2018 and Meijerink & Roza, 2007).

Some emperical studies in developing countries have been done on the impact that access to credit may have on the overall productivity of farms and consequently on the net farm imcome (NFI) generated (Awotide, et al., 2015; Foltz, 2004; Hazarika & Alwang, 2003; Petrick, 2004; Nel, 1965 and Ogundeji, et al., 2018). Access to credit is important not only for expansion and the raising of NFI, but also for the purpose of setback absorptions. According to AgriSA in a recent drought report (2019), 70% of farmers in South Africa indicated that they found themselves in financial stress primarily because of the severe drought experienced in South Africa over the last few years. Of these farmers, 50% indicated the need to retrench farm workers as a result of this of aforesaid financial stress (AgriSA, 2019, p. 1).

Other than for setback absorption, low productivity in agriculture is often attributed to the poor use of effective technology and inefficient production methods or key inputs, such as the correct fertilizer, pesticides, machinery and improved seeds. Having access to proper technology and other capital inputs entails having access to sufficient capital. Capital, as referred to in this context, means financial capital in the form of disposable funds. Being able to raise yields on farm level implies greater capital per hectare of farming unit, resulting in a higher net farm income. In essence, in order to realise a higher net farm income, one needs access to more disposable financial capital. Businesses, including agribusinesses, need money in order to make money; in most cases this capital comes in the form of credit (Nel, 1965; Lyne & Collins, 2008; Ogundeji, et al., 2018; and Rossouw, 2008).

The formation of disposable financial capital could happen through a number of processes and with the use of different instruments. Capital can be raised by selling shares in the farm, obtaining loans in the form of credit or even, when available, using reserves built-up in the business. Knowing the extent of the capital required, but also having thorough knowledge of the factors important to a financial institution when evaluating loans are important to farmers (Louw, et al., 2013).

As mentioned, previously, the unfavourable effect that restrictive credit has on agricultural activities has been discussed and referenced in many studies, including in developing countries. Some studies have highlighted that a lack of insight from the farmers' side has led to certain misconceptions (Nel, 1965, p. 18). In this regard, Nel (1965) found that although more capital in the form of credit had been made available by financial institutions, primary agricultural producers still had the misconception that credit was less accessible. Since the 1980 financial stress period, producers worldwide have also made their concerns heard on numerous occasions that financial institutions are less willing to grant credit (Boehlje, et al., 1995, p. 499).

According to Rossouw (2008), the National Credit Act No. 34 of 2005 has not had an impact on the credit economy in South Africa. By way of background, in 2005 South Africa moved aggressively to restrict predatory lending, consumer abuses and ineffective and outdated legislation, by introducing the National Credit Act No. 34 of 2005 and the Regulations of 2006 (hereafter referred to as the National Credit Act or NCA). As a result of the introduction of the NCA and the associated regulations, financial institutions in South Africa experienced increasing pressure, due to the newer, stricter credit legislation governing loans (Rossouw, 2008). This, presumably, could have had an impact on the financing practices relating to credit in the South African agricultural sector as well. According to some, it has, but this is unsubsidised (Rossouw, 2008).

The NCA has often been put forward as a restricting factor when an application for additional credit has been rejected. Nel (1965) proved that common misconceptions could easily lead to misunderstandings between farmers and commercial banks or other financial institutions. Since 1965 the Government of South Africa has moved towards restricting the amount of credit available in the South African agricultural market, and measures have been introduced to aid in this regard. Among others, interest rates have been increased, with the aim of decreasing credit finance. Nel (1965) found that the exact opposite was achieved, finding that credit finance in South African agriculture, forestry and fisheries rose 133% between 1956 and 1965. Over the same period, total bank credit increased by only 88%. In spite of the credit restricting measures taken by the authorities, commercial banks

have maintained a high rate of credit expansion, according to the latest available information at that time (Nel, 1965).

In the light of the above-mentioned phenomenon, and with reference to certain evaluation methods relating to agricultural credit as well as proven misconceptions by agricultural producers, there could be a misconception about the impact which the NCA has had on agricultural credit since 2005. In the book *Finance and Farm Management,* by Louw et al. (2013), some evaluation criteria for financial management and credit evaluations are highlighted. This book was initially (1980) intended to be a handbook for the South African farm manager. However, it grew in popularity over the years, to such an extent that it also became a handbook in some agricultural economic curriculums at universities and other tertiary educational institutions.

Key areas of uncertainty include:

The primary purpose of this study was to establish whether or not the financial ratios introduced by Louw et al (2013) as a credit evaluation methodology are still applicable to modern agriculture in South Africa. The purpose was also to find out what could be considered to be a suitable new credit evaluation methodology if this evaluation methodology is no longer applicable, especially after the new credit legislation was introduced in South Africa in 2006 (Goodwin-Groen, 2006). A secondary purpose of this study was to seek possible non-financial effects that could play a role in agricultural credit evaluation.

Research aims:

The research aims of this study are to:

1. Perform a financial analysis and credit evaluation of Agriculture in South Africa.
2. Question to comprehend why new credit legislation, in the form of the NCA and accompanying regulations, was introduced in South Africa.
3. Gauge whether or not the NCA has influenced agricultural credit practices by commercial banks and other institutions involved in the agricultural credit market.
4. Establish how commercial banks and other institutions involved in agricultural credit markets evaluate credit applications, in order better understand such processes.

These research aims pertain to various agricultural enterprises, in different agricultural production areas. However, the purpose was to evaluate the accessibility of credit within these enterprises at the primary production level. Translated into one research outcome, it is to assess the accessibility of agricultural credit for South African primary commercial agricultural producers across various enterprises in various production areas after the introduction of the New Credit Act in 2006.

1.2 Research goals and objectives

The main aim of the study was to assess the accessibility of credit for producers in selected industries and in various production areas. For this purpose, the following specific objectives were identified:

1. To establish the general impact of the new credit law, in the form of the NCA, on lending in primary agriculture;
2. To identify the various credit lending systems employed in agriculture;
3. To test access to credit by producers in various agricultural industries and situations.

One way to establish the general impact of the NCA on credit financing practices in primary agriculture in South Africa could be achieved by assessing the statistics relating to credit in South Africa, specifically around 2005, 2006 and 2007, when the NCA was introduced. This can be done by studying credit statistics in agriculture by the Abstract of Statistics in South African agriculture (StatsSa, 2018). Alternatively, depending on the intended meaning, perhaps the following: It could be achieved by identifying the credit lending systems available for primary production in South Africa and obtaining the evaluation criteria used by certain agricultural credit providers. These credit providers could be either commercial banks or agribusinesses. Testing access to credit involves applying these evaluation techniques using official enterprise budgets and financial information.

1.3 Proposed Method

Case study research was conducted in this research using four different farming enterprises, from four different agricultural regions within South Africa. The four case studies included balance sheets and income statements for 2016 and 2017 and cash flow budgets for 2018. Based on these real-life financial statements, sterile of any personal information, relevant financial ratios were calculated. These ratios were calculated based on three different agricultural credit providers' credit application evaluation methods. Each case study was evaluated individually, from each credit provider's perspective.

Each agricultural credit provider has certain rule-of-thumb applicable to each financial ratio. Using these values, each case study's financial ratios were evaluated, and based on this information, consideration was given as to whether or not additional credit would be granted in each case. Decisions were based purely on the values for the financial ratios, determined by the applicable rules-of-thumb. As the case studies were sterile of personal information, no personal information and attributes were considered for each case study, and only financial measurements, in the form of financial ratios were applied for the evaluation. Personal information which possibly could have had

an influence on the outcomes of the credit applications is discussed separately in the section (4.3) on remedy effects.

Case study research has certain limitations, further discussed in Chapter 2, and due attention was given to these limitations. However, it is important to consider that according to Malcolm (2004), abstract case studies have characteristics that real-life case studies do not have. Inversely, real-life case studies have characteristics that abstract case studies do not have. In this study, actual real-farm financial statements were used, making them real-life case studies. These real-life case studies also had abstract cash flow ratios based on real-life farming activities, made by real-life farmers, owners or farm managers. Hence, a balance existed between abstract aspects and real-life aspects.

1.4 Summary of forthcoming chapters

Regarding the chapters that follow, Chapter 2 comprises the literature review, which provides the background and context for the study. This chapter include the importance of financial analysis and farm record-keeping, as these are required in order to calculate the appropriate financial ratios. Farm record-keeping importantly is also based on the financial valuation of assets, and in light of this, land valuation is also discussed in Chapter 2. Following the section comprising land valuation (2.5), the National Credit Act No. 34 of 2005 is discussed, as it was expected to have an influence on the agriculture credit providers' credit evaluation techniques. Finally, in Chapter 2, case study research literature on the methodology, principles and limitations is reviewed.

Chapter 3 comprises a further discussion of the case study literature, but within the context of farm budgeting models, simulations and the whole-farm systems approach. The case studies are introduced individually, sterile of personal information, in Chapter 3, and the relevant financial statements are provided in the Appendix. The agricultural credit providers that were studied are introduced next, again without mentioning who the specific commercial banks or production credit providers concerned were. The credit evaluation methods utilised by these agricultural credit providers are subsequently introduced and discussed. Chapter 3 closes with a comparison of the evaluation methods, together with a table with the relevant financial ratio calculations and applicable rule-of-thumb is provided.

In the last two chapters, each case study's financial ratios are evaluated individually, from the perspective of each agricultural credit provider. The researcher was not able to identify with absolute certainty whether or not the agricultural credit provider would grant a credit applicant additional credit, because of other non-financial aspects that could have influenced their decisions. The non-financial aspects are called remedy effects in this study, and are covered in Chapter 4. Chapter 5

provides an overall conclusion for the study, together with possible recommendations for further research.

Chapter 2: Literature Review

2.1 Introduction

In Chapter 1, Section 1.1, the main research statement was stated as 'to assess the accessibility of agricultural credit for South African primary commercial agricultural producers over various enterprises in various production areas after the introduction of the New Credit Act in 2006'. Assuming that the most profitable farms have a higher probability of having access to credit that is provided by financial institutions (Subbotin, 2005), the true meaning of 'profitable farms' firstly has to be established. Financial analysis is therefore important within the context of the aforementioned. Without a proper understanding of the value of financial analysis and the true meaning of it, financial information would be impractical.

In this chapter, a literature review is provided in order to understand the possible factors involved in credit evaluation and financial analysis in agriculture, within the South African context. This literature review starts with the importance of financial analysis in agriculture. Aspects of financial analysis included are solvency, which refers to the long-term financial position of an enterprise, liquidity, which is its short-term financial position, profitability and its ability to repay debt. Credit evaluation techniques in South Africa are discussed in the chapter following the Section on financial analysis (2.3). Evaluating credit applications is a far more important concept to be understood by the farmer, and this section sheds more light on the general aspects to be considered in this regard.

The second part of the literature review considers the National Credit Act No. 34 of 2005 and the National Credit Regulator (NCR). In 2004, the Department of Trade and Industry (DTI) in South Africa was tasked by the South African Law Reform Commission with evaluating access to financial services and credit. After a lengthy process, the DTI found several problems with access to financial services and credit in South Africa and suggested that a new credit act be implemented. The New Credit Act 34 of 2005 replaced the Usury Act No. 73 of 1968, the Credit Agreements Act No. 74 of 1980 and the exemption notices of 1992 and 1999.

Reckless lending was highlighted by the DTI as a major problem in credit activities in South Africa, and several changes in the New Credit Act address this problem. Among others, the security needed for each credit application is an important concept, hence the importance of land valuation in South Africa. Agricultural credit providers in South Africa still regard land size and use as an important form of security; however, the valuation thereof could be considered as a point of discussion. Land production value and land market value in South Africa have been a point of discussion and concern in South Africa since 1960. What the causes of this problem have been and how the situation has changed in the last 25 years are also covered in the literature review.

Finally, as this is the case study type of research, the principles, methods and possible limitations of case studies are looked at last.

2.2 State of agricultural credit in South Africa

Chisasa (2014) has highlighted that credit effects productivity in agriculture mainly in three ways. Firstly, by overcoming contraints to purchase inputs and using them optimally, credit encourages the efficient use of resource allocation. Secondly, credit assists in enabling production to be moved closer to the production function, by facilitating purchases of new technological packages. Thirdly, credit has the potential to intensify the productivity of fixed inputs, specifically fixed inputs such as land. This implies that agricultural credit not only improves management efficiency, but also effects resource use and profitablitity (Chissa & Makina, 2013, p. 189; Chisasa, 2014, p. 38; Carter, 1989, p. 19; and Kumar, et al., 2010, p. 238).

In Chapter 1, the reasons as to why primary agricultural producers might need access to credit were briefly mentioned. The reasons why primary agricultural producers need access to disposable capital include, but are not limited to, production, expansion, taking advantage of opportunities, setback absorption and changing the type of enterprise. Financing, not limited to South Africa, but all over the world is available in a wide range of financial aid instruments. Using the correct instrument for the correct purpose is crucial. Using the wrong combination of instruments could potentially be a burden survivable ability in terms of financial setbacks absorption and provide insufficient ability to take advantage of beneficial opportunities (Louw, et al., 2013).

The financial positions of farms in South Africa are briefly mentioned in Chapter 1: over 70% of farmers in South Africa have indicated that they are financially in distress as a result of the drought. As a result of this, 50% of all respondents in the *Drought Report* by AgriSA (2019) indicated that they may have to retrench farm workers based on their weak financial positions. This possible loss of jobs in the agricultural sector is over and in addition to the proven decline in farm employment after the 2013 wage shock experienced by commercial agriculture (BFAP, 2019). Recovering from a drought and wage shocks could take more than three years, just to realise a positive net cash flow (BFAP, 2019). Having access to the sufficient and the correct instrument of capital is central to effective economic and financial survival in the longer run (Louw, et al., 2013; BFAP, 2019; and AgriSA , 2019).

Briefly mentioned in Chapter 1 was the influence access to credit has on agricultural productivity and NFI in developing countries (Alliance of Green evolution in Africa, 2018; Meijerink & Roza, 2007; and Ogundeji, et al., 2018). The National Development Plan (NDP), introduced in South Africa in 2012, highlights finance and access to finance as fundamental barriers to raising agricultural output in South Africa (NPC, 2012, p. 89). The relationship between access to finance and growth in the South African

agricultural sector has also specifically been proven. Regarding short-term credit, a 1% increase will result in a 0.14% increase in agricultural output, when all other production factors are kept constant. A 1% increase in long-term capital will result in a 0.23% increase in agricultural output, under the same conditions for an increase in short-term credit (Chisasa, 2014).

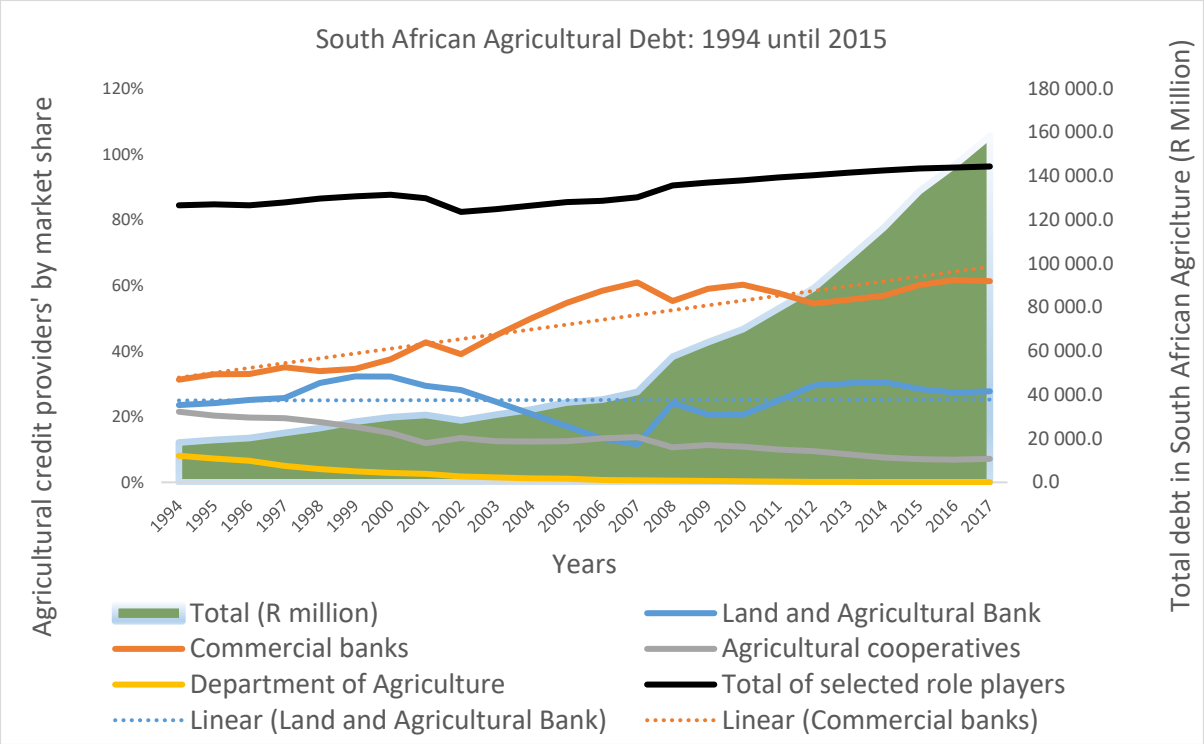
The mainstream media in South Africa, specifically in the domain of agriculture would have commercial farm managers believe that access to finance in agriculture has declined. This is said especially in reference to the introduction of the NCA in 2005 and its implementaion in 2006. It is this mainstream media that is accessable and well utilised by many South African commercial farmers. The New Credit Act is considered to be a restricting factor in the financing sector throughout South Africa. In the past, a similar perception of agricultural credit has been experienced. Nel (1965), however, concluded that, although reasons exist for why the perception was experienced, the agricultural credit providers still maintained high levels of credit expansion, in spite of the so-called restrictive measures.

In the graph depicted in Figure 1, the overall finance utilised in commercial agriculture is reflected in the green shaded area on the secondary Y-axis (R million, R000 000). On the primary Y-axis, the market share by major agricultural credit providers is reflected as a percentage (%). These major role players in agricultural credit include agricultural cooperatives and agribusinesses, The Land and Agricultural Bank, commercial banks and the Department of Agriculture. Agricultural credit providers that are excluded from the statistics reflected in the above Figure (1) are private persons and other financial istitutions which include discount houses, merchant banks, other monetary institutions, insurance companies, pension funds, trust companies, non-monetary banks and trust assets and participation mortgage bonds. For all of these statistics, the peiod reflected represents the years 1994 through to 2017 (StatsSA, 2018, p. 79).

The biggest role players in agricultural credit account for between 84 and 96 % of total agricultural credit in South Africa for the period reflected. Commercial banks still account for the biggest percentage of total credit in agriculture in South Africa. This is followed by The Land and Agricultural Development Bank of South Africa (Land Bank). However, an interesting observation in this regard is the inverse relationship between commercial banks and the Land Bank. Commercial banks, in this regard, include the top-tier four banks, ABSA, First National Bank, Nedbank and Standard Bank, as well as the smaller, second-tier, banks. Another important observation from Figure 1 is the declining market share of both the Department of Agriculture as well as agricultural cooperatives and agribusinesses.

The commercial banks combined had a total market share of 31% in 1995 and a 61% in 2017. The Land Bank, on the other hand, had a total market share of 24% in 1995 and 28% in 2017. Althought an

inverse relationship is observed, commercial banks had the largest increase in market share, by a significant margin. Agricultural cooperatives and agribusinesses experienced a decline in market share of 15% for the period reflected in Figure 1, below. Starting with an 8% market share in 1995, the Department of Agriculture ended the 2017 fincial year with only a 0.3% market share of agricultural credit.



Source: Own calculations based on abstract of Agricultural Statistics, Table 83, DAFF, 2018, p. 79.

Figure 1: Historical share of debt for agriculture in South Africa between 1994 and 2015

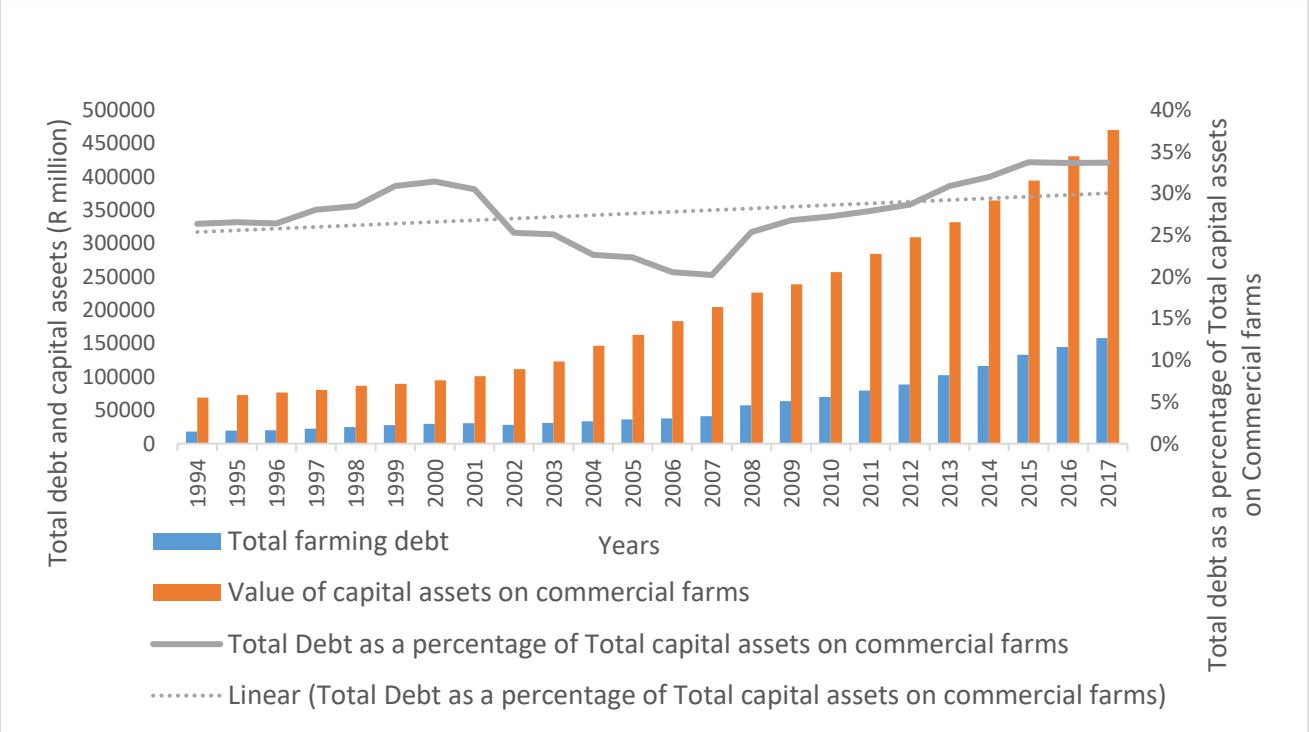
On the secondary Y-axis of the graph depicted in Figure 1, above, the shaded area represents all agricultural credit for commercial agriculture in South Africa, as reported by StatsSA in 2018 (DAFF, 2018). Bearing in mind that the NCA was implemented in 2006, there was absolutely no decline in total agricultural credit in South Africa between 1995 and 2017, and no negative impact can be observed between 2005 and 2007. Total agricultural credit in 2005 amounted to R36,4 billion. In 2007 total debt for commercial agriculture in South Africa rose to R41,4 billion. From Figure 1 it is clear that total agricultural credit has increased by a significant amount over the last 25 years and that the role players which benefitted the most from this phenomenon were the commercial banks, by almost doubling their market share.

In the graph in Figure 1, the percentage of total credit for commercial farms in South Africa is compared with the total value of capital assets on these commercial farms. This is indicated on the primary Y-axis, while the percentage of total credit is expressed as a percentage of total capital assets

on the secondary Y-axis. Total capital assets on commercial farms in South Africa include land and fixed improvements, machinery, implements, tractors and vehicles, and finally livestock (StatsSA, 2018).

Total capital assets increased by a significant amount from 1994 until 2017. In line with this, total debt in agriculture also increased over the same period. Total debt in agriculture, represented in this graph (Figure 1, above) by the blue histogram, was the same amount as for total debt, in the green shaded area.

On the other side of the foregoing graph, the secondary Y-axis – the percentage of total debt to total capital assets – had also risen. This is an indication that all commercial farms in South Africa have experienced a decline in their financial positions. When total debt as a percentage, or ratio, of total capital assets increases, it is an indication that total equity (Assets = Total Debt + Total Equity) as a percentage of total assets has declined. In other words, a weaker financial position, or a weaker balance sheet, is seen. The weakened balance sheet is an indication for caution and a reason why agricultural credit providers are reluctant to grant commercial farms more and more credit. However, reflecting on Figures 1 and 2, although total credit for agriculture has increased, the financial positions of commercial farms have declined. Consequently, the NCA may not be as much of a restricting factor on agricultural credit as the effect of the weaker financial positions of commercial farms may be.



Source: Own calculations based on abstract of Agricultural Statistics, Table 83, DAFF, 2018, p. 78.

Figure 2: Total agricultural credit, total capital assets and percentage of total credit on commercial farms in South Africa

2.3 Financial Analysis

Thorough record-keeping for farming activities is of significant importance; however, without the proper analysis and interpretation of farming results, keeping detailed farming records serves little to no purpose (Louw, et al., 2013). Groenewald & Seldon (1966) explained why financial analysis and management accounting are essential in agriculture, and why their implementation has been slow. In this publication, the lack of implementation of management accounting in agriculture is explained by the following two points:

1. Uncontrollable factors such as the weather conditions do not affect the commercial and industrial sectors to the same extent as they effect the agricultural sector.
2. The majority of farmers (as at the date of publication of Groenewald & Seldon, in 1966) could not afford to employ specialised staff for the purpose of introducing accounting concepts to the farming business and were too busy fulfilling different job functions as farmers than to do more than the absolutely essential paperwork themselves. Analyses of farming results and records differ substantially from the analyses done for tax purposes, and the analyses done in this regard provide practical guidelines that can be applied (Louw, et al., 2013, p. 63).

The 'price-cost squeeze' is argued by Groenewald and Seldon (1966) as being a core motivation for why management accounting in agriculture is essential. Farmers who are plagued by the cost-price

squeeze can only, according to them, effectively solve the problem by increasing production efficiency (financial analysis) and by reducing costs (cost accounting). Public opinion, political factors, surplus production and international competition are reasons why any increases in prices that farmers expect to receive will not necessarily be realised and why reducing costs and improving efficiency are necessary (Seldon & Groenewald, 1966). Further, they suggest that increased efficiency is not possible unless farmers have the means to compare new methods for removing inefficiencies and reducing costs. This implies that in agriculture intelligent record-keeping and some form of management accounting are essential.

Financial ratios are the result of a comparison using two or more elements of financial data, which result can either be expressed as a percentage or as a comparison to 1 (xx: 1) (Farm Financial Standards Council, 2011). The key to financial ratios is not the information itself, but rather what you, the owner or the manager, do with the information to change the farming business for the better (Schwei, 1996). Carver (1949) suggested that some people have a better understanding of the use of credit than others. The use of financial ratios can be very valuable for the farmers who are able to use them effectively but can be useless if a farmer is unable to evaluate and interpret these ratios correctly. Every financial ratio has its shortcomings that should be considered when doing a financial analysis of farming results; however, financial ratios can be used to ascertain the financial position of the farm business (Louw, et al., 2013, p. 63 and Farm Financial Stadards Council, 2011).

Financial ratios can be grouped according to similarity. Louw et al. (2013) organizes these ratios into the following groups and sub-groups, which are discussed further on: a) solvency, b) liquidity, c) profitability and, d) debt-servicing ratio's. These financial ratios should not be evaluated in isolation from each other, and this is one reason why norms (benchmarks/rule-of-thumb) are proposed when ratios are evaluated (Louw et al., 2013; Els, 2013, Blonde, 2009; and Elad, 2004). It is important to note that the rules-of-thumb for comparison do not necessarily apply to all types of farming business structures, and different rules-of-thumb could even be acceptable for each different type of farming enterprise (Els, 2013).

Depending on the industry in which the company operates, different values may be acceptable. Another way to evaluate ratios is to investigate the financial position of the company over time. With this method, it would be possible to determine if a company's financial position has improved or declined over time. A third way to implement ratios is to compare similar companies that operate in the same industry. In this way it is possible to determine the competitive position of a company in relation to its competitors (Els, 2013).

2.3.1. Solvency

A business's solvency refers to the amount of borrowed capital (debt), leasing commitments and other expense obligations a business has relative to the amount of owner equity invested in it. Debt capital bears interest and has a specific date by when it must be paid or by when an instalment needs to be paid. Solvency indicates the extent to which the assets of a farm business exceed its liabilities if all assets could immediately be sold and used to pay off its foreign capital. In other words, solvency is used as an indication of the ability of the farm business to meet all its liabilities if business activities were to be terminated. It is also an indication of the ability to continue operations as a viable business after the advent of an adverse financial occurrence such as a drought. The greater the risk a farming business is exposed to, the better the solvency should be. This is proffered as a reason for why financiers place a high priority on solvency ratios (Farm Financial Standards Council, 2011 and Louw *et al* 2013).

According to the Farm Financial Stadards Council (2011), there are three solvency ratios prescribed. These ratios are algebraically related to one another. They are not separate indicators and were all included because no one is preferred above the other.

2.3.2. Liquidity

In Agriculture, this section is vital. The liquidity ratio indicates a farm's ability to cover the liabilities that are payable within 12 months from the end of the financial year. It is an indication of the farm's ability to meet the current liabilities that are necessary to continue the activities of the business (Els, 2013).

Current payments and liabilities include items such as production costs, interest and compulsory debt redemption (the yearly instalments on the long-term loans). These liabilities should be met without affecting the day-to-day production activities. Louw et al. (2013) calculate the ratio from the balance sheet, but there is a way to calculate the ratio directly from the income statement, which is discussed further under paragraph 2.2.1.4 (DAFF, 2015).

Louw et al. (2015) suggest that one of the greatest pitfalls for farmers and financing institutions alike is using the wrong type of credit for the wrong purpose. Using short-term loans for long-term projects, or financing short-term projects with long-term loans are two examples of this (Louw, et al., 2013). Short-term loans are 100% repayable at the end of each year, and often the interest rates are higher than for long-term loans (Brandt, 2017).

2.3.3 Profitability

Profitability is calculated as a percentage between profits earned in a certain financial year and the total capital used to realise that profit. Briefly, this ratio can be seen as an 'interest on capital' ratio

for a certain period. Profitability should be compared to what the farmer could have earned if he had invested his time and effort elsewhere. The financial decisions of a farmer could be significantly influenced by the profitability ratio realised. However, profit alone is not an adequate measure of efficiency.

2.3.4 Debt-servicing ratios

According to Louw et al. (2013) the debt-servicing ratio is a measurement of the ability of the farming business to meet its debt or liability repayments, which include both capital instalments and interest on all of the liabilities. This suggests that it should be viewed from a cash flow perspective. Cash flow ratios have been found to be more reliable indicators of liquidity than the ratios calculated from the balance sheet, such as the quick ratio or the current ratio (Mills & Yamamura, 1998, p. 57). This study establishes a relationship between cash flow ratios and the possible credit resources a business could gather. The lack of emphasis placed on cash flow ratios by Louw et al. (2013) could be problematic, especially since their importance had already been established in the literature at the time of publication.

2.3.2 Credit evaluation

Certain aspects of obtaining and granting credit are both important to the financier and the credit applicant. It is in neither the best interest of the financier nor the credit applicant if credit granting is not based on sound principles. Most of the answers to questions that the credit applicants have to ask themselves will be available from proper financial statements and the necessary future estimates. This assumes that the farm manager has the necessary knowledge or access to resources to do so.

The information that the farmer will require which forms part of the credit application process include: i) when to borrow, ii) how much to borrow, iii) what security is proposed for the loan , iv) whether the interest rate is affordable, v) what the repayment conditions of the loan are, and, vi) whether the asset being financed will appreciate or depreciate in value – all form part of the process of credit applications.

There are certain questions that need more specialised intellectual resources, which may or may not be that simple for the farm manager. The specific type of loan required is a matter that farm managers need to consider carefully, with the right supportive advice from an expert or experts.

Financiers are often experts with the ability and experience to structure loans differently in order to fulfill the credit applicant's unique requirements. Farm businesses run the risk of failing, not only because the value of their liabilities exceeds that of their assets, but often because incorrect credit is incurred for the incorrect purpose (Louw, et al., 2013). A sound relationship between the credit applicant and the credit extension officer is to the benefit of both parties in applying for credit.. In this

study, the managerial ability of the credit applicant was not brought into consideration for the initial evaluation phase of the credit application process. Refer to Chapter 1 for the reasons for this decision.

From the financier's perspective, six main aspects are considered when evaluating a credit application. Not one of the aspects are necessarily more important than the others (Louw, et al., 2013, p. 178):

- Who is the farm manager or the applicant? (The credit repayment history that the applicant has with the specific institution is important.)
- The repayment ability of the farm business; that is, whether or not the available liquidity, after the necessary expansion has been completed, will be enough to realise the conditions of the credit agreement.
- Security in favour of the financiers will be required, so that the loan can be recalled in order to protect the financier from an extended loss if something should go wrong.
- The interest rates and repayment structure that form part of the conditions of the potential credit agreement.
- The investment that the credit will be used for refers to the correct credit structure for the correct investment.
- What is the risk involved in the planned project in respect of the yield and prices, along with all other socio-economical and physical-biological factors involved in farming?

Louw et al. (2013) consider the elements of who the applicant is, what the conditions are and the type of investment to be obvious considerations and do not expend on these topics. This narrows the focus area of this particular study. As far as a sound credit policy is concerned, there are certain rules – 13 specifically – believed to be strictly important when obtaining or granting credit. In evaluating a credit application, this set of rules has minimum requirements as to how the applicant and his or her character are viewed. A brief overview of these rules follows (Louw, et al., 2013, p. 183):

- A loan should be lucrative, meaning that it should be acquired for production purposes, and not for luxuries.
- Interest payments and capital repayments should not have an adverse effect on the farm business. Proper planning for possible income generated by the credit is necessary in this regard.
    - Having a conservative plan for such purposes is essential. Caution should be exercised in respect of over-optimistic behaviour.
- All sources of agricultural credit should be considered. Agricultural credit providers do not only comprise of commercial banks.

- Too many sources of agricultural credit have a negative influence on the creditworthiness of the business. Agricultural credit should be acquired from the minimum number of agricultural credit providers possible.
- When the option is available, consider more than one possible investment. Select the most profitable one if a choice must be made, assuming the farm manager has the necessary expertise to turn the investment into a profitable one.
- Without the proper systems in place, a deteriorating business will not be corrected through an injection of credit.
- Proper planning and budgeting also means that the correct income and expenditure at the correct time should be planned for in advance.
- Agricultural credit should be repaid during the lifetime of the asset or the investment.
- It is possible to negotiate the repayment schedule of agricultural credit, especially when an investment needs time to start being profitable.
- Agricultural credit can be insured, and should be insured.
- Agricultural credit agreements must be confirmed in writing.
- Credit activities and all other farming records should be adequately kept.

2.4 National Credit Act No. 34 of 2005

In 1994, the South African Law Reform Commission recognised the need for credit legislation. Previously, the South African consumer credit legislation consisted principally of the Usury Act No. 73 of 1968 (Usury Act), The Credit Agreements Act No. 74 of 1980 (The Credit Agreements Act) and the exemption notices, 1992 and 1999. These were the laws in place that governed credit market practices until the 1st of June 2006, when the first phase of a new, comprehensive credit act came into effect (Juta, 2015).

This new, comprehensive credit act, The National Credit Act No.34 of 2005 (The New Credit Act or NCA), made provision for the National Credit Regulator and replaced the Usury Act, The Credit Agreements Act and the relevant exemption notices.

Along with the South African Law Reform commission, several subsequent reports commented on the weakness in consumer credit legislation, including the Strauss Report on Rural Finance, the National Small Business Regulatory Review, by Ntsika Enterprises Promotion Agency, and the Policy Board for Financial Services and Regulations' Report on Small and Medium Enterprises' access to finance in South Africa (Goodwin-Groen, 2006).

In South Africa, the Department of Trade and Industry (DTI) is responsible for overseeing the credit market. Inappropriate legislation, according to a technical committee set up by the DTI in 2002, contributed to the unacceptable state of affairs in South Africa's credit marketplace (DTI, 2003).

2.4.1 The Department of Trade and Industry and its mandate.

The DTI in South Africa is responsible for overseeing the credit market. It has certain policy objectives to enable it to fulfil its this mandate and, in so doing, to promote a stable, efficient and competitive credit market, a credit market in which consumers' rights are adequately protected and in which access to finance in the form of credit is improved. Improved access to credit refers particularly to credit for developmental purposes. It is important to note that the DTI has a mandate only in respect of access to finance, and the department's responsibilities do not include those of access to savings and other financial services.

Because of the limitations of the DTI's mandate – which is only to oversee the credit market, and which excludes a broader mandate such as to oversee savings or any other form of financial services – it was not included in this review. Goodwin-Groen (2006) regard this as problematic, because borrowing money and saving money are different sides of the same coin.

2.4.2 The causes of the substantial change in credit legislation

According to Goodwin-Groen (2006) there are a range of political, social and economic changes in South Africa that have influenced the consumer credit market since 1968. Coinciding with technological changes and advances, there has been criticism of what has been regarded as dysfunctional credit market, including of the following aspects of it:

- Outdated and fragmented legislation;
- Ineffective consumer protection, particularly in relation to the 85% of the population in low-income groups (DTI, 2003);
- The high cost of credit and in some areas a total lack of access to credit; and
- Reckless behaviour by credit providers and the exploitation of consumers by micro lenders, intermediaries, debt collectors and debt administrators (Goodwin-Groen, 2006 and DTI, 2003).

Furthermore, inappropriate legislation, whether the Usury Act or the credit Agreements Act or debt collection procedures in the Magistrates' Courts Act No. 32 of 1944, and a lack of enforcement contributed to the unacceptable state of affairs. Increasing use of credit by low-income consumers, together with the above-mentioned factors called for an urgent need to examine more closely the current credit legislation (Goodwin-Groen, 2006).

Since the DTI was already responsible for multiple credit markets at that time, it set up a technical committee to undertake a credit law review in 2004, with the mandate to examine these problems. This review was coordinated by the Micro Finance Regulatory Council of South Africa (MFRC) (DTI, 2003). Goodwin-Groen (2006) use the terminology of Rutherford (2001), who explains in his study on 'The poor and their money' (1999) that borrowing money is "saving down" and that deposit savings are "saving up". Goodwin-Groen (2006) suggests that many people who form part of the 85% of the low-income population are simply too poor to prefer "saving up"; therefore, they should have access to credit (Goodwin-Groen, 2006). But in the words of Thomas Nixon Carver (1949), there is a good chance that by allowing these people easy access to credit, we could degrade their financial state altogether (Rutherford, 2001).

The main weaknesses found by the committee can be summarised as follows:

- There were inadequate rules on the disclosure of the cost of credit. Because the cost of credit was regularly inflated above the disclosed interest rate, it undermined the consumer's ability to make informed decisions. This resulted in reduced consumer pressure on credit providers to reduce interest rates;
- An unrealistically low Usury Act interest rate cap caused low-income and high-risk clients to be marginalised;
- Bad client selection, ineffective credit risk management and a high level of bad debts resulted in an even bigger increase of the cost of credit, and this occurred because of weak or incomplete credit bureaux information;
- An incentive for reckless credit provision was created because of inappropriate debt collection. Inappropriate debt collection also prevents the effective rehabilitation of over-indebted consumers;
- Excessive predatory behaviour led to a high level of debt among certain customers and unmanageable risk for all credit providers;
- Inconsistencies in legislation related to mortgages and property transfers led to the undermining of consumers' ability to offer security and locked them into high-cost, unsecured credit;
- Aspects of the Banks Act No. 94 of 1990 and the National Payment System Act No.78 of 1998 undermined competition in the consumer credit markets (while creating inequitable preferences for certain credit providers); and
- Uncertainty in the regulations led to credit behaviour orientated towards short-term profit taking, and a resistance among credit providers to improve longer-term finance (including housing and SME finance).

It was not possible to trace the cause of the high finance costs to a single factor, but a combination of the factors identified explained the problem. These conclusions were similar to a broader independent study on the provision of financial services for low-income clients (Meagher and Wilkinson, 2002).

After the credit law committee had researched consumer credit reforms in Europe and in certain other countries, it consulted widely with stakeholders in South Africa. The conclusion was reached that the Usury Act and the Credit Agreement Act should be replaced by a single Act that should be overseen by a statutory regulator.

The main proposal by the committee was that the focus should be shifted from price control to protection against over-indebtedness, and to the regulation of reckless credit practices. It was proposed that special attention should be given to credit bureaux activities and the disclosure of credit-related fees and charges (Goodwin-Groen, 2006).

The in-depth review of credit legislation initiated by the DTI eventually resulted in the promulgation of the National Credit Act No.34 of 2005 (published in Government Gazette 28619 of 15 March 2006) and the National Credit Regulations (published in Government Gazette 28864 of 31 May 2006, Regulation Gazette No 8477, R489) in 2006, all with the purpose of solving the prevailing consumer credit problems (Government Gazette, 2005; Government Gazette, 2005; and Government Gazette, 2006)

2.4.3 The goals of the New Credit Act and compliance

The purpose of the Act, as stated in Government Gazette No. 28619 (2006), is as follows:

- to promote a fair and non-discriminatory marketplace for access to consumer credit, and for that purpose, to provide for the general regulation of consumer credit and improved standards of consumer information;
- to promote black economic empowerment and ownership within the consumer credit industry; to prohibit certain unfair credit and credit-market practices;
- to promote responible credit granting and use, and for that purpose, to prohibit reckless credit granting;
- to provide for debt reorganisation in cases of over-indebtness; to regulate credit information; to provide for the registration of credit bureaux, credit providers and consumer credit;
- to promote a consistent enforcement framework relating to consumer credit;
- to establish the National Credit Regulator and the National Consumer Tribunal; to repeal the Usury Act, 1968, and the Credit Agreements Act, 1980; and
- to provide for related incidental matters (Government of South Africa, 2006, p. ABSTRACT).

The New National Credit Act sets out the specific objectives of the Act:

> The purpose of this act is to promote and advance the social and economic welfare of South Africans, to promote a fair, transparent, competitive, sustainable, responsible, efficient and accessible credit market and industry and to protect consumers by:

- Promoting the development of a credit market that is accessible to all South Africans, and in particular to those who have been historically unable to access credit under sustainable market conditions;
- Ensuring consistent treatment of different credit products and different credit providers;
- Promoting responsibility in the credit market by –
  - encouraging responsible borrowing, avoidance of over-indebtedness, and fulfillment of financial obligations by consumers; and
  - discouraging reckless credit granting by credit providers, and contractual default by consumers;
- Promoting equity in the credit market by balancing the respective rights and responsibilities of credit providers and consumers;
- Addressing and correcting imbalances in negotiating power between consumers and credit providers, by:
  - providing consumers with education about credit and consumer rights;
  - providing consumers with adequate disclosure of standardised information, in order to make informed choices; and
  - providing consumers with protection from deception, and from unfair or fraudulent conduct by credit providers and credit bureaux;
- Improving consumer credit information and reporting, and regulating credit bureaux;
- Addressing and preventing over-indebtedness of consumers, and providing mechanisms for resolving over-indebtedness based on the principle of satisfaction by the consumer of all responsible financial obligations;
- Providing for a consistent and accessible system of consensual resolution of disputes arising from credit agreements; and
- Providing for a consistent and harmonised system of debt restructuring, enforcement and judgment, which places priority on the eventual satisfaction of all responsible consumer obligations under credit agreements (Government of South Africa, 2006).

The fundamental purpose of the Credit Act is to achieve integrity in the credit market and to remove the multitude of unfair practices and inappropriate disclosure and anti-competitive practices from the market (Goodwin-Groen, 2006). The inclusion of the anti-competitive practices was very important, because the four biggest banks in South Africa are not always accessible to the lower-income population; additionally, the tier-two banks are very important in this regard (Goodwin-Groen, 2006).

Reckless credit is set out in the NCA as one of the main purposes of the Act. The NCA achieves this by promoting responsible credit lending practices:

> The NCA requires the lender *inter alia* to assess the client's ability to pay, and requires the client to provide full financial information to prevent reckless credit (Goodwin-Groen, 2006, p. 19). *'Reckless credit'* is set out in Sections 80 through to 84 in the NCA (Government of South Africa, 2015, pp. 114-116). According to the New NCA, credit is reckless if, at the time that the agreement was made;

- the credit provider failed to conduct an assessment as required by Section 81 (2), irrespective of what the outcome of such an assessment might have concluded; or
- the credit provider, who made the assessment as required by Section 81 (2), entered the agreement with the consumer despite the fact that the conclusion of the information available to the credit provider indicated that:
  - the consumer did not understand the risk, costs or obligations under the proposed credit agreement: or
  - Entering into such an agreement would have made the consumer over-indebted.

- When a determination is to be made about whether credit is reckless or not, the person making the determination must apply the criteria set out in subsection (1) as they existed at the time that the agreement was made, and without regard for the consumer to;
  - Meet the obligations under that credit agreement; or
  - Understand the risk, cost and obligations under the proposed credit agreement,

  at the time the determination is being made.

- When making the determination in terms of subsection (2), the value of;
  - Any credit facility is the credit limit at that time under the credit facility;
  - Any pre-existing credit guarantee is;
    - The settlement value of the credit agreement that it guarantees, if the guarantor has been called upon to honour that guarantee; or
    - The settlement value of the credit agreement that is guarantees, discounted by a prescribed factor; and

- Any new credit guarantee is the settlement value of the credit agreement that it guarantees, discounted by a prescribed factor.

In terms of the regulations used to protect credit consumers in countries with a developed financial sector, three different types of measurements are used. Each one of these regulations is included in the New National Credit Act in some form. Goodwin-Groen (2006) describes them as the three pillars.

Pillar 1: Lenders may be required to keep within the limits of clients' credit capacities. The New Credit Act requires that the lender *inter alia* has to assess the client's ability to pay by requiring the client to provide full financial information, in order to prevent reckless credit granting.

Pillar 2: Lenders are obligated to disclose fully all of the costs of credit arrangements before a client signs a contract. The NCA requires a comprehensive disclosure of all interest and other fees payable on the principle amount, both in percentage and rand value, together with a repayment schedule. When a credit product is advertised by a credit provider, the following information must be disclosed, The instalment amount, the number of instalments, the total amount of all instalments, the final amount payable and the interest rate and other costs.

Pillar 3: Caps may be put on the pricing of consumer credit, or usury laws may determine that pricing. The NCA includes a maximum rate of interest for seven different types of credit. These are the usury limits.

Goodwin-Groen (2006) found that most countries with developed financial systems have either one or two of these pillars in place to protect consumers. A few countries, of which South Africa is one, have all three pillars in place. This is a testimony to the extent the New Credit Act goes in order to protect South African credit consumers.

Goodwin-Groen (2006) highlights seven main conclusions of the analysis done, which are mentioned below.

- The DTI's mandate is only to oversee credit-related issues and markets, including the costs of credit, and not broader access to finance.
- The New Credit Act brings South Africa's credit legislation in line with the standards embraced by developed countries. It is likely to reduce reckless credit behaviour by credit providers. Important to remember is that it might take time for the financial system in South Africa to adjust to the New Credit Act. The National Credit Regulator is tasked with reporting on the progress made in the development of the credit markets.

- An independent assessment might also be necessary in order to assess whether credit access has improved from the perspective of clients.

- It is possible that policymakers could underestimate the magnitude of these regulatory changes. Banks now have to contend with an additional regulator, and banks with a diverse product range now have three regulators: The SA Reserve Bank, the Financial Services Board (FSB) and the new National Credit Regulator.
- International experience, according to Goodwin-Groen (2006), has shown that price controls are not the optimal mechanism to protect consumers. Therefore, it is notable that South Africa is one step ahead of most other countries, because price control is only one of the mechanisms used to protect consumers.
- Critical emphasis was placed on the introduction of the National Payment System Amendment Act of 2004.
- Although debt counsellors provide an important support structure for over-indebted consumers, the complete prevention of over-indebtedness by credit providers is equally important. Public education campaigns are needed to promote savings and financial literacy.
- At the end of 2006, the broader challenge of access to financial services (including savings and insurance) for the majority of the population, especially for the 85% in lower-income groups, remained problematic. This emphasises the importance of the assessment mentioned in 2 (a).

The need to educate people about saving is significant. Rutherford (2001) emphasises that poor people are too poor to save.

2.4.4 Correct application of the National Credit Act no. 34 of 2005 on credit applicants.

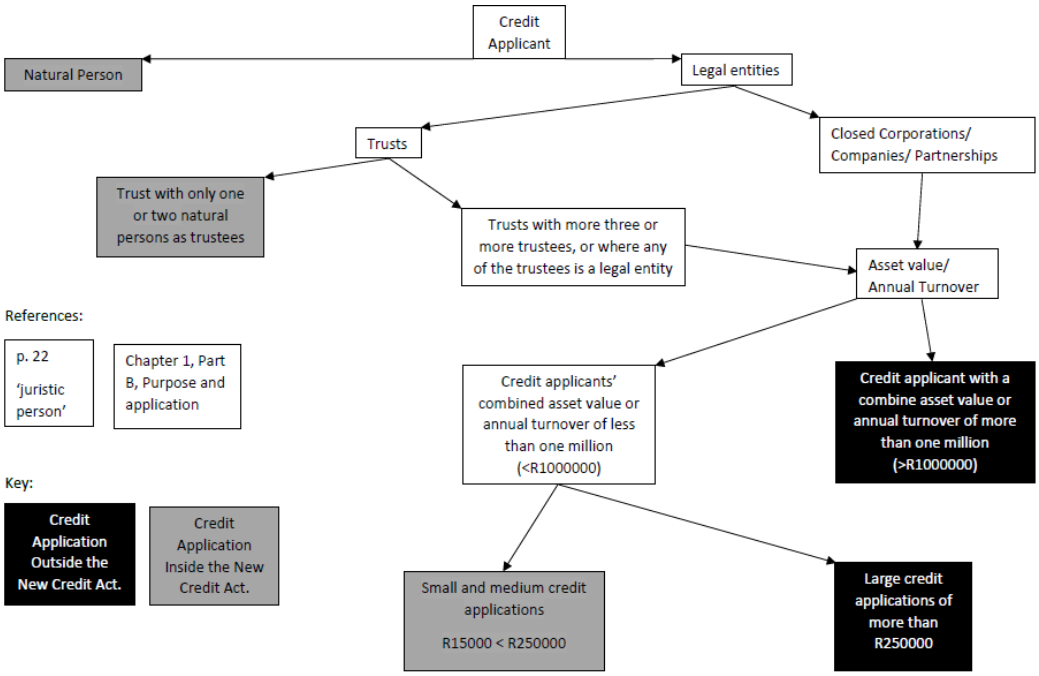
The NCA is only applicable on certain credit consumers in South Africa which means that only certain consumers are protected by the NCA. When considering a credit application, the first aspect that a credit official needs to consider is whether or not the credit applicant is a natural person or a legal entity. If the applicant is a natural person, the NCA will apply to the applicant, if not, further consideration will be necessary. Section 4 (1) of the NCA specifies that the NCA applies to every credit agreement made within South Africa or having effect in South Africa unless the following circumstances exist:

- The credit applicant is not a natural person and the entity has an annual turnover or asset value that exceeds or is equal the threshold value determined by the Minister in terms of Section 7 (1) of the act. Section 7 (1) indicates that the Minister must re-evaluate the threshold at least every five years, however, it can never be more than R1 000 000 (one million South African Rands) (Government of South Africa, 2015, pp. 25, 28).

- The credit applicant is a legal entity and does not have an annual turnover or asset value equal to or more than the threshold in Section 7 (1). In this case, a large agreement has to be formed. A large agreement in terms of the NCA is set out in Section 9 (4) of the act. A credit agreement is large if it is any type of mortgage agreement or it is equal to or higher than R250 000 (two-hundred-and-fifty thousand Rands) (Government of South Africa, 2015, pp. 25, 32,35)

In other words, if a credit applicant is a legal entity other than a trust and has an annual turnover or asset value of more than R1 000 000, the credit act will not apply to that credit agreement. If the credit applicant is a legal entity other than a trust, and the asset value or turnover is less than R1 000 000, and the credit agreement in terms of the principle amount is R250 000 or higher, the NCA will not apply to that credit agreement. If the same legal entity enters into a credit agreement in terms of which the principle amount is less than R250 000, the NCA will not apply to that credit agreement.

If the credit applicant is a legal entity which is a trust, and that trust has only one or two trustees, all of whom are natural persons, the NCA will apply to such a credit agreement. However, if the trust has more than two trustees, or in cases where one of the trustees is a legal entity, the same considerations will apply to that credit agreement; that is, the total asset value and turnover will be considered first, but, if the asset value or annual turnover is less than R1 000 000, the size of the agreement would be considered. See Figure 3, underneath, for a schematic flow of the applicability of the NCA.



Source: Based on National Credit Act No. 34 of 2005 (2015), pp, 18, 25, 28, 32, 35)

Figure 3: Schematic flow of the application of the National Credit Act No. 34 of 2005 on credit applicants

2.5 Land production value and land market value

In most countries, one of the major advantages of ownership of land, as opposed to leasing, has been the price appreciation of land over time. Unlike most resources utilised in the agricultural sector, land does not depreciate, if managed properly. Although the appreciation will not necessarily be received in cash, unless the land is sold, it has a significant influence on the net worth of the farming business. In South Africa, as in any other country, the difference between the market value of agricultural land and the agricultural production value of land does not contribute to the farmer's ability to repay a loan he/she made to acquire the land. However, this does contribute to the ability of the farmer to obtain credit, as agricultural land is the preferred form of collateral used by financiers to finance South African farmers' long-term capital expenses or short-term production financing (Van Schalkwyk & Van Zyl, 1994). High gross revenues and profitability gains by the current generation of agricultural land becomes cost of doing business for the next generation (Van Schalkwyk & Van Zyl, 1994, p. 266 and Middelberg, 2013). According to Van Schalkwyk and Van Zyl (1994) land prices in real terms peaked in 1976. After 1976, land prices started to decrease, as real interest rates started to increase. The lag between the 1976 real land prices and the peak of agricultural debt in 1985 has been identified as the direct result of the expectations of agricultural credit providers that the real prices of land would increase sometime (Coetzee, et al., 2002, p. 5).

The capital required for an outright purchase of land is a substantial financial outlay, which most farmers, especially emerging farmers, do not necessarily have. When sufficient capital is available, problems arise with the purchasing of the required machinery, equipment and working capital. Thus, the financial requirements for purchasing land and the necessities for productive farming can deplete valuable funds completely (Van Schalkwyk & Van Zyl, 1994, p. 266). Consequently and because all possible farming calculations depend on land value, the valuation of agricultural land is important.

Land prices are almost always higher than the productive value of agricultural land; therefore, a transparent valuation method is considered when land is valued by financial institutions of the Government of South Africa (Louw, et al., 2013). To place a value on agricultural land is no easy task. Legislation pertaining to the valuation methods used as well as the process to be followed is intricate and complex. Not only is there more than one form of legislation governing the method and process, but preferred valuation methods, and technical details on those methods differ from one type of farm to another (Middelberg, 2013; Section 25 of the Constitution of the Republic of South Africa, 1996, Act No. 17 of 2014; Property Valuation Act, 2014, Act No. 47 of 2000; Property Valuers Profession Act, 2000; and Act No. 6 of 2004, Local Government: Municipal Property rates, 2004).

A gap exists between the market value of agricultural land and the income capitalisation value of land, although the size of the gap has been fluctuating ever since data has been gathered in South Africa. Van Schalkwyk and Van Zyl (1994) found that the gap between two of these valuation methods, the market value approach and the income capitalization approach, gradually increased between 1960 and 1984, after which it decreased by so much that the gap was almost insignificant in 1994. This decline is mostly attributed to the withdrawal of some major policy services to the farming community as well as inflationary conditions, which had a negative impact on both the buyers and sellers of agricultural land during that time (Van Schalkwyk & Van Zyl, 1994).

The income capitalisation method of valuing agricultural land is done by using the following equation:

$$\text{Land Price} = \frac{(NFI - Living\ expenses)}{Required\ Return} - Additional\ capital\ requirements$$

NFI refers to the net farm income of the business that is directly attributable to that specific piece of land. Living expenses are the portion of the farmers' and their families' living expenses that are directly attributable to the particular piece of land concerned. The required return is the chosen capitalisation rate, which refers to the discount rate used for other investment opportunities. Capital requirements is the additional investment needed in machinery and equipment required to produce effectively on the land (Van Schalkwyk & Van Zyl, 1994).

Because of the appreciation in land value under normal circumstances, the return on investment in land does not include only the income earned on an annual basis. In other words, land also has a separate investment value. Therefore, the market value of agricultural land is often much higher than the income capitalisation method, based on the land production value. It is no simple task to determine the precise market value of land, except if land is actually being sold, in which case, the selling price will act as the market value of the land. The final selling price remains a negotiated price between a buyer and seller. If land is not available in the market, or has not been sold recently, the market value of land should be determined by means of comparable selling prices, by comparing the property to similar properties and similar property transactions. The market value of agricultural land varies extensively, mostly because of the lack of standardisation (Louw, et al., 2013).

The physical features of agricultural land should be compared with respect to other properties. These physical features include, but are not limited to, soil quality, climate, topography and improvements. Louw et al. (2013) suggest that fixed improvements should be valued independently. The market value of land, in essence, is the value of the farm less the value of all the fixed improvements. One advantage of such a valuation method is that the general changes in price levels and inflation are taken into account to some extent. There are other circumstances that also need to be taken into consideration.

All of the above-mentioned circumstances should be considered within the context of the time frame, conditions and circumstances applicable to each individual transaction. Furthermore, important subjective factors also play a role as to when a farm or a piece of agricultural land is in the market. These include, especially in the South African context, rumours and individual preferences, which may force a certain buyer to pay more, or a certain seller to except less. Therefore, when the market value of land is considered, it is not wise simply to take into account the price paid for the land on the open-market, although it remains an important reference (Middelberg, 2013 and Louw, et al., 2013).

Ideally, average land prices over a period of time, adjusted upwards or downwards on the basis of comparison should be used (Louw, et al., 2013). It is to the advantage of both the farmer and the possible financier that the value in the farm inventory be included as realistically as possible. When the market value approach is used in the balance sheet of the farm, it is wise to undervalue land rather than to overvalue it. Agricultural Land should thus be realistically and conservatively valued.

Within the South African context, there is certain legislation that governs the valuation of agricultural land. When land has been identified by the Government of South Africa for the purpose of land reform, the property must be valued by the Office of the Valuer-General when determining the value of the property. However, certain prescribed procedural criteria should be taken into account, unless the Government is looking to acquire or dispose of land, in which case, the market value of the land may be requested from the Office of the Valuer-General (Government of South Africa, 2014, p. 12). This Act also gives important guidelines as to who specifically is allowed to perform a valuation of the land, as land valuation is considered to be a specialised field (Middelberg, 2013, p. 108). Although there is comprehensive legislation on this matter, Government statistics on agricultural farm sales and land prices have not been updated and have not been available for some years now (Middelberg, 2013).

There is another approach to agricultural land valuation, which according to Middelberg (2013) is not often used by financiers in South Africa. This is the so-called cost approach. This approach is founded on the principle that a prospective farmer would not be willing to pay more for agricultural land plus its improvements than the cost of a vacant piece of land plus the current cost of replacing the structure, adjusted for depreciation, plus an allowance for structural and functional design. This approach, according to research, typically leads to a value for improved agricultural land that is higher than the market value approach would yield. This valuation method tends to establish an upper value that serves as a check against the other valuation approaches (Middelberg, 2013, p. 107).

The land valuation topic is even more relevant and current in South Africa than it was when Middelberg (2013) conducted his research on the valuation of farms or the valuation of improved agricultural land. Middelberg (2013) still serves as the only comprehensive research in this regard.

The value of agricultural land directly influences the value of the possible collateral against agricultural producers' loans and, in effect, influences the value of the debt and extended credit on a farm. More comprehensive research is needed in this context, however, especially considering the possible amendment of Section 25 of The Constitution of South Africa in 2018. Furthermore, the gap between the market value of land and the production value of land is often higher than what is realistic in terms of future agricultural efficiency and sustainable land reform.

2.6 Case study research

A case study, as argued by Gerring (2007), "is best defined as an intensive study of a single case (or a small set of cases) with the aim of generalising across a larger set of cases of the same general type". The use of case study research in agriculture is a familiar occurrence.

Using case studies in agricultural economics has proven to be a powerful way of conducting research. Case studies were considered to be an inferior type of research compared with traditional surveys, but Crosthwaite et al. (1997) proved their relevance and valuable contribution, specifically for on-farm research. The argument used by Crosthwaite, et al. (1997) is simple. Research by that time already indicated the importance of using multi-disciplines concerning solving the relevant problems in agriculture. Trade-offs exist between the depth, breadth and the number of relevant cases used when conducting research in agricultural economics. Unlike the other forms of research, such as surveys, case studies draw on a wide range of disciplinary knowledge within a few cases of-in depth systems knowledge (Crosthwaite, et al., 1997). Surveys are, however, better able to provide insights beyond a particular case, but with the proper design of case studies, their relevance and representational ability could be equally significant (Crosthwaite, et al., 1997).

Malcolm (2004) further emphasises the importance of using multi-disciplinarily when analysing a farm problem. Careful use of the whole-farm, inter-disciplinary approach, where all human, technical economic, financial, biological, institutional and risk aspects are considered in an analysis, has significant value in applied research and practical problem-solving. The appropriate balance between these disciplines, as they are applicable to the problem at hand, is necessary. When practitioners of any of these disciplines do not apply the whole-farm approach to analysing choices about the use of resources on farms, they provide information that is not sufficient in analysing efficient resource usage. That being said, Malcolm (2004) argues that the economic way of thinking is central to the process of farm problem-solving and research. Economics sets the agenda, helps define the goals, resources and constraints, and then makes it possible to compare costs and benefits (Malcolm, 2004).

As the study argues, techniques that incorporate information about more of the important, measurable and unmeasurable, elements of a problem will prevail over techniques that deal only with parts of the problems in great depth, but insufficiently encompass all of the important parts of it – Crosthwaite et al. (1997) and Malcolm (2004). In this regard, the nature of the problem will determine the appropriate use of disciplines (McCown, 2001).

By way of background to the decision to use case studies in this research, it was recognised that a gap exists between abstract farm situations and actual farm budgets. Malcolm (2004) recognises two important issues. Firstly, abstract representative farm studies deliver many insights, some of which are unobtainable from real-farm studies. Secondly, real-farm case studies can deliver different insights, some of which are unobtainable from abstract case studies.

2.6.1 Principles

Gerring (2007) sets out certain important preliminary factors in terms of research design issues applicable to case study research. These include, but are not limited to, evidence gathering techniques, formulation of a hypothesis, identification of the population, and the importance of generalising.

Gathering data:

There are many ways in which data could be gathered. These include, experiments, field research, unstructured interviews or highly structured surveys. None of these are unique to case study research. Gathering data could differ significantly from one discipline to the next or between two topics within the same discipline. The more intensive the data-gathering method, the more difficult it becomes to implement and apply that data across cases and disciplines. However, all data gathered using various techniques are interpretative. In other words, rarely does the data gathered speak for itself.

The Hypothesis

Gerring (2007) states that there is no such thing as abstract case selection and case analysis. This means that the research design must have a purpose. That purpose is defined by the assumption that the research is intended to demonstrate or prove something. All hypotheses involve at least one dependent variable and one independent variable. Data collected from cases should be enlisted to prove or disprove the theory at hand (Gerring, 2009).

Generalising

Gerring (2007) stipulates that the very concept of a case study involves, at least at some point, generalising. A case study must generalise across a set of cases. In the study by Malcolm (2004), generalising specifically arose when working with abstract case studies. Without generalising, it is impossible to develop abstract concepts in case studies, and without abstract concepts, unobtainable

insights may not be included in the studies. Malcolm (2004) also states that the general attractiveness of looking at questions from different perspectives dictates that an analysis would be enhanced by the addition of some parallel real-farm studies.

Specifying a population

Malcolm (2004) suggests that the use of abstract farm businesses constructed for analytical purposes can be powerful and useful as long as these abstract businesses are typical of the types of activities that exist within the population of interest. The scope, breadth, domain and population are terms used interchangeably by Gerring (2007). In order to avoid confusion, one term 'population' is used continuously in this study. The population of a study could be set to either broad or narrow, both of which could have a significant impact on the interpretive ability of the results obtained. All populations should be not only specified, but also justified.

2.6.2 Methods

Researchers can adopt either a single-case or a multiple-case study design, depending on the issue or research statement at hand. As is pointed out in the limitations of case studies, in the next section, the single case study design has a relative inability to generalise a conclusion compared with a multiple-case study design. By implementing a multiple-case study design, the research can be supplemented with real-life events and case studies. In other words, researchers can, and do, use both abstract and real-world case studies. Using a multiple-case study design also has the ability to raise the level of confidence and robustness of this research method (Zainal, 2007).

The careful design of case studies cannot be over-emphasised, as the ability to use information and values for future research are built into the design of case studies. There are several categories of case study research. According to Zainal (2007), three of them are most important, as derived from the work of Yin (1984). These are explanatory, descriptive and exploratory case studies. Any hierarchical view of these categories is incorrect, according to Yin (1984). This means that one method is not considered to be more scientific than the rest. Depending of the issue at hand, each category has an important role to play in research (Yin, 1984).

In short, these categories are summed-up as follows. Exploratory case studies are used to explore a phenomenon in data. The data serve as a point of interest to the researcher. Descriptive case studies are used to describe the natural phenomena that occur within the data in question. Explanatory case studies are used to examine the data in depth in order to answer the question ‘why’ (Yin, 1984 and Zainal, 2007).

Other researchers have also mentioned further categories of case studies. These include interpretive and evaluative case studies. The literature also refers to intrinsic case studies, instrumental case studies and collective case studies (Zainal, 2007).

2.6.3 Limitations

According to Flyvberg (2006), case studies are plagued by misunderstandings in the literature. Flyvberg (2006) does a thorough job of correcting these misunderstandings. His work is cited by many in the literature, among others, by Mabaya, et al. (2011) within a study that used case studies in South African Agribusiness. The five predominant misunderstandings and their corrected interpretations according to Flyvberg (2006) are discussed next.

Case studies are concrete and practical, and therefore, they cannot easily be converted to general, theoretical knowledge.

Flyvberg (2006) makes a convincing argument that humans tend to learn more effectively from examples that are context-dependent, such as case studies. Within the academia, especially the adult learning context, Flyvberg (2006) argues that true expertise is attained through practical experience as an individual is practicing his theoretical skills. Within business management research, the true beneficiaries of case study research are individuals who are also business owners. This means that the knowledge and skills transferred can readily be implemented and tested. "Therefore, case studies are likely to be even more meaningful to their group and may very well be preferred to other teaching methods" (Mabaya, et al., 2011, p. 20).

Case studies look at a single specific example and, therefore, one cannot generalise from them. By implication, they are of little value to science, whose goal is to create theories that can be generalised.

Flyvberg (2006) argues that when a case is carefully and correctly chosen, one may well generalise from it. He (Flyvberg, 2006) cites several examples of the successful selection of case studies to observe (Flyvberg , 2006, p. 226).

It is further argued that generalisation as the main source of scientific progress is considerably overrated. This is not to say generalisation has no place in social science, but rather, that case studies have an important role to play (Mabaya, et al., 2011, p. 20).

Beyond the initial phase of research – to generate a hypothesis – case studies have little use in testing a hypothesis and building theories.

As a matter of fact, this assumption and critique against case studies are derived from the second critique. If one cannot generalise from case studies, it follows that one cannot use them to build theories. Flyvberg (2006) argues again that the careful selection of cases to study is to "maximise the

utility of information about their content" (Flyvberg , 2006, p. 30). The random selection of cases is more useful only when working with large samples (Mabaya, et al., 2011).

Case studies have an inherent tendency to confirm the researcher's existing ideas.

First of all, Flyvberg (2006) claims that this tendency is not limited to case studies, but applies to other forms of research as well. Mabaya et al. (2011) found that many researchers have observed that in the course of developing a case study, the researchers' previously held views and ideas were challenged, and sometimes altered.

Case studies are difficult to summarise and to develop and distil into concise conclusions.

The simple argument that Flyvberg (2006) uses against this specific critique is that case studies do not necessarily need to be summarised, but rather that their value lies in the richness of their content (Mabaya, et al., 2011).

Deriving from all of the critiques and limitations of case studies, the literature suggests that significant importance be placed on developing and selecting case studies. The better their selection and development, the smaller the gap that exists between abstract case studies and real-world case studies (Malcolm, 2004). The lack of ability to generalise and build theories can be countered by using more than one case study in the research (Zainal, 2007).

2.7 Conclusion

The aim of this research was to access the availability of credit between situations that differ. The relevant literature discussed in this chapter includes an overview of the state of agricultural debt in South Africa between 1994 and 2017, financial analysis, credit evaluation, the New Credit Act 34 of 2005, land production value and land market value, as well as case study research methods, principles and limitations. This review of literature provides a framework for conducting further research within the scope of the method's application.

The relevance of the NCA is further emphasised in the Chapter 4 of this study, where the change in legislation is shown to have had an influence on the credit valuation methods of credit providers in South Africa. The problem with land valuation and the value reflected in the financial statements of the farm has a significant impact on the evaluation and accessibility of credit in South African agriculture. The valuation of land discussed in Section 2.5 provides an important context for the chapters to follow.

As stated in Chapter 1, the main research statement for the study reported in this paper is 'Assessing the accessibility of agricultural credit for South African primary commercial agricultural producers over various enterprises in various production areas after the introduction of the New Credit Act in 2006'.

At the start of this chapter, a brief overview of the current state of agricultural credit in South Africa is provided, with the help of two simple graphs. At first glance, it would appear that the accessibility of agricultural credit has been increased by a greater supply of agricultural credit in South Africa. Figure 2 shows the declining state of commercial farms' balance sheets and sheds some light on the reasons why a misconception may prevail in reference to the accessibility of credit in commercial agriculture.

Financial analysis and the difference between the market approach and other approaches to the valuation of agricultural land shows the importance of the valuation of this fixed-asset component in credit applications by commercial farms submitted to agricultural credit providers. The NCA and, by extension, the reasons why the NCA was introduced form a large part of the study, especially with reference to the accessibility of credit.

Finally, the method of research used was case studies, as reported in the subsequent chapters. Assessing the accessibility of credit by commercial agricultural producers in different business entities forms part of the main research statement for this study. Case studies have been identified as a practical method for this purpose. Due attention was also given to the use of case studies, and, therefore the relevant limitations are discussed. Consequently, the reasons why these will not apply in this study are also discussed as are the methods used. The case studies used and the information available from those case studies forms a substantial part of the following chapter.

Chapter 3: Case Studies and Evaluation Methods for Credit Applications

3.1 Introduction

Following on the literature review in Chapter 2, Chapter 3 deals with evaluating the problem statement, which concerns credit evaluation methods. Firstly, the case study firms used in this research are introduced and discussed briefly. Four case studies were selected, each with at least two different farming components, in four different areas. Three of the farming businesses are in the Western Cape, and one is in the Northern Cape. Three of the farming businesses had at least one livestock enterprise, and one was strictly a horticultural farm. Altogether, the diversity of types of farms and their financial positions, which can be viewed in the Appendix, give the study depth and scope. Whole-farm systems thinking and budgeting models are discussed further on, for the sake of completeness.

In the second part of Chapter 3, each agricultural credit provider is introduced separately, and their purpose and involvement in the credit market are discussed. This is followed up by the credit evaluation methods utilised by each agricultural credit provider. Financial ratios are the single most important concept in this chapter, and consequently, the rules-of-thumb set out by each credit provider are also provided. A short comparison between the evaluation methods of each agricultural credit provider was made and is discussed, with particular consideration given to the differences between the leverage ratios.

3.2 Description of the whole-farm systems approach and whole-farm budget models

By definition, a farm is a complex and multi-faceted system. Agricultural producers constantly operate in a complex environment, where decision-making is challenging, due to the socio-economic and physical-biologic interrelationships that characterise farming. Agriculture faces production, environmental and socially interrelated problems as it is considered from the economic perspective of scarce resource usage. The challenge associated with such a complex system is the difficulty associated with conducting research within it. The whole-farm systems approach is known to be an adequate tool for this purpose (Shadbolt & Martin, 2005; Du Toit, 2018; and Knott, 2015)

Whenever a change or, in this case, initial investment decision is envisaged, total farm budgets are helpful for evaluation. In such a budget, all aspects of the business are simultaneously taken into account. A total farm budget enables the entrepreneur to calculate certain influential and important financial indicators. These financial indicators may include the solvency, liquidity, cash flow and profitability of the farm business. A whole-farm budget is based on all the characteristics that influence the financial performance of a farming system (Louw, et al., 2013).

3.1.1 The whole-farm systems approach

A system is defined as a grouping of elements contained within a boundary such that the elements within the boundary have strong functional relationships with each other but limited or weak relationships with groupings or elements outside the boundaries (Kelly & Baywater, 2015). The importance of the set of elements and their boundaries used when defining a system cannot be over-emphasised. The entirety and the objectives of the study determine the set of elements and the boundaries of the system. In the context of agriculture, elements and their interrelationships, such as the socio-economical and physical-biological aspects of agriculture, can make for a rather complex system. When dealing with large, complex systems, a multi-disciplinary approach is required.

As explained in Chapter 2, case studies involve a few cases drawing on a wide range of disciplinary knowledge, using in-depth systems knowledge (Crosthwaite, et al., 1997). As with the importance of defining the elements and boundaries when a system is studied, the appropriate inter-balance between disciplines is significant in case study research. In agriculture, a problem will prevail or a question will remain unanswered when one element within the system boundary is analysed in great depth but fails to encompass all the other important elements of the system (Crosthwaite et al., 1997 and Malcolm, 2004). Case studies, therefore, are an appropriate holistic research tool when analysing whole-farm problems or research statements.

There are key conditions that need to be met in order to ensure that the systems approach is suitable for the research (Kelly & Baywater, 2015; Du Toit, 2018):

- In order to analyse or research a system, boundaries need to be set accurately. In essence, the boundary defines the system. Including the correct elements within a system are equally as important as excluding irrelevant elements, and for this reason, boundaries are imperative.
- Everything outside the system's pre-set boundaries is referred to as the systems' environment.
- Understanding the hierarchy of systems within systems is important. All systems have subsystems and form part of a higher level of systems.
- A system has a purpose relating to the boundaries thereof.
- Systems are holism of art. Systems are synergies where the whole systems are bigger than the sum of all the elements within the sets of boundaries.
- In combination with the correct resources, systems transform variable inputs into outputs. Variable input is not to be confused with the resources needed to bring about the transformation.
- Interconnected elements within a system are referred to as the system's components.
- A system's objectives and purpose are achieved by the communication and control of information to the necessary elements within the system's boundaries.

- Systems have emergent properties that are visible only when looking at the system as a whole, rather than at each element individually.

Holistic thinking involves accepting the view that everything is, and can be, connected to everything else. When understanding these nine key conditions and the interrelationship of elements, research and analysis within whole-farm systems can begin.

3.2.2 Case studies containing whole-farm budgets as systems.

Given the use of case studies in agriculture is a familiar concept, in Chapter 2, the rationale how the chosen cases were selected remains. The availability of potential case studies was not considered a problem. However, certain boundaries needed to be set in order to select the case studies that would be relevant. Continuing from Chapter 2, the boundaries for selecting the case studies as well as the selection process are explained next.

The purpose of this research was to examine credit evaluation techniques as utilised by certain commercial credit providers. The information available for each case study needed to reflect the information needed to process the credit application. In other words, before it was possible to select the relevant case studies, the researcher needed to know what commercial agriculture credit providers focus on when evaluating a credit application. These aspects, rules and questions are set out in paragraph 2.3.2, under 'Credit Evaluation'. The essential information needed for credit evaluation derives from the income statement, balance sheet and cash flow statement. All the necessary financial ratios can be calculated from the foregoing statements. The first important consideration for the case selection process entailed considering the hypothesis of the study.

Since the very concept of a case study involves generalising, or does so at least at some point, the correct balance between abstract and real-world problems needs to be addressed. In this study, generalising was limited to assuming that the credit applicant was an emerging farmer looking to expand operations. The real-world balance was achieved by using actual farm financial statements. The credit evaluation was done on face value and was on the date of the application. Generalisation in this study comprises the assumption given for this study's purpose.

When specifying the population for this study, an abstract farm budget was not used, and therefore the use of a typical farm budget model was ignored. The population was limited to commercial farmers looking to expand their farm operations but who needed access to credit in order to realise this expansion. Every credit application is evaluated on its own merit; therefore, abstract budgets have the potential to be biased. Although the population was known, the managerial effects were kept constant, and the budgets were sterile of personal information. Within the population of interest, the

case studies were selected on merit, according to the best use of all socio-economical and physical-biological factors.

As mentioned before, the case studies used the real-life financial statements and cash flow budgets compiled by the manager of each financial entity. Four entities were selected as case studies. The cash flow budgets were compiled based on the historical production of the farm and were sufficiently adapted for increases in input prices and expected yield changes. The budgets used were for single periods, as the impact of credit evaluation was tested for the next production period and complete financial year. The case studies included the balance sheet and income statement for each financial entity.

The case studies were received as Microsoft Excel© spreadsheets. The financial statements, referring to the balance sheet and the income statements, were slightly adapted into a common format. Fundamentally, nothing was changed, and the values reflected in the statements were considered to be correct. The financial entities comprise private companies and, consequently, no statements were audited. The cash flow budgets were also adapted slightly into a more common format; however, the individual characteristics are visible, although sterile from personal information or any other information that could be tracked back to the financial entity.

The information required was purely for the purpose of reflecting on a complete set of financial statements, as all the necessary ratios were derived from the financial statements. It is possible to manipulate the data in a spreadsheet, and the data that could be manipulated included the interest rates applicable on credit and the overdraft of the bank balance, as well as the expected inflation rate for the year 2018. The management was assumed to be typical for a farm in the area. The managerial inputs were assumed to be sufficient to make the production activities effective, but not so good that it would have had an expanded effect on profitability. The four financial entities selected are discussed below.

3.2.2.1 Case study 1.

Located in the mid-Swartland, this financial entity consisted of three neighbouring individual farms in the Boland area, specifically between Malmesbury, Morreesburg and Darling in the Western Cape. The financial entity had two primary farming enterprises, namely wheat and Dohne-Merino sheep. The unified farm comprises a financial entity of more than 2500 hectares in total. The total inventory of sheep was on average above 1700 sheep throughout the financial year, and provided farming income from both the meat sold and the wool sheered. The land and soil quality in this area are not of such a standard that wheat can be produced year-on-year, and therefore, a rotation farming system was introduced; everything was produced without commercial irrigation.

Of the total land area available to be planted, wheat was planted on only 40% of the total area, compromising between 900 and 1200 hectares per year. The remaining 60% of land available was split between Medics (±15%) to supplement the sheep's rations, and planted pastures (±35%). Roads, buildings, barns and employee housing made up the remaining 10% of the total land. Long-term annual rainfall in the area was 300 millimetres per year. Other than for water for household usage and for the animals, a limited infrastructure for water distribution was available.

The gross production value for the wheat enterprise was around R12 000 000 per year, which compromising a gross margin per hectare of around R9 250 annually. Wheat hay was baled, of which 75% was sold commercially and 25% was internally consumed. Of the gross farm income, 80% was attributed to the wheat enterprise and 20% to the Dohne-Merino sheep enterprise. The net farm income (NFI) was just over 53% of gross farm income. Of all the case studies considered; this farm experienced the biggest impact of the drought in the Western Cape. The farm's financial performance was under pressure as a result thereof, and consequently, the cash flow budget for 2018 would be considered even more carefully.

3.2.2.2 Case Study 2

This financial entity compromised only one farm of about 1200 hectares. However, only 200 hectares were planted with stone fruit trees. Of these hectares, 130 were planted with apple trees and 70 with pears. The distribution of the age of the trees was a very important consideration in in the context of the financial analyses. Another important consideration with respect to case study was the effect of the draught in the Western Cape and the negative impact it had on the financial position of the business.

Apple trees that had recently been planted but that were not yet in full production made up 40% of the total number of hectares planted. Of the apple trees, 40% were due for replacement within the next five years, and only 20% were in full production. The financial position of the financial entity would be significantly influenced by the replacement of these trees. Ideally, the replacement would take place at the same pace at which the trees that were not in full production would come into full production. The assumption was made that the replacement would be done at the same pace at which the younger trees were to come into full production.

The pear trees were better distributed and only 34% of the total number of trees planted were due for replacement within the next five years. Of the total number of trees planted, 18% were not yet in full production, and the remaining 48% were in full production. The same assumption was made here: the trees to be replaced would be replaced at the same pace at which the younger trees came into full production. Doing the replacements in such a way would result in the average production of each

enterprise being at the same level yearly. At that stage, the financial entity was not considering cultivating the part of the land that was not planted.

Of the gross production value of this financial entity, the apple enterprise contributed 65%, and the contribution of pears was limited to 35%. The apple enterprise consisted of a larger planted area as well as a higher gross production value per hectare. For both enterprises, the trees not in full production could produce 50% of their full potential, and the trees due to be replaced could produce 70% of their full potential contribution to the gross production value of each enterprise. This gave analysts of the financial position a good indication of the necessity replacing the trees, and a good decision could be made regarding the pace at which the replacement should happen.

3.2.2.3 Case study 3

A financial entity of a totally different kind, this farming system consisted of a mixed-cattle breed enterprise as well as a Dorper sheep enterprise. The farm is situated in the Kalahari part of the Northern Cape, close to the border between South Africa and Namibia, and comprises an individual farm of more than 3800 hectares, all of which is extensive grazing land. The grazing capacity of the land was thus carefully considered. For each unit of cattle, 18 hectares was needed, and for each unit of sheep, three hectares was needed.

A grazing capacity for mixed cattle of one unit of cattle on every 18 hectares and one unit of sheep on every three hectares, meant that the farm could carry either 214 units of cattle (LSU) or 1284 units of sheep (SSU). This is consistent with the minimum grazing capacity set out by Dr Meissner of the Red Meat Processors Organisation (RPO) and the Department of Agriculture, Forestry and Fisheries (DAFF) (DAFF, 2014). Depending on the gross production value of each LSU and SSU, the optimal distribution between cattle and sheep could be calculated. However, this farm kept the distribution constant at 94 units of cattle and 830 units of sheep. Although this seemed too high, in terms of the grazing capacity, each unit of livestock could have a different impact on the land: lambs, for instance, count as only 0.53 SSU, whereas a rams count as 1.53 SSU.

The gross production value attributed to sheep production accounted for 68% of the total gross production value. The remaining 32% of gross production value was contributed by cattle.

3.2.2.4 Case study 4

This financial entity was the only entity in the study that consisted of three enterprises, not two, like the foregoing entities discussed. The farming entity – situated in the Overberg area, close to the town of Heidelberg in the Southern Cape – consisted of a Merino sheep enterprise, a wheat enterprise and a barley enterprise. The total farm size was 1600 hectares, of which 1300 were cultivated. Of these

1300 hectares, 500 were planted yearly with wheat, 300 with barley and the remaining 500 were used for sheep farming. Thus, not the entire 1300 hectares were planted yearly.

Of the total gross production value, 26% was contributed by the sheep enterprise, 33% by the barley enterprise and 41% by wheat. The NFI for this financial entity was below 8% of total gross production. After compulsory capital repayments were subtracted, the financial entity made a net farm profit of R560 per hectare. Its financial performance was under severe pressure in recent years, as the whole of the Western Cape had experienced a draught for the past three production seasons. This farm also experienced the effects of the draught.

3.3 Credit providers and methods of evaluation used

Chapter 2 shed light on the National Credit Act No. 34 of 2004 and the regulations that govern credit-granting practices in South Africa. It is apparent that agricultural finance in South Africa has undergone a number of changes since the turn of the century. Commercial agricultural credit providers have become major role players in the market since then (Louw, et al., 2013). Agribusinesses, which take a slightly different approach to agricultural finance, are now also an influential market player. Although the regulations and norms relating to agricultural finance are the same for all agricultural credit providers, there are still differences in the way agricultural credit providers evaluate the merit of each credit application.

A total of three different agricultural credit providers were selected. Two of the agricultural credit providers are also commercial banks, whose loan books are not limited to agricultural credit. The third one is an agribusiness that extends its credit available – consisting predominantly of shorter-term credit for purchases of production inputs – mainly to its members. The selection of these agricultural credit providers was based primarily on availability.

3.3.1 Commercial bank 1

The first commercial bank's method considered for evaluating agricultural credit applications was theoretical, and based on the book *Finance and Farm Management,* by Louw, et al. *(2012).* This particular book was originally written for farmers; however, it has become a respected reference and textbook for students at many universities and agricultural colleges across South Africa (Louw, et al., 2013). Since it is also used for teaching purposes in Agricultural Economics at Stellenbosch University, the financial ratios and the norms (benchmarks) associated with them, as described in it, are a constructive point of departure for the purpose of the study. The textbook highlights the important role commercial banks play in the supply of agricultural finance. As each bank, and other credit institution, has its own credit policy, which complements the National Credit Act No. 34 of 2004 and

the requirements of the Banking Act, it is noteworthy how credit evaluation practices vary among some of the predominant agricultural credit providers in South Africa.

In Chapter 4 of Louw, et al. (2013), one of the main uses of financial statements is as the basis of analyses of farming results using financial ratios. These ratios are comparable to certain rule-of-thumb (norms, benchmarks and rule-of-thumb are used interchangeably throughout the literature; in this study the term 'rule-of-thumb' is preferred, as it is explained in Chapter 4 of Louw, et al. (2013). Here, it is stated that the interpreter of the rule-of-thumb for the ratios should consider certain aspects, such as the age of the farmer, that farms in different regions may differ, that different enterprises within the same region may also differ and that one year may be completely different from the next. Considering the rule-of-thumb in the aforementioned book, this study aims to conclude that even farm business that comply with all of these rule-of-thumb may still not be granted additional agricultural credit by some of the leading agricultural credit providers in South Africa. The ratios are divided into five categories, with a different number of ratios explained for each category.

The first category refers to the solvency of a farm business, and four measurements are most generally used in this category. Liquidity is the second category, for which there are three measurements. This is followed by the profitability category, the third category, for which there are two measurements. For the fourth category, the efficiency category, there are two measurements that are used most often. For the debt servicing category, the fifth category, only one measurement is discussed. Only some of the 12 measurements across four categories will coincide with the 16 prescribed by the Farm Financial Standards Council (2011). For the purpose of this study, a comparison was not made between the measurements found in the Farm Financial Standards Council's (2011) recommendations and the measurements discussed in Louw, et al. (2013) (refer to Chapter 2 for the definitions of the categories).

The first of the four measurements for solvency is the net capital ratio. This ratio is calculated by dividing total assets by total liabilities (total assets/total liabilities). It gives an indication of whether or not all financial responsibilities will be met if the assets are sold at a certain point in time. A ratio where total assets exceed total liabilities by two times or more is the rule-of-thumb for this measurement. The greater the risk, the higher should this ratio be in order to withstand financial hardship.

The leverage ratio in Louw, et al. (2013), not to be confused with other leverage ratios used by other agricultural credit providers, is calculated by dividing total liabilities by own capital (total liabilities/own capital). The measurement indicates to what extend the equity of the business was used to finance the assets of the business. For instance, for each R1 of private equity invested, how

much foreign capital was provided by an agricultural credit provider? The rule-of-thumb for this ratio should be less than 1:1, implying that 50% of the assets of the farm were financed by own capital. The cost of capital also have an influence on the level of sustainability of this ratio.

The own-capital ratio, calculated by dividing own capital by total assets (own capital/total assets) is closely related to the leverage ratio mentioned above. The entrepreneur's own contribution is reflected in this ratio. For a sound financial position, a rule-of-thumb should be 0,5:1. Again, considering the cost of foreign capital and the risk involved in the specific farm business, the ratio could be required to be even higher. Trying to improve this ratio will have a direct effect on the leverage ratio mentioned above.

The growth of the farm business is calculated by dividing the increase (or decrease) in net worth at the end of the year by the net worth at the beginning of the year, multiplied by 100 (net worth end of the year – net worth beginning of the year/net worth beginning of the year * 100). The net worth of the business is the same as the own capital of the business. In other words, if all the assets of the business were to be sold for the price that is reflected in the balance sheet, and all liabilities were to be immediately settled, how much would the shareholders of the business receive, before taxes? For the business to be considered an attractive investment, this ratio, expressed as a percentage should exceed inflation. The own capital of the business should grow by at least 0% in real terms.

As with solvency, liquidity measurements are also calculated from the balance sheet. The first, and most often used, liquidity measurement is the current ratio. Calculated by dividing total current assets by total current liabilities (total current assets/total current liabilities), this ratio is an indication of how quickly current liabilities will be completely settled. Considering the risk involved, a safe ratio is 2:1 which means current assets are twice the value of current liabilities. It often happens that farm businesses which have a strong solvency are forced to liquidate because they are unable to meet their current responsibilities, and run into cash flow problems. In the current economic climate, the importance of a healthy current ratio cannot be over-stated.

The acid test ratio is similar to the current ratio, with the exception that stocks and supplies are subtracted from total current assets before it is divided by the current liabilities (total current assets – stocks and supplies/total current liabilities). The current ratio measures the liquidity of the farm business within the current financial year. On the other hand, the acid test ratio measures the immediate liquidity by excluding items that will take time to be converted into cash. Careful analysis of this ratio is necessary, as a ratio that is too high means that a large portion of capital is not being effectively employed. A ratio of 1:1 is considered to be a rule-of-thumb for this measurement.

The intermediate ratio is a measurement of the liquidity in the medium term of the farm business. This ratio is calculated by dividing the total short- and medium-term assets by the total and medium-term liabilities (total and medium-term assets/total and medium-term liabilities). Not all farm businesses distinguish between the medium- and long-term aspects of the balance sheet; however, it is an important consideration as certain farm assets are financed specifically over a five- to ten-year period. Tractors and implements or similar capital expenditure such as for dams and sheds could be financed and paid off over the medium term, rather than over the short or long terms. A rule-of-thumb for this measurement is 4:1 or even higher.

Farm profitability, also referred to as return on assets (RoA), is calculated by expressing the net farm income (NFI) as a percentage of the average total assets employed in the farm business during the specific financial year (net farm income/average total assets). This is the measurement most often used to measure profitability in agriculture. It is also an excellent basis for comparison between different farm businesses or enterprises, as it includes the value of rented land or land used for sharecropping. The rule-of-thumb for this ratio is not a specific number; however, it could be used to compare the year-on-year growth of the farm business solvency indicator, as well as its profitability in previous years. By comparing this percentage with those of previous financial years, deficiencies and shortcomings could be identified and addressed in good time.

Louw, et al. (2013) does not address the rule-of-thumb for all the profitability and efficiency ratios. Where rule-of-thumb are not available, financial ratios could be compared with similar financial ratios for other farming enterprises in a similar area or for the same farming enterprise in a different financial year. With the case studies in this study, the only financial information available was for the last two financial years, and therefore, it was not possible to calculate these financial ratios for the same enterprise in a different year. It was also not considered prudent to compare these ratios with the other case studies in this research, as they were entirely different enterprises in different agricultural sectors, and involving different ways of farming. As this bank concerned had substantial financial information available for each agricultural sector and area, it would have been possible for them to make a comparison between enterprises (Louw et al., 2013).

The profitability of own capital (net worth), also known as the return on equity (RoE), is calculated by expressing farm profit as a percentage of average total own capital (farm profit/average own capital *100). A vital consideration with regard to this measurement is that it employs farm profit, as opposed to net farm income, as is the case with the RoA ratio. The interest that the shareholders earned in the specific financial year is reflected by this measurement. Considering the risk involved in the investment, the shareholders of a farm business should get higher or equal interest than what they

would if their capital were invested in a monetary fund. In this study, the prime interest rate is considered to be reasonable.

The capital turnover ratio is an indication of how effectively all capital, foreign and own equity, is being employed in the farm business. This measurement is calculated by dividing gross production value by average total capital (gross production value/average total capital employed). The greater the ratio, the higher the capital turnover and, consequently, the more effective the employment of total capital. Agriculture, generally, is characterised by a relatively low capital turnover ratio compared with other sectors of the economy. No rule-of-thumb is available for this ratio; however, the more intensive the farming enterprise, the higher the ratio should be.

The cost ratio is calculated by dividing total expenditure by gross production value (total expenditure/gross production value). This is one of only a few ratios that are not at all influenced by the valuation of total assets. The private expenditure of the shareholders is also not included in total expenditure. This ratio is useful because it provides an indication of the profit margin that the farm business realises. Knowing the actual profit margin is appreciated in agriculture where the farm business produces numerous different products for the market, all with different profit margins.

The debt servicing ratio measures the ability of the business to meet its scheduled debt instalments from the gross production value of the farm. This ratio is calculated by dividing total debt repayments by gross production value (total debt repayments/gross production value). Total debt repayments include all instalments as well as interest on debt. A higher debt servicing ratio will result in the business facing financial pressure to maintain its repayments of debt. This ratio could also be determined from the cash flow statement.

3.3.2 Commercial bank 2

A large role player and household name in agricultural finance in South Africa, this bank has significant exposure to agriculture in South Africa. Certain ratios and considerations used by this commercial bank are vastly different to the evaluation methods utilised in the textbook for the ‘first commercial bank’. This bank emphasised that there are numerous ratios available and that these can differ from one commercial bank to the next, and even for different agricultural sectors in the same commercial bank. The information received from this commercial bank was the ratios most frequently utilised in agricultural credit evaluation (Hoffmann, 2018). The contribution of this commercial bank was constructive simply because of its unique methods for considering agricultural finance applications.

For this agricultural credit provider, the point of departure is mostly a sound and detailed cash flow budget. There are two reasons as to why a cash flow budget is so important. Firstly, to analyse the

repayment capacity; in other words, does the prospective investment project have a surplus or a shortage of cash flow? Secondly, the bank makes a credit needs assessment based on the information available in the cash flow budget projection. The bank evaluates the credibility of the assumptions based on the farmers' cash flow projections. These projections include both the income and the production cost assumptions.

The bank also needs to determine how realistic the assumptions are based on the historical data based on the historical data for other similar enterprises in area. The cash flow budget is compared with the financial statements to assess whether or not the historical data on the area are comparable with the specific farms' ability and track record. The credibility of the assumptions are further tested with resilience tests and or stress tests to evaluate how the projected cash flow budget reacts to a reduction of possible income or a sudden increase of production costs. A credit application could be declined due to the results of a resilience test showing that the payback capacity of the farm is not acceptably above the risk.

Although a thorough evaluation of the cash flow budget is the point of departure for the evaluation process, this commercial bank regards the EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortization) measurement as the most important measurement in the credit application. EBITDA considers earnings prior to interest, income taxes, depreciation and amortization. Commercial financiers often begin with EBITDA as a source of repayment capacity and then compare this with the total interest and instalments payable to the lenders. Recurring withdrawals and/or income taxes are often subtracted from EBITDA to arrive at the repayment capacity for commercial analysis; thus Earnings before interest, taxes, depreciation and amortization (EBITDA) = Net farm income from operations + Interest expense + Depreciation expense+ Amortization expense.

According to the Farm Financial Standards Council (2011), there are two limitations to the use of this measurement. Firstly, because there are different ways in which EBITDA could be calculated, it could be that commercial agricultural credit providers might overlook ownership withdrawals. Secondly, the measurement could be considered to be cash flow to the business, but it is not: this measurement includes non-cash items as well. Neither of these limitations has to be a threat to a improper measurement, assuming the credit evaluation officer has the necessary knowledge of the measurements, and is thus aware of their limitations.

The EBITDA amount has three possible uses: it could be used by farm businesses to repay their liabilities, to pay the entrepreneur or to pay taxes. A combination of the three is also possible. In South Africa, tax is often managed at the EBITDA level. This commercial bank interprets EBITDA as net farm

income (NFI). EBITDA is also used by this bank in calculating the other measurements under consideration. The EBITDA is used in all of the ratio calculations that follow.

A leverage ratio is employed next. What is important to note here is that this commercial bank uses the term *leverage* for a different ratio than does the book *Finance and Farm Management (2013)*. This ratio is calculated by dividing the total farm debt by EBITA (Total farm debt/EBITDA). The bank considers projected EBITDA for this ratio if the credit applicant wishes to borrow to acquire new land. This ratio is considered safe by the bank when the total farm debt does not exceed EBITDA by more than four times; in other words, total farm debt: EBITDA should be 4:1 or less.

The interest cover, next in the process of evaluating a credit application, measures the period of time that EBITDA could be used to repay interest only. This ratio is calculated by dividing EBITDA by the total amount of interest payable (EBITDA/total interest payable). Depending on the size of the business, if EBITDA exceeds total interest by more than three times, the bank will consider it safe. In some cases, the bank does allow for EBITDA to be just two times more; however, discretion is key. For the purpose of this study, a ratio of more than three times is acceptable, but no less.

Finally, the bank considers a debt repayment ratio, called the Debt Servicing Ratio. Again, using EBITDA, this ratio is calculated by dividing EBITDA by the total debt repayments scheduled for the next year (EBITDA/Total debt repayments scheduled). This ratio should not be less than 1.35. In other words, EBITDA should be more than enough to make all the scheduled instalment repayments. : In analysing this ratio, it becomes apparent that the correct combination of short- and long-term credit is crucial for effective credit management.

3.3.3 Agribusiness

Agricultural credit for production purchases is granted to the members of agribusinesses by funds from the central development bank and overdraft facilities made available by the commercial banks. This agribusiness was selected because in the Western Cape, they are a significant market participant across most agricultural enterprises. However, within the context of the whole of South Africa, their presence is less significant. The expectation was that the availability of credit and the terms of the loans granted by this agribusiness would differ from those granted by the commercial banks, as its credit extension consists mainly of short-term credit for production purchases.

The result of interviews with this credit provider was as expected: the credit facilities provided are kept to movables and short-term production loans. Although credit has been, in extraordinary cases, provided only for purchasing agricultural land, this is not considered to be within their credit mandate. Hard lessons have been learned in this regard, but since it was the exception rather than the rule, the

financial implications for this agribusiness have been kept to a minimum. As this agribusiness has a significant influence in the Western Cape, especially in the grain-producing areas, the recent draught in the area has also influenced their financial position and credit criteria. This was demonstrated by the way in which this agribusiness made it their mission to help farmers – as much as was possible – whose finances had been hit by the draught.

Because of the severe draught, this agribusiness had a bad debt percentage of 10% of its total loan account to farmers. The consequence of the bad debt was that this agribusiness had to find different ways of collecting the debt over a period of three years. It was not the agribusinesses' objective to make money on the interest paid by the farmers, but rather to keep them on their farms and to make money from, among others, selling and storing their grain. This agricultural credit provider has extremely competitive interest rates that differ in relation to the specific risk involved in the finance. The interest rates for the subsequent production season are influenced the collateral provided by the farmer for the debt carried over to the following years.

With reference to the production credit facilities made available by this agricultural credit provider, the possibility exists of it providing 100% of the capital required for production purposes. The primary collateral for this production loan, also referred to as a cession, is the specific product being financed. However, only 75% of the expected yield, based on a three-year average that included the draught period, would have been acceptable. If the loan amount still exceeded the collateral, especially when bad debt from previous years was still present, other cash and cash equivalents would be used as collateral for the remaining amount. When the produce is harvested, the full amount due would be deducted from the yield, after which the remaining amount would be transferred to the farmer.

This agribusiness also finances movables such as the necessary pick-up trucks, tractors and other equipment. Again, a slightly different approach is followed in this regard. This vehicle or equipment finance is payable only at the end of each production period, and not on a monthly basis, as might be the case for other vehicle finance. However, the collateral for this loan is often the asset itself being financed.

3.4 Main differences between credit providers

From the above-discussed methods implemented by the agricultural credit providers, as the information was made available, it is evident that the differences are significant. The first commercial bank uses conservative, and possibly outdated, methods to evaluate credit applications. These methods are considered a guideline for farmers in practice. However, the outdated literature in this regard could be a further reason for why farmers are often unsure and uneducated about what to include and what to focus on in credit applications. According to the Farm Financial Standards Council

(2011), many limitations on the ratios used by the first bank can be found; however, this is not within the scope area of this study.

The second commercial bank used completely different ratios, mostly based on a combination of information from the income statements and the balance sheet. The first commercial bank used information primarily from the balance sheet. Refer to Chapter 2 for further examples of the limitation of this phenomenon. Furthermore, the second commercial bank also emphasised the importance of an individual evaluation of the specific farm or farm managers' credit record and relationship with the bank. Between these two agricultural credit providers, the number of ratios evaluated differed considerably which provides another reason why a combination of information from the income statement and the balance sheet is so significant.

Another significant difference between the two commercial banks considered was the different leveraging ratios. Both their calculations and their rule-of-thumb were different, and consequently, the implementation of the ratios was different. The first ratio was calculated only from the balance sheet. The second leverage ratio was calculated from both the income statement and the balance sheet. The only agreement between the two ratios was the inclusion of total liabilities. Table 3.1, below, shows the calculations of each financial ratio for consideration, as well as the relevant financial rule-of-thumb, when applicable, for each financial ratio.

Table 1: Financial Ratios and appropriate rule-of-thumb summarised.

Name of Ratio	Calculation method	Rule-of-thumb
Net capital ratio =	Total assets / Total liabilities	2,00 : 1
Leverage ratio **(1)** =	Total liabilities / Own capital (net worth)	1,00 : 1
Own capital ratio =	Own capital (net worth) / Total assets	0,50 : 1
Growth of business =	Net worth (yr. 2) - Net worth (yr. 1) / Net worth (yr. 1)	5,26%
Current ratio =	Current assets / Current liabilities	2,00 : 1
Acid test ratio =	Current assets - stock and supplies / Current liabilities	1,00 : 1
Intermediate ratio =	Current assets + medium / Current liabilities + medium	4,00 : 1
Farm profitability (return on assets) (RoA)		
Average total capital employed =	Opening capital + Closing capital / 2	Unavailable
Farm profitability =	Net farm income / Average total capital employed	
Profitability of own capital (return on equity) (RoE)		
Average own capital =	Opening own capital + Closing own capital / 2	Unavailable
Profitability on own capital =	Farm profit / Average own capital	
Capital turnover ratio =	Gross production value / Average total capital employed	Unavailable
Cost ratio =	Total expenditure / Gross production value	Unavailable
Debt-servicing ratio =	Debt redemption (instalment + interest) / Gross production value	Unavailable
Leverage Ratio **(2) =**	Total liabilities / EBITDA	4
Interest Cover Ratio =	EBITDA / Interest	3
Debt Service Ratio =	EBITDA / Loan Payments	1,35

Source: (Hoffmann, 2018 and Louw, et al., 2013)

The agribusiness, on the other hand, does not consider any financial ratios when evaluating a loan. The only consideration is the possible yield on the produce and production facilities over an average of a period that included the severe draught in the specific area. Their way to effectively accommodate farmers' negative financial positions after the draught was to also implement this approach when an application was made for a new production loan.

3.5 Conclusion

Having identified case study research as a practical tool for this study, and having discussed and reviewed it in Chapter 2, in this chapter each case study is individually considered. Different case studies and the relevant information for each case study are also discussed. As previously mentioned, all of the case studies in this research are sterile of personal information, and it is highly unlikely that the reader will know who the farm managers and owners in each case study enterprise were. Financial budget models and simulation are discussed, as they apply to the financial statements of each case study enterprise, and are available in the Appendix.

The agricultural credit providers studied in this research are introduced in this chapter, and critical information is provided on their individual credit evaluation methods, which are also discussed. Assessing the accessibility of agricultural credit to commercial agricultural farms is an important part of the main research statement: Assessing the accessibility of agricultural credit for South African primary commercial agricultural producers over various enterprises in various production areas after the introduction of the New Credit Act in 2006.

In this chapter a concise description of the case studies and the agricultural credit providers is given, by discussing each one individually.

The last part of the chapter comprises a summary of the main differences between the agricultural credit providers in the form of a table. It is this table that forms the basis for the next chapter. In it, the information is used to consider each case study enterprise's credit application from each credit provider's perspective. Each case study's financial ratios are discussed and, subsequently, these ratios and their values are translated into what they mean in terms of accessibility when agricultural credit is assessed.

Chapter 4: Implications and Credit Evaluation

4.1 Introduction

In this chapter, all the relevant findings and research are combined in order to arrive at a conclusion relative to the hypothesis. The main idea of the study was to establish whether agricultural credit providers have changed the way in which they conduct evaluations of credit applications. This possible change is especially relevant after the National Credit Act No. 34 of 2005 was introduced. The hypothesis was that agricultural credit providers do use different approaches to evaluate a credit application than the literature suggests. A short summary of the previous chapters follows, as well as an introduction of the subsequent sections.

A review of the relevant literature was conducted in order to lay the groundwork for the research; these observations are reported in Chapter 2. The literature review started with an identification of the necessary financial analyses and how they are appropriate to agriculture in South Africa. A brief overview of the credit evaluation process is also discussed, as it is found in the literature. The National Credit Act No. 34 of 2005 is then analysed, especially from the point of view of why South Africa pursued such a drastic change in legislation. Important light is shed on the difference between land market value and agricultural production value, also referred to as the income capitalisation method.

Since this study followed a case study methodology, the methods, principles and limitations to case studies were also reviewed, and are discussed in Chapter 2. After an introduction in Chapter 3, the whole-farm systems approach as it applies to whole-farm budget models is discussed. The necessary conditions were met in order to conduct the research. The case study selection process is discussed and the relevant case studies are introduced. The agricultural credit providers are also discussed, and the methods for credit evaluation are introduced. Before the conclusion in Chapter 3, a summary is provided of the main differences in the methods used by credit providers.

In this chapter, each case study's financial ratios, where applicable, are introduced separately. The agricultural credit providers' answers were tested as far as possible against the available financial information. The implications are discussed, as they are relevant to farmers who are looking to extend operations by using credit. The impact of the New Credit Act is also be briefly discussed in order to provide readers with information on how it protects consumers more than financiers.

4.2 Credit providers' answers

Three agricultural credit providers were selected, based on different criteria. Two of the credit providers are commercial banks, whose main source of funds to lend to agricultural producers is the South African Reserve Bank. The third agricultural credit provider is a local agribusiness in the Western

Cape region. All of the agricultural credit providers used in this study take different approaches to agricultural credit in South Africa, in spite of being regulated by a single credit act.

For each case study, a sheet was assembled with the relevant financial ratios that are applied by the two banks involved in the study. The agribusiness uses a different approach, entailing a method other than applying financial ratios. In the section that follows, the relevant financial ratio sheet is shown, followed by an explanation. A discussion on each case study follows, which also provides the outcome of the credit evaluation. The purpose of this study was not to calculate precisely how much credit could be made available for each case.

4.2.1 Case study 1

Case Study 1 refers to a group of neighbouring farms in the mid-Swartland, Western Cape, South Africa, operated under one financial entity.

Table 2: Financial ratios for Case Study 1

Name of Ratio	Calculation	Ratio	Rule-of-thumb	Safe or Unsafe
Solvency ratios				
Net capital ratio	R 35 346 164 / R 11 126 51	3,18 : 1	2,00 : 1	safe
Leverage ratio **(1)**	R 11 126 513 / R 24 219 651	0,46 : 1	1,00 : 1	safe
Own capital ratio	R 24 219 651 / R 35 346 164	0,69 : 1	0,50 : 1	safe
Growth of business	R 3 196 255 / R 21 023 396	15,2%	5,26%	safe
Liquidity ratios				
Current ratio	R 2 597 091 / R 1 589 285	1,63 : 1	2,00 : 1	unsafe
Acid test ratio	R 2 234 157 / R 1 589 285	1,41 : 1	1,00 : 1	safe
Intermediate ratio	R 10 683 889 / R 7 082 418	1,51 : 1	4,00 : 1	unsafe
Profitability ratios				
Farm profitability (return on assets) (RoA)				
Average total capital employed	R 71 122 527 / 2	35 561 264	Unavailable	no comment
Farm profitability	R 5 609 646 / R 35 561 263	15,8%		
Profitability of own capital (return on equity) (RoE)				
Average own capital	R 45 243 047 / 2	22 621 524	Unavailable	no comment
Profitability on own capital	R 3 196 255 / R 22 621 523	14,1%		
Efficiency ratios				
Capital turnover ratio	R 10 791 567 / R 35 561 263	0,30 : 1	Unavailable	no comment
Cost ratio	R 5 181 920 / R 10 791 567	0,48 : 1	Unavailable	no comment
Debt-servicing ratio	R 2 937 156 / R 10 791 567	0,27 : 1	Unavailable	no comment
Other Ratios				
Leverage Ratio **(2)**	R 11 126 513 / R 6 682 422	1,67 : 1	4	safe
Interest Cover Ratio	R 6 682 422 / R 2 413 391	2,77 : 1	3	unsafe
Debt Service Ratio	R 6 682 422 / R 2 937 156	2,28 : 1	1,35	safe

Source: (Schoeman, 2018a)

4.2.1.1 Bank 1

This financial entity, consisting of three farms, had – according to the financial ratios considered in Louw, et al. (2013), under 'Solvency' – a very strong balance sheet. All of the first four ratios in the table above are considered as being safe in terms of the prescribed rule-of-thumb. The conclusion from the solvency ratios is that the farm has a very sound long-term financial position, and assets exceed liabilities. In the long-run, the farm would be able to successfully sell all of its assets to cover its liabilities. Although this is a good financial position to be in, the short-term financial position could still be viewed as being problematic, in spite of the long-term financial position.

In this case, the liquidity of the enterprise was considered to be problematic, with two of the three financial ratios considered to be unsafe in terms of the applicable rules-of-thumb. Current assets did not exceed current liabilities by two times, which is the prescribed amount, and the current and medium-term assets did not exceed current and medium-term liabilities by four times. However, the acid test ratio was considered to be safe. This effectively means that the stock and supplies, which cannot be converted to cash immediately, were insufficient and the remaining current assets were more than enough to cover the current liabilities. Careful consideration of this ratio is important as an acid test ratio that is too high means that large amounts of capital are not being used productively (Louw et al., 2013, p. 66).

Making a recommendation on whether or not this enterprise should be granted more credit for upscaling production was not simple. In this case, the effect of the draught could be seen in the low liquidity of the enterprise. It was possible to secure the additional security for additional credit from the balance sheet; however, the credit obtained would need to be utilised to improve the liquidity. Using the wrong type of financing for the wrong assets or production inputs over the wrong time period is considered by Louw, et al. (2013) to be highly problematic. Therefore, in this case, more expertise was needed to make a decision and to develop a method to structure additional credit, or to completely restructure the farming enterprise.

4.2.1.2 Bank 2

Of the three ratios considered in evaluating an application by this bank, given under 'other ratios', two of this case study's financial ratios were considered to be safe and one was considered to be unsafe. For the leverage ratio total liabilities divided by EBITDA, this enterprise was well below the level viewed as problematic. Furthermore, EBITDA was more than two times higher than the debt repayments for the particular financial year. However, the interest cover ratio was problematic.

This bank would be cautious also to further extend the financial exposure of this farming enterprise; the high amounts of interest that would have to be paid would have a negative effect on its liquidity,

and this was reflected in the liquidity ratios considered by the first commercial bank for this case study. More financial assistance could be made available to this farming enterprise; however, proper expertise in completely restructuring its financial position was strongly recommended. Restructuring would especially be recommended considering that this enterprise was still feeling the effects of the severe draught in the area over the two years prior to the last available financial statements.

4.2.1.4 Production credit provider

For this agricultural credit provider, the financial ratios considered by the commercial banks were irrelevant and, for the enterprise concerned, this could be a solution to its problem. With the evaluation method employed by this provider, this enterprise could be granted credit to secure all the necessary short-term production inputs needed to successfully produce at an efficient level, should the draught and other environmental factors not pose a problem. If all the needed production inputs were available and successfully employed in the potential production of the enterprise, the enterprise could realise more profit. More profit would translate into a higher EBITDA margin and, effectively, a better liquidity position.

4.2.2 Case study 2.

Case study 2 refers to a stone fruit farm near the Theewaterkloof Dam in Villiersdorp, Western Cape, South Africa.

Table 3: Financial ratios for Case Study 2

Name of Ratio	Calculation	Ratio	Rule-of-thumb	Safe/Unsafe
Solvency ratios				
Net capital ratio	R 148 145 724 / R 25 422 739	5,83 : 1	2,00 : 1	Safe
Leverage ratio **(1)**	R 25 422 739 / R 122 722 984	0,21 : 1	1,00 : 1	Safe
Own capital ratio	R 122 722 984 / R 148 145 724	0,83 : 1	0,50 : 1	Safe
Growth of business	R 25 699 869 / R 97 023 115	26,5%	5,26%	Safe
Liquidity ratios				
Current ratio	R 21 429 290 / R 1 185 623	18,07 : 1	2,00 : 1	Safe
Acid test ratio	R 21 429 290 / R 1 185 623	18,07 : 1	1,00 : 1	Safe
Intermediate ratio	R 34 506 357 / R 4 176 833	8,26 : 1	4,00 : 1	Safe
Profitability ratios				
Farm profitability (return on assets) (RoA)				
Average total capital employed	R 274 435 046 / 2	R 137 217 523	Unavailable	No Comment
Farm profitability	R 28 902 324,01 / R 137 217 523,33	21,1%		
Profitability of own capital (return on equity) (RoE)				
Average own capital	R 274 435 046 / 2	R 137 217 523	Unavailable	No Comment
Profitability on own capital	R 26 119 869 / R 137 217 523	19,0%		
Efficiency ratios				
Capital turnover ratio	R 51 752 928 / R 137 217 523	0,38 : 1	Unavailable	No Comment
Cost ratio	R 22 850 604 / R 51 752 928	0,44 : 1	Unavailable	No Comment
Debt-servicing ratio	R 4 033 203 / R 51 752 928	0,08 : 1	Unavailable	No Comment
Other Ratios				
Leverage Ratio **(2)**	R 25 422 739 / R 34 389 751	0,74 : 1	4	Safe
Interest Cover Ratio	R 34 389 751 / R 2 782 454	12,36 : 1	3	Safe
Debt Service Ratio	R 34 389 751 / R 4 033 203	8,53 : 1	1,35	Safe

Source: (Schoeman, 2018b)

4.2.2.1 Bank 1

This case's farming enterprise is in a financially safe position considering all the relevant financial ratios employed by this bank. This is a heavily invested financial enterprise with total capital of about R150 000 000. It is in such a good financial position that it is difficult to foresee any reason why additional credit would be needed. However, with reference to Chapter 3, that 40% of the apple trees and 34% of the pear trees were due for replacement within the next five production years, would have had a substantial impact on the financial position of the enterprise. It would have been wise for the manager to have gradually started replacing the trees. It would also have been wise to have replaced the trees at the same rate as the newly replaced trees came into full production, in order to service the liabilities in a proper manner.

This commercial bank could have been interested in investing further in this farming enterprise as all the relevant ratios evaluated were considered to be safe. There were two important aspects to have been considered by the manager when the replacements were planned. Firstly, a decision would have had to be made about whether or not equity would be used for the replacements. This is a planning process not discussed in this study, as the assumption was made that the enterprise would not make use of equity and that credit would be utilised. Secondly, the commercial bank would have needed to see the full period of the replacement process through with the enterprise. It would have been to the disadvantage of both the bank and the enterprise if the bank did not see the full period of the replacement process through.

4.2.2.2 Bank 2

For the second commercial bank, this enterprise would also have been an attractive enterprise to provide with credit. To say that all the financial ratios considered could have been regarded as being at safe levels would have been somewhat of an understatement. The total liabilities were less than the EBITDA, which resulted in a leverage ratio (2) of less than one, where the bank would have considered an application with a ratio as high as 4:1. In other words, keeping the EBITDA at the level that it was, total liabilities could have been as high as R137 559 005. Considering only this ratio could be translated into the bank providing enough credit for a prospective farmer to finance the whole farming enterprise only from credit; this considering the balance sheet for this case study and that total assets were R148 145 724 – see the Appendix.

However, the abovementioned ratio was not the only one to be considered, and the credit instalment payable on such a high amount of credit would have had a negative impact on the EBITDA ratio. The interest cover ratio was also at an extremely high level, as was the debt servicing ratio. With his in mind, it was difficult to foresee a credit application reflecting such a good financial position not being granted further financial assistance from a bank, provided thorough replacement planning was done.

4.2.2.4 Production credit provider

For this case study, even though the banks would have been interested in extending the credit exposure to this enterprise, a production credit provider would not have been considered a totally irrelevant option. Because the production credit provider would have considered the possible total produce of the farm, it could have been considered an additional option for production credit, should the liquidity of the enterprise have become problematic with the process of replacing the tress. The question of whether or not this credit provider would have invested in an agricultural sector so different from its focus area remains unanswered. However, provided that they would have invested in the stone fruit industry, it would have been difficult to foresee any reasons why credit would not have been made available by this credit provider to this financial enterprise.

4.2.3 Case study 3

Case Study 3 refers to an extensive livestock farm in the Kalahari district, Northern Cape, South Africa.

Table 4: Financial ratios for Case Study 3

Name of Ratio	Calculation	Ratio	Rule-of-thumb	Safe/Unsafe
Solvency ratios				
Net capital ratio	R 10 791 533 / R 4 062 681	2,66 : 1	2,00 : 1	Safe
Leverage ratio **(1)**	R 4 062 681 / R 6 728 851	0,60 : 1	1,00 : 1	Safe
Own capital ratio	R 6 728 851 / R 10 791 533	0,62 : 1	0,50 : 1	Safe
Growth of business	-R 3 948 / R 6 732 800	-0,059%	5,26%	Unsafe
Liquidity ratios				
Current ratio	R 703 723 / R 923 590	0,76 : 1	2,00 : 1	Unsafe
Acid test ratio	R 29 083 / R 923 590	0,03 : 1	1,00 : 1	Unsafe
Intermediate ratio	R 2 375 533 / R 2 439 538	0,97 : 1	4,00 : 1	Unsafe
Profitability ratios				
Farm profitability (return on assets) (RoA)				
Average total capital employed	R 21 575 683 / 2,00	10 787 842	Unavailable	No Comment
Farm profitability	R 399 326 / R 10 787 841	3,702%		
Profitability of own capital (return on equity) (RoE)				
Average own capital	R 13 461 651 / 2,00	6 730 826	Unavailable	No Comment
Profitability on own capital	-R 16 464 / R 6 730 825	-0,2%		
Efficiency ratios (2017)				
Capital turnover ratio	R 787 972 / R 10 787 841	0,07 : 1	Unavailable	No Comment
Cost ratio	R 388 646 / R 787 972	0,49 : 1	Unavailable	No Comment
Debt-servicing ratio	R 836 475 / R 787 972	1,06 : 1	Unavailable	No Comment
Other Ratios (2017)				
Leverage Ratio **(2)**	R 4 062 681 / R 504 742	8,05 : 1	4	Unsafe
Interest Cover Ratio	R 504 742 / R 415 791	1,21 : 1	3	Unsafe
Debt Service Ratio	R 504 742 / R 836 475	0,60 : 1	1,35	Unsafe

Source: (Schoeman, 2018c)

4.2.3.1 Bank 1

Considering the solvency ratios of this farm, although the long-term financial position of the case study enterprise was considered safe, the growth of the business was negative. In the long term, the enterprise would be able to repay all liabilities; however, if the growth of the business had continued to be negative, the long-term financial position could also have changed for the worse. Effectively, the growth of the enterprise being negative meant that equity was declining each year and total liabilities would increase with reference to the percentage of each source of finance of the total assets. The enterprise was not making a profit (refer to Appendix), and thus equity was declining.

The impact of a negative growth percentage ratio could also be seen in the liquidity of the enterprise. Current assets did not exceed current liabilities, and that meant that the enterprise was experiencing cash flow problems, which could also be seen in the bank balance. The enterprises' bank balance was, at the end of 2017, in overdraft, although it started the financial year with a positive bank balance. Furthermore, the acid test ratio was extremely low, with current assets less stock and supplies being only about 3% of current liabilities. Again, this definitely translated into possible cash flow problems in the near future.

Since information was not available for efficiency and profitability, it could have been compared with similar financial ratios for different financial years. This bank would have considered previous financial ratios in order to evaluate whether or not the loss that the enterprise had realised was a short-term phenomenon, or whether the enterprise had realised losses in previous financial years as well. Although the information was unavailable for this study, it could have been considered a short-term problem, as the bank balance had decreased by so much, yet it was still a positive balance at the start of the 2017 financial year. Therefore, it was assumed that a short-term problem existed, and the enterprise was considering new production methods in order to realise a profit year-on-year.

For this case study, it was unlikely the bank concerned would extend credit to this enterprise, despite its positive solvency position. The bank might have considered the overall restructuring of the finances of the enterprise, by moving the current liabilities into longer-term liabilities, thus creating room for additional short-term credit or production credit. However, it is known that assets should be financed according to their relevant life expectancies. The bank would, hopefully, have realised the potentially negative impact that the high interest rate on the bank overdraft would have had on the future financial position of the enterprise, and would strongly have considered a financial restructuring. Without restructuring the finances, the bank might not have provided this farming enterprise with addition credit in its current state.

4.2.3.2 Bank 2

When the financial position of this enterprise was considered from the second commercial enterprise's perspective, the situation was also not ideal. All three financial ratios considered by this bank were considered unsafe, and therefore, it was unlikely that additional credit would be provided. Again, a possible restructure could have been the solution, but this was not possible to conclude with absolute certainty. Considering this bank's evaluation methods and the first commercial bank's ratios, the enterprise needed a different approach to production in order to realise a higher gross production income. Without a drastic increase in gross production income, it was difficult to foresee how this commercial bank would also have provided additional credit to this farming enterprise.

4.2.3.4 Production credit provider

In the financial position that this case study enterprise found itself, the production credit provider could have been the only possible solution, assuming the restructuring of finance was not considered or was not possible. However, since this agricultural credit provider would not provide more credit than what was necessary for one production cycle, capital improvements would not necessarily have been an option. The possible credit to be made available by this agricultural credit provider will also be limited as the cash flow budget (refer to the Appendix for more information) projects a limited total possible income. It remained a fact that this enterprise could have faced chronic financial difficulties and, as a result, could possibly have become insolvent within the near future, should a profit not have been realised in the next financial year. Credit options for this enterprise remained, however, as it was, limited.

4.2.4 Case study 4.

Case Study 4 refers to a grain farm in the Overberg area near Heidelberg, Western Cape, South Africa.

Table 5: Financial Ratios for Case Study 4.

Name of Ratio	Calculation	Ratio	Rule-of-thumb	Comment
Solvency ratios				
Net capital ratio	R 61 486 487 / R 11 535 203	5,33 : 1	2,00 : 1	Safe
Leverage ratio **(1)**	R 11 535 203 / R 49 951 284	0,23 : 1	1,00 : 1	Safe
Own capital ratio	R 49 951 284 / R 61 486 487	0,81 : 1	0,50 : 1	Safe
Growth of business	-R 567 406 / R 50 518 690	-1,123%	5,26%	Unsafe
Liquidity ratios				
Current ratio	R 1 492 850 / R 507 743	2,94 : 1	2,00 : 1	Safe
Acid test ratio	R 1 023 088 / R 507 743	2,01 : 1	1,00 : 1	Safe
Intermediate ratio	R 6 134 450 / R 1 605 903	3,82 : 1	4,00 : 1	Unsafe
Profitability ratios				
Farm profitability (return on assets) (RoA)				
Average total capital employed	R 123 934 335 / R 2	61 967 168	Unavailable	No Comment
Farm profitability	R 850 010 / R 61 967 168	1,372%		
Profitability of own capital (return on equity) (RoE)				
Average own capital	R 100 469 974 / R 2	50 234 987	Unavailable	No Comment
Profitability on own capital	-R 567 406 / R 50 234 987	-1,1%		
Efficiency ratios				
Capital turnover ratio	R 11 217 669 / R 61 967 168	0,18 : 1	Unavailable	No Comment
Cost ratio	R 10 367 660 / R 11 217 669	0,92 : 1	Unavailable	No Comment
Debt-servicing ratio	R 443 743 / R 11 217 669	0,04 : 1	Unavailable	No Comment
Other Ratios				
Leverage Ratio **(2)**	R 11 535 203 / R 3 041 996	3,79 : 1	4	Unsafe
Interest Cover Ratio	R 3 041 996 / R 1 417 415	2,15 : 1	3	Unsafe
Debt Service Ratio	R 3 041 996 / R 443 743	6,86 : 1	1,35	Safe

Source: (Schoeman, 2018d)

4.2.4.1Bank 1

Of all the credit applications of the enterprises comprising the case studies, this one could be considered the most difficult to evaluate. Considering the financial ratios utilised by the first commercial bank, there were no simple answers, as both the short- and long-term financial positions could be considered positive and negative. The same applied to the third case study, as this enterprise had a positive long-term financial position, reflecting solvency, but a negative growth rate for the business.

With reference to Chapter 3, this could have been because of the severe draught in the district. However, the net capital ratio was still 5.3:1, although the rule-of-thumb was 2:1. The growth rate of the business should not have been too much of an obstacle, with information having been available to use in considering the credit application

Referring to the liquidity of this enterprise, the current ratio as well as the acid test ratio fell on the positive side of the rule-of-thumb, resulting in a safe situation. This meant that sufficient liquidity was available to service the current liabilities within one year, even if stocks and supplies were to have been subtracted. The intermediate ratio, on the other hand, was considered to be unsafe by this commercial bank, and thus problematic. The intermediate ratio, however, was extremely close to the rule-of-thumb, to such an extent that a simple mathematical rounding would have seen this ratio change to 4:1. Therefore, the possibility existed that the commercial bank concerned would overlook this negative aspect and regard the liquidity of the enterprise to be safe.

Further considering the efficiency and profitability ratios of the enterprise, other positive and negative ratios were present as well. Since Louw, et al. (2013) is silent on rule-of-thumb for these ratios, a comparison with the previous years and similar enterprises would have been made by the bank. With all of the ratios considered, more expertise would have been necessary to conclude with absolute certainty whether or not the enterprise would have been provided additional credit. A conclusion for this study was that more financial records would have been necessary, especially considering the influence of the draught that was being experienced in the area.

4.2.4.2 Bank 2

The second commercial bank would also have had a difficult time evaluating the credit application of this case study. The leverage ratio (2) was currently considered to be safe; however, mathematical rounding would have changed this ratio to 4:1 (instead of 3.79:1) and, as a result, it would have been regarded as unsafe (refer to Chapter 3 for more information). The interest cover ratio was considered to be unsafe in terms of the assumption in Chapter 3 that a ratio of 3, and no less, would be considered safe. The debt servicing ratio was extremely high, at almost 7:1, and consequently, was considered to be safe, meaning the EBITDA exceeded debt repayments by more than 1.35 times. Although the

possibility existed that the bank concerned would grant this enterprise additional credit, it could have declined the application based on the unsafe interest cover ratio.

4.2.4.4 Production credit provider

If the first two agricultural credit providers rejected the credit application of the enterprise, credit could possibly have been obtained from the production credit provider. This enterprise projected a positive cash flow budget for the 2018 financial year based on wheat, barley and Merino sheep. Credit could have been obtained from the provider concerned for all the production inputs needed if they did not exceed 75% of the possible gross income of the enterprise. This was applied particularly to the projected gross income for the wheat and barley aspects of the enterprise. The credit potentially available from the production credit provider could have offset the lack of available credit from the commercial banks considered.

4.3 Remedy effects/actions

Although the financial measurements comprising the applicable ratios discussed and tested above are extremely important, they are only a measurement of one dimension of a business, or in this case, credit application. The criteria used in this study, up to this point, lack important external non-financial effectiveness measures from a subtractive stakeholders' perspective, or at least, according to Siya (2006). According to this author (Siya, 2006) a main driver for competitive advantage in a study involving smallholder agriculturists in South Africa is, what he calls, external effectiveness. This means effectiveness from a subjective stakeholder's perspective. As long as performance measurement systems are based mainly on financial information, such as the financial ratios in this study, they will be too exclusive and ignore the external effectiveness of an enterprise (Siya, 2006).

The importance of financial and quantitative, or objective measurements, are still emphasised and considered relevant. However, Siya (2006) also emphasises the need for performance measurement systems that are able to express subjective valuations in such a way that organisations can combine them with the financial information. In the study by Siya (2006), the South African Excellence Model was analysed in terms of its strengths and weaknesses in order to conclude whether or not it was applicable in improving holistic management performance. The objective of the study was divided into four specific sub-objectives, with each having relevant goals. The third objective was particularly important and relevant to this study and is discussed further on.

The third objective of the study by Siya (2006) is specifically about the evaluation criteria developed and implemented by commercial banks in South Africa. These evaluation criteria are studied in the context of the New Credit Act, 365 of 2005 and the National Credit Regulator. The aspects studied were the evaluation methods used for credit applications and identifying common interest areas

between this approach and the adapted South African Excellence Model. The relevant goal for the objective was to identify the commercial banks in South Africa, particularly those were accessible and widely used by smallholder farmers. After the commercial banks were identified, the credit evaluation criteria used by the agricultural credit providers was evaluated by Siya (2006), and conclusions were drawn as to what extent the commercial banks used their criteria for loan approvals.

Henning & Jordaan (2016) did more research on the determinants of sustainability for farm credit applications by conducting a Delphi study in order to explore what factors were used in an evaluation method for the loan-repayment ability of farmers. Their objectives were not only to consider what was currently employed in a credit application evaluation, but also to identify possible other attributes that may have improved the prediction accuracy regarding the repayment ability of potential borrowers. Numerous personal attributes were identified in the Delphi study from the perspectives of credit analysts from a certain commercial bank in South Africa. In their study, Henning and Jordaan (2016) found – as reflected in their conclusion – that credit analysts and managers regard the managerial abilities and entrepreneurial characteristics of potential borrowers to be good indicators of the repayment ability of farmers (Henning & Jordaan , 2016).

4.4 Implications and clarity for the farmer

Although an excellent balance sheet, income statement and cash flow budget will result in similar excellent financial ratios being reflected in an credit application, these are not the only considerations for commercial banks in South Africa. Financial institutions will only consider a credit application if they find the financial information to be acceptable; additionally, the characteristics of the farm manager are also important considerations (Siya, 2006 and Henning & Jordaan , 2016). These are especially important when the necessary financial ratios are not regarded as being safe according to the rule-of-thumb set out by the agricultural credit providers. This is true to a lesser extent in the case of production credit providers, where short-term production credit is accessible. Agricultural credit providers differ from one another in both the way in which they evaluate credit applications and the type of credit provided.

For the farm manager, there is little to be done in order to improve his or her personal characteristics, and the possibility exists that an effort to do so would take time and other valuable reseources away from the primary focus – to produce food. Just as the agricultural credit provider will evaluate credit applications, the farm manager should evaluate the credit providers in order to decide which ones would be the best fit for their businesses. This is no simple task, and proper financial planning and the use of financial experts will help the farm manager in this regard.

4.4.1 Considerations to possibly have an influence

In terms of the study by Siya (2006), land value and size were likely to be considered by agricultural credit providers when evaluating the credit applications in the case studies. Further, agricultural credit providers are more likely to be in favour of a farm project that has a good history in terms of financial records and performance, hence the need for proper financial statements in a credit application. The farm manager's level of education is considered a good predictor of the success of the credit application being considered. Siya (2006) found evidence that agricultural credit providers view credit applications in a different manner to which their competitors may view them.

According to the financial institutions (commercial banks) in the study by Siya (2006), the following factors would help a credit application succeed. These include risk management agreements being included in the application, the tergeting of niche-markets by the enterprise, high-value markets and value-added mechanisms, and the development of the necessary skills base to help the previously disadvantced (Siya, 2006).

Other than the financial standing, involving the accounting principles employed, the credit history and other financial information, numerous personal characteristics were identified by Henning & Jordaan (2016) as being pertinent. Henning & Jordaan expected, and found it to be true, that the most important factors to include in the credit application are the financial performance, sustainability and security of the credit applicant. Other than these financial considerations for an application, 10 additional and personal factors are identified and included; these are education/qualifications, age, experience, farm ownership, reputation and the willingness to repay. Age, experience and level of education are often cited in the literature as factors considered to be important, though less so than the other factors.

These characteristics were among the initial characteristics considered by credit analysts in the evaluation methods.

in the study by Henning & Jordaan (2016), the credit analysts identified a number of additional characteristics that should be considered in a credit evaluation, in the search for more sustainability. Several entrepreneurial and management capabilities are identified that are considered to be important in credit evaluation instruments. These include leadership and human relations, creativity and innovation, internal locus of control, self-confidence, planning, passion, opportunity seeking, conflict and risk management, commitment and confidence (Henning & Jordaan , 2016). Although these characteristics are considered important, they are considered in a non-objective manner, and credit analysts in the Delphi study indicated that the use of statistical methods could improve

consistency in credit-granting decisions. The consistency of decision-making refers to the high level of human judgement currently involved in credit evaluation methods.

4.5 Conclusion

In this chapter, the relevant financial ratios for each enterprise in the case studies were given in table format, one for each case study. As each agricultural credit provider used different evaluation methods for credit applications, each case study was viewed from each credit provider's perspective. The reason for this was to test whether or not a credit application would be granted based on the financial ratios and rules-of-thumb. Evidence emerged as to precisely how credit evaluation methods differed for each agricultural credit provider, whether they were a bank or an agribusiness. For each case study, a different result emerged, indicating the scope of the different credit evaluation methods.

Chapter 4 also includes possible remedy effects that may or may not have an influence on an unsuccessful credit application. All of the financial information, such as the ratios, were considered up to a certain point in the evaluation process, after which the personal attributes of the farm manager became more important. Although all of the credit providers were responsible for acting in accordance with the same credit act (The New credit Act, 34 of 2005), different evaluation methods emerged across the evaluation process . The possibility existed that one agricultural credit provider would decline an enterprise's credit application, where the next would grant the credit. This serves as a motivation for why it is also the responsibility of the farm manager to evaluate the options when selecting a potential agricultural credit provider.

Further research in this field of study could mean a lot for the commercial agricultural sector in South Africa. Henning and Jordaan (2016) highlight that previous research in this field has been based on research primarily done among farmers, and not necessarily the agricultural credit providers. Several aspects could have been missed in doing research in this way. Henning and Jordaan (2016) called this situation a gap in the knowledge necessary to ensure a proper understanding of the actual evaluation methodologies and processes. This study was aimed at gathering information from the financial intuitions themselves, and thus it differs from that of Henning and Jordaan (2016) in the following manner. The research of Henning and Jordaan (2016) was aimed at the off-balance sheet characteristics that agricultural credit providers consider when evaluating a credit application.

Chapter 5: Conclusion, summary and recommendations

5.1 Conclusions

In the first chapter, the main research statement for this study was given as 'Assessing the accessibility of agricultural credit for South African primary commercial agricultural producers over various enterprises in various production areas after the introduction of the New Credit Act in 2006'. The idea is that a gap exists between farming financial constraints and institutional policies; this is one of the major reasons why this research was conducted. The importance of credit is emphasised in the early parts of the first chapter and is expanded upon in the initial parts of Chapter 2. Briefly, a result of considering the relevant studies on topics involving aspects of the main research statement, including the accessibility of agricultural credit for various agricultural enterprises in various areas, as well as in the context of the NCA, a different picture was found.

The accessibility of credit, with specific reference to agriculture in South Africa, as a developing country, is extremely important. Credit in agriculture has a significant impact on overall production efficiency, which translates to an increase in NFI. In periods of severe weather, like South African agricultural industry has been experiencing in the past five years, the importance of credit has an even more significant impact on the overall financial positions of farm businesses (AgriSA , 2019 and Nel, 1965). The implication of the study by Chisasa (2014) is that the availability of credit at the farm level not only has an impact on management efficiency, but also effects resource allocation and profitability (Chissa & Makina, 2013; Chisasa, 2014, p. 38; Carter, 1989, p. 19; and Kumar, et al., 2010).

Agricultural credit providers have to predict the financial sustainability of a farming business to ensure that the borrower will have the financial capacity to repay a loan. Louw, et al. (2013) highlight certain financial ratios as being an indication of the financial health of a farm business. The modern relevance of these ratios are questioned in this study. The NCA, after it was introduced in 2006, is considered to be a restricting factor in terms of the accessability of agricultural credit in South Africa. This research also had the objective of assessing alternative methods of evaluating credit applications and comparing the ratios concerned with those in Louw, et al. (2013). Some literature was found on credit evaluation methods as well as on the impact the NCA has had on credit accessability in South Africa; however, in terms of the literature reviewed and more broadly, this study emphasised the financial attributes of farm businesses.

There was no significant impact on the availability of agricultural credit after the introduction of the NCA in 2006; in fact, the total amount of agricultural debt never showed any indication of decrease over the time period between 2004 and 2007. However, Rossouw (2008) did a study on the impact of the NCA on the micro-loans that commercial banks provide to consumers in South Africa. The study

found that financial institutions and consumers were experiencing increased pressure due to the NCA, because of the stricter lending regulations applicable to micro-loans. This research also found a significant impact of the NCA on micro-lending activities, which in turn, has created a more defined formal market, and the informal has market has shrunk.

On the one hand, it was found that the availability of credit in agriculture had not decreased at all after the implementation of the NCA; on the other, it was evident that the NCA did have an impact on micro lending in South Africa. This could be explained by examining more closely the physical application of the NCA. A discussion of the application of the NCA on credit applicants had been followed by a schematic thereof in Figure 3. The result of this discussion and figure showed that only certain credit consumers had the protection of the NCA.

In Chapter 2, the biggest causes for the major change in credit regulation and legislation, as identified by the DTI are discussed. Among others, the ineffective consumer protection, high cost of credit and reckless lending behaviour were identified by the DTI as areas that needed to addressed by new legislation. Consumer protection thus forms an integral part of the NCA. If Rossouw's (2008) study is taken into account, it is evident that a positive impact has been noted in consumer protection against over-indebtedness, reckless lending, exploitation and manipulation. At least, it has had these impacts on the credit agreements to which it applies (Rossouw, 2008, p. 102).

The main research statement for this study was "Assessing the accessibility of agricultural credit for South African primary commercial agricultural producers over various enterprises in various production areas after the introduction of the New Credit Act in 2006". Otherwise put, the main aim of this study was to assess the availability of credit for commercial agricultural producers. The study by Rossouw (2008) measures the impact that the NCA had on all micro-loans. Micro-loans are not defined by Rossouw (2008), and thus the assumption is made that it may include agricultural micro-loans.

A related problem, with these assumptions, is that Rossouw (2008) assumes the NCA became applicable to every credit agreement in South Africa, no matter who the parties involved were and what the magnitude of the credit agreement might have been. The accessibility of credit for commercial agricultural producers in South Africa can still be assessed in some way. Furthermore, whether or not agricultural credit providers did revolutionise their approach to evaluating credit applications, the credit applications could still be assessed, based on the available information.

Having used the book by Louw, et al. (2013) as a point of departure, and comparing their approach with the second commercial bank's approach, it is evident that there is a difference as areas that

needed to addressed by new legislation. The first commercial bank uses ratios calculated from the balance sheet, whereas the second commercial bank focuses more on the income statement of the business. The second commercial bank's approach could be seen as a traditional approach, and the second commercial bank's approach as a modern approach. Since the first edition of Louw, et al. (2013), up to the later editions, the ratios have not been changed. The second commercial bank's approach focuses more on the affordability of the credit agreement by the credit applicant. Affordability of credit agreements was also a major contributor to the modernisation of the legislation, in the form of the NCA.

For each agricultural credit provider, different sectors and different sectors of the economy are important in the context of their own risk strategy and appetite. For example, the agribusiness in this study focuses only on short- and medium-termed loans and will not consider long-term credit agreements with clients. Longer-termed agreements are seen as longer than five years and are often used, for example, for the purchasing of land. Both commercial banks will consider longer-termed credit agreements as well as short- and medium-termed agreements.

Commercial banks differ in their evaluation approaches. An important example is the difference between their calculation methods for the so-called leverage ratio, as well as for the relevant rule-of--thumb. The first leverage ratio, as employed by the first commercial bank, is calculated by dividing total liabilities by own capital. The applicable rule-of-thumb for this bank, for this ratio is 1,00:1. The second commercial bank calculated their form of the leverage ratio by dividing total liabilities by EBITDA. An appropriate rule-of-thumb for this ratio for the second commercial bank was 4. Commercial bank one used only the balance sheet for this calculation, whereas the second commercial bank used both the information in the balance sheet and the income statement. The second commercial bank thus used it as an indication of affordability, and the first commercial bank only as an indication concerning solvency. The real reason why this commercial bank differed in its evaluations could be an area for further research.

This study focussed more on the actual financial position of the credit applicant and establishing the influence of the NCA on credit agreements. Henning and Jordaan (2016) did respectable work in filling in the so-called research gap relating to the off-balance sheet characteristics considered by agricultural credit providers. These characteristics can be seen as the possible remedy effects that influence the decisions of credit providers beyond the information in the financial statements and the associated rules-of-thumb. Combining these two studies in further research will have the potential to better educate commercial farmers on the credit application process, the legislation and regulations

plus the personal attributes considered. Commercial farmers seeking credit, for whatever purpose, should be the biggest beneficiaries of this research.

Where Henning and Jordaan (2016) made use of a Delphi study, in this research, a case study approach was followed. A multiple-case study design was adopted in order to raise the level of confidence and robustness. The four case studies used original real-farm financial statements and actual cash flow budgeting. The practicality of this method was one of the main advantages in terms of scientific relevance. Arranging the information in the correct format, which entailed using the relevant financial ratios, standardised and simplified the research process and, therefore, minimised the possibility of inaccurate calculations occurring.

It was important to select the necessary case studies from different areas and from different farming enterprises. A different picture was seen when each set of financial statements was analysed. Each case study had different strengths and weaknesses, and all posed some important challenges. However, it was difficult to compare the statements with each other. The reason for this was that each farming enterprise comprising the case studies was theoretically in need of a different credit instrument. Louw, et al. (2013) highlights the importance of using the correct credit instrument for the correct reason and that using the incorrect instrument may easily translate into financial distress. A valuable lesson was learned in this regard: for future research, for the sake of making meaningful comparisons, case studies should comprise similar farming enterprises from similar districts.

Nevertheless, valuable answers emerged in this research by by using the chosen questions. This was achieved using the method discussed and proposed in Chapters 1 and 2: the case study method. The case studies were used in order to calculate and compare the financial results from the different case studies using the same financial ratios used by the agricultural credit providers. This was done in order to better understand the financial accessibility of credit in agriculture and in an attempt to assess the impact that the NCA has had on the accessibility of credit in the agricultural context. This considering that it has been found that the NCA is not applicable to all credit agreements. The latter provides important information to be considered by future researchers. The implications of the applicability of the NCA was not a finding that emerged using the method proposed. Otherwise stated, the applicability of the NCA was not within the scope of this study; however, it should be a significant consideration for further research.

5.2 Summary

The importance of the agricultural sector in a developing country, such as South Africa, is first raised at the start of Chapter 1. Often farmers utilise resources poorly, resulting in low productivity, due to a lack of financial means to address the difficulties at hand. Herbicides, pesticides, appropriate and

effective fertilisers, the relevant technology and making use of the correct seed variety are all aspects of a farming business that have the potential to scale-up productivity, translating into a higher profit margin. The availability of the financial means to purchase their production resources is often lacking in South African agriculture, especially after the advent of economic and climatic circumstances such as South African farmers have had to overcome in recent years.

The first chapter provides a discussion on how important credit in agriculture is, with special reference to agriculture in developing countries. The reasons why access to credit in agriculture is necessary are provided, combined with the influence of both restricting access to credit and having access to sufficient credit. Although credit is not the only form of financial instrument that can be utilised in agriculture, in the form of financial loans, it comprises an important aspect of this study; hence, other forms of financial instruments were not discussed in much detail.

One of the core aspects of the research statement is the influence that the introduction of the NCA in 2005, together with the accompanying regulations in 2006, had on the accessibility of credit in commercial agriculture. One of the main research objectives was attempting to understand the place and use of the financial ratios introduced by Louw, et al. (2013), and comparing their use by other agricultural credit providers involved in commercial agriculture. The research aim of this study was to understand financial analysis in credit evaluation in South African Agriculture, and this is where resources are important. Furthermore, the prevailing credit legislation in South African was analysed to understand the reasons why it had changed. Whether this had had an impact on credit lending practices in South African agriculture was important. With the objectives and aims of the study highlighted, the proposed method for achieving these aims and objectives is briefly discussed. The method used for the study comprised multiple real-life farming case studies, with some abstract concepts included; these were not limited to the cash flow budgets of the case studies.

Chapter 2 opens with consideration being given to the benefits of using credit in agriculture. This is combined with the statistics on credit in South African agriculture. The statistics show that from 1994 until 2017, there was no decline in agricultural debt in South Africa. Also, for the period just after the NCA became legislation, no decline could be observed. Further on in Chapter 2, the importance and use of financial analyses in agricultural finance are discussed and highlighted as significant aspects of farm management that cannot be ignored. Financial analysis includes solvency, liquidity, profitability and debt-servicing information that can be translated into financial ratios, which are also discussed in Chapter 3.

The most important issues that necessitated the new credit legislation in South Africa, as identified by the DTI, are discussed and explained with reference to the NCA. One of the most significant

shortcomings in the legislation prior to the NCA was the issue of consumer protection and the high cost of entering a credit agreement. This was addressed thoroughly, and the necessary protection and solutions to the said problems exist in the NCA. The valuation of land for agricultural purposes and the methods used for this were discussed. These concepts are important as they have a significant impact on the health of farming enterprises' balance sheets. Two concepts primarily exist for this type of valuation, which include the agricultural production value and the land market value.

Chapter 2 comprises a discussion of the literature review undertaken. This was done with reference to the proposed method for the study, as identified in Chapter 1. Both the principles and methods for this type of research are discussed and at the end of Chapter 2, some of the limitations were mentioned. However, these limitations were thoroughly analysed and it was found that the they did not pose a direct threat in this study because multiple case studies were used. Additionally, making use of real-farm case studies together with some abstract concepts proved to be sufficient to reach adequate conclusions.

All four farming enterprises are briefly discussed at the start of Chapter 3, without too much detail being provided, as the research was conducted on the understanding that the case studies would remain completely sterile of personal information. Four farming enterprises from four different production areas were used, with some of the individual farming enterprises were similar. This was a diverse group of farming enterprises, with diverse financial means and needs; their financial statements reflected this.

The case studies were researched using the whole-farm systems approach. Elements and their interrelationships, such as the socio-economical and physical-biological aspects of agriculture, made for a rather complex systems analysis. Case study research, as explained in Chapter 2, draws on a wide range of disciplinary knowledge and in-depth systems knowledge (Crosthwaite, et al., 1997), restricted to a few cases.

The credit providers that took part in the study consisted of three agricultural credit providers. Two of these were commercial banks that operate all over South Africa, not only in the agricultural sector. The third agricultural credit provider was an agribusiness with limited scope regarding the area it operates in and that of its economic sector. The findings show that all three of the agricultural credit providers focussed on different aspects of the financial information provided to them. The first commercial bank used conservative, and possibly outdated, methods for evaluating credit applications. The second commercial bank used completely different ratios, mostly based on a combination of information from the income statements and the balance sheet. Furthermore, the

second commercial bank also emphasise the importance of an individual evaluation of the specific farm or farm managers' credit record and relationship with the bank.

Another significant difference between the two aforementioned commercial banks was their different leverage ratios. Both their calculations and their rule-of-thumb were different, and consequently, the implementation of the ratios was different. The first ratio considered was calculated only from the balance sheet. The second leverage ratio was calculated from both the income statement and the balance sheet. The only commonality between the two ratios was the inclusion of total liabilities.

The agribusiness, on the other hand, did not make use of any of the financial ratios when evaluating a loan. Their only consideration was the possible yield on the produce and production facilities over an average of a period that included the severe draught in the area concerned. Ways to effectively accommodate the farmers' negative financial positions after the draught were also applied when a new production loan was implemented.

Reflected in Chapter 4 are the ratios and evaluation methods of all the agricultural credit providers were used to evaluate all the case studies' financial statements. Very interesting findings were made by doing this. For example, the first case study was considered safe in terms of the first commercial banks' ratios, with regard to the solvency of the farming enterprise; however, in terms of two of the three liquidity ratio calculation results were considered unsafe. For the second commercial bank, two of the three financial ratios were considered safe, where only the interest cover ratio was considered unsafe. Case study two, the fruit farm in the Villiersdorp area, was considered as being safe in terms of all the ratios of both the commercial banks. For the third agricultural credit provider, the case study begs more questions than answering them..

Case study three proved to be the least financially sound business of all the case studies. The second commercial bank's financial ratios for evaluation were all considered to be unsafe. For the first commercial bank, the solvency of the business could have been considered to be generally safe; however, its liquidity proved to be problematic. In this regard, the third agricultural credit provider was identified as the only option that the farming enterprise had in terms of obtaining the required credit, with the limitation that obtaining credit for the capital improvements would remain unlikely.

Again, the fourth case study proved to be an interesting one. In terms of its credit application, only two of the first commercial bank's ratios were considered to indicate unsafeness, one for liquidity and one for solvency, whereas the second commercial bank had one ratio indicating safeness and two indicators unsafeness. Again, the third agricultural credit provider, referring to the agribusiness, could

have been an option for this farming enterprise, based on its production history and its reputation for producing grain.

What the different evaluation methods imply is that there is no clear way of knowing whether or not an agricultural credit provider will enter into a credit agreement with any farming enterprise based on some of the aspects evaluated. One bank may be open to a credit agreement, whereas the next might reject the same application, and the agribusiness might have been unwilling to help in some cases, whereas in others it may have been the only option available. Furthermore, the remedy effects highlighted in the fourth chapter may have implied a financially sound farming enterprise being rejected and an unhealthy farming enterprise being granted credit, based only on the farmer's reputation and relationship with the agricultural credit provider.

In the previous section of this chapter, the application of the NCA is shown schematically and discussed. The importance of this representation is that at the start of this study, the physical application thereof had not been realised. This aspect of the study is particularly important as not all credit applications are evaluated within the scope of the NCA, and consequently agricultural credit consumers do not all enjoy the protection of the act. Furthermore, this is discussed as a possible reason for why the total debt in agriculture did not decline in the years following the implementation of the act, although a different study proved that micro-lending had changed significantly after the NCA's implementation.

5.3 Recommendations

This study sheds light on the credit-granting practices in the South African commercial agriculture sector. However, more questions emerged from this research than answers were provided, and many possible future studies could be derived from this study, consequently benefiting from it. It is important to note that part of the aim of this study was to educate farmers on credit practices in the country and to equip them with the necessary knowledge in order to approach the correct commercial agricultural credit providers for the correct reasons, bearing in mind the relevant regulatory aspects.

Using the correct instrument for the correct purposes is crucial. A farming enterprise using the wrong combination of instruments also has the potential to survive financial setbacks; the same applies to the inability to take advantage of beneficial opportunities. A farming enterprise recovering from a drought and wage shocks could take more than three years just to realise a positive net cash flow. Having access to the correct instruments of capital, and having sufficient thereof are central to effective economic and financial survival in the long-run.

Studying different farming enterprises from the same area could be very valuable in shedding light on the different financial instruments available and the major differences between such financial instruments. For example, there will be a significant difference between the long-term financing of stone fruit orchards and the long-term financing of breeding stock for livestock farming, and even the long-term financing of livestock for feedlot purposes. In the same vein, there will also be a significant difference between livestock farming in the Kalahari and livestock farming in the Eastern Cape mountains or the Free State. This type of study has, in some form, already been done by Henning, et al. (2011). However, this study attempted to find new and improved financial ratio rules-of-thumb. Applying one commercial bank's evaluation method for a specific credit instrument with that of a different bank for a similar product can be very insightful. The key concept is to compare similar farming enterprises from the same area, but using different credit providers' approaches. (Henning, 2011)

Using all the possible agricultural credit providers that operate in a certain area will possibly result in using evaluation methods from all the commercial banks and some agribusinesses in one area and studying the same commercial banks in another area, but with completely different agribusinesses. Although it would take time and significant effort to conduct this type of study, farmers in the areas studied would be the biggest beneficiaries.

Under circumstances such as the climatic conditions that South Africa experienced in the past five to eight years, farmers have had no option but to extend their current credit agreements because of their insufficient production. Special attention could be paid to agreements whereby banks might consider allowing farmers more time to repay, without worsening their financial positions in the long run. In such cases it would be only the liquidity that would be under pressure. Without due consideration and responsiveness by the banks, high interest rates could hurt the soundness of the financial enterprise in the long run. This is a difficult situation, but both credit providers and farmers need to be open about the options.

Another area for possible future research is the types of business entities that are found in use by both commercial enterprises and small-holders. A question that could be asked in this regard is How many commercial farming enterprises in South Africa still have the protection of the NCA based on the format of their financial entity? In other words, is it considered a restricting factor if the NCA is only applicable under certain conditions. If the NCA is does not protect certain types of farming enterprises, what sort of consumer protection do they enjoy, if at all (perhaps the Companies Act would apply to these farmers). For all entity types and their respective applications, there is a certain amount of human judgment involved. Perhaps this is another area to be evaluated. In this regard, refer to the

study by Henning et al. with regard to how one could quantify the non-balance sheet attributes that are relevant in credit applications.

AFRGI, a large agribusiness with its head office in Centurion, Pretoria already has significant exposure to agricultural credit. However, it recently purchased a banking licence, in the form of the Bank of Athens, for South Africa. According to the media, this bank would like to focus on the survival of family farms in South Africa. This is another area for possible future research, as they could be considering a completely new approach to agricultural credit and could have a significant impact on the market share that both commercial banks and agribusinesses currently have of the South African agricultural credit market.

Ultimately, due attention should be given to all the academic concepts and fields of research; farmers also need to be educated so that the right information is communicated to the right respondent and the correct agricultural credit provider is approached for the correct credit instrument.

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Appendix

Appendix A: Financial Statements of Case Study 1.

Balance sheet for Case Study 1			on		31-December-2017		
			=				
	2016	2017	A = E + L		2016	2017
Current Assets	**R 1 335 510,10**	**R 2 597 091,02**			Liabilities	
Bank Balance	R -	R 1 384 856,27		**Current liabilities**	**R 2 895 892,16**	**R 1 589 285,74**
Stock on hand	R 386 100,00	R 362 934,00		Bank overdraft	R 1 556 410,00	R -
Debtors	R 949 410,10	R 849 300,75		Creditors	R -	
Other	R -	R -		Short term part of long ter	R 85 342,81	R 168 972,92
				Short term part of long ter	R 1 254 139,35	R 1 420 312,82
Medium Termed Assets	**R 8 688 994,13**	**R 8 086 798,25**				
Inventory: Movables	R 6 288 994,13	R 5 689 798,25		**Medium-Termed Liabilitie**	**R 6 913 445,37**	**R 5 493 132,55**
Breeding stock	R 2 400 000,00	R 2 397 000,00		Medium term loan	R 6 913 445,37	R 5 493 132,55
				Other		
Fixed Assets	**R 25 751 858,54**	**R 24 662 275,62**				
Inventory: Fixed Improver	R 8 740 000,00	R 7 940 727,00		**Long-termed Liabilities**	**R 4 943 628,92**	**R 4 044 095,24**
Tractors and equipment	R 3 582 594,64	R 3 309 092,57		Long term loan	R 4 943 628,92	R 4 044 095,24
Land	R 12 822 264,00	R 12 822 264,00		Other		
Other	R 606 999,90	R 590 192,05				
				Total Liabilities	**R 14 752 966,45**	**R 11 126 513,53**
Total Assets	**R 35 776 362,78**	**R 35 346 164,90**				
				Equity		
	2016	**2017**		**Owner's Equity**	**R 21 023 396,33**	**R 24 219 651,36**
				Owners Investment	R 20 115 886,91	R 18 164 738,52
				Retained Earnings	R 907 509,41	R 6 054 912,84
				Other	R -	
				Total Equity + Liabilities	**R 35 776 362,78**	**R 35 346 164,90**
					2016	**2017**

Source: (Schoeman, 2018a)

Income statement for Case Study 1			
		Total	
Total Sales/Income		**R**	**10 658 619,73**
Cash		**R**	**10 658 619,73**
Total Consumption		**R**	**209 114,00**
Household		**R**	**24 650,00**
Labor		**R**	**184 464,00**
Internal/Other		**R**	**-**
Total Stock Adjustment		**-R**	**76 166,00**
Closing Stock		**R**	**2 759 934,00**
Opening Stock		**R**	**2 786 100,00**
Purchases		**R**	**50 000,00**
Total Gross Production Value (GPV)		**R**	**10 791 567,73**
Total Expenses		**R**	**5 181 920,75**
Production Costs	Seed	**R**	**385 746,36**
	Fertiliser, herbicides and pesticides	**R**	**1 236 551,60**
	Crop insurance	**R**	**15 690,00**
	Contracted services	**R**	**57 589,84**
	Veterinary costs	**R**	**264 510,00**
	Feeding costs	**R**	**291 563,00**
Labor Costs	General Salaries	**R**	**494 487,00**
	Salaries-Admin	**R**	**19 159,43**
	Overhead seasonal wages	**R**	**10 702,73**
Overhead costs	Fixed improvements- maintenance and re	**R**	**194 367,68**
	New fixed improvements	**R**	**110 995,20**
	Insurance and licenses (General vehicles)	**R**	**120 344,33**
	Banking costs'	**R**	**10 994,70**
	Audit and consultation	**R**	**42 174,00**
	Electricity	**R**	**112 945,95**
	Diverse expenses (general)	**R**	**90 309,68**
	Other contract work	**R**	**51 818,33**
Depreciation	Moveables	**R**	**599 195,88**
	Tractors and equipment	**R**	**273 502,07**
	Fixed improvements	**R**	**799 273,00**
Net Farm Income (NFI)		**R**	**5 609 646,98**
Total Compulsory Capital Redemption		**R**	**2 413 391,95**
Interest	Long term loan	R	447 548,99
	Medium term loan	R	1 082 204,98
	Bank overdraft	R	883 637,98
Farm Profit		**R**	**3 196 255,04**
Net Profit/(Loss)		**R**	**3 196 255,04**
Net Worth Beginning of the year		**R**	**21 023 396,33**
Growth In Net worth		**R**	**3 196 255,04**
Net Worth End of the year		**R**	**24 219 651,36**
EBITDA		**R**	**6 682 422,05**
Total Compulsory Capital Redemption		**R**	**2 413 391,95**
Depreciation		**R**	**1 072 775,07**
Net Profit/(Loss)		**R**	**3 196 255,04**

Source: (Schoeman, 2018a)

	January-2018	February-2018	March-2018	April-2018	May-2018	June-2018
Cash inflow						
Wheat	R -	R -	R -	R -	R -	R -
Dohne-Merino Sheep	R -	R -	R -	R -	R -	R -
Total Cash Inflow	**R -**	**R -**	**R -**	**R -**	**R -**	**R -**
Cash outflows						
Direct-allocatable expenses						
Seed	R -	R -	R -	R 325 913,00	R -	R -
Fertiliser, herbisides and pestisides	R -	R -	R -	R -	R 845 000,00	R -
Crop insurance	R 1 030,25	R -	R -	R -	R -	R -
Contracted sevices	R -	R -	R -	R -	R -	R -
Veterinary costs	R -	R 6 776,37	R -	R -	R -	R 3 455,23
Feeding costs	R 217 916,67	R -	R -	R -	R -	R -
Overhead costs						
General Salaries	R 45 785,83	R 45 786,00	R 45 786,00	R 45 786,00	R 45 786,00	R 45 786,00
Salaries-Admin	R 1 774,25	R 1 774,00	R 1 774,00	R 1 774,00	R 1 774,00	R 1 774,00
Overhead seasonal wages	R 990,92	R 991,00	R 991,00	R 991,00	R 991,00	R 991,00
Fixed improvements- maintenance and repairs	R 17 997,08	R 17 997,00	R 17 997,00	R 17 997,00	R 17 997,00	R 17 997,00
Insurance and licenses (General vehicles)	R 11 142,92	R 11 143,00	R 11 143,00	R 11 143,00	R 11 143,00	R 11 143,00
Banking costs'	R 1 018,33	R 1 018,00	R 1 018,00	R 1 018,00	R 1 018,00	R 1 018,00
Oudit and consultation	R 3 905,00	R 3 905,00	R 3 905,00	R 3 905,00	R 3 905,00	R 3 905,00
Electricity	R 10 457,50	R 10 458,00	R 10 458,00	R 10 458,00	R 10 458,00	R 10 458,00
Diverse expenses (general)	R 8 362,08	R 8 362,00	R 8 362,00	R 8 362,00	R 8 362,00	R 8 362,00
Other contract work	R 4 797,92	R 4 798,00	R 4 798,00	R 4 798,00	R 4 798,00	R 4 798,00
Capital expenditure						
Livestock						
New fixed improvements	R 123 328,00	R -	R -	R -	R -	R -
Debt Repayments						
Capital	R 117 283,56	R 117 283,56	R 117 283,56	R 117 283,56	R 117 283,56	R 117 283,56
Interest	R 127 479,50	R 127 479,50	R 127 479,50	R 127 479,50	R 127 479,50	R 127 479,50
Total cash outflow	R 693 269,81	R 357 771,43	R 350 995,06	R 350 995,06	R 1 195 995,06	R 354 450,29
Total cash inflow less total cash outflow	**-R 693 269,81**	**-R 357 771,43**	**-R 350 995,06**	**-R 350 995,06**	**-R 1 195 995,06**	**-R 354 450,29**
Bank Balance						
Opening balance	**R 1 384 856,27**	**R 695 044,39**	**R 338 959,32**	**-R 12 209,05**	**-R 368 434,25**	**-R 1 586 957,10**
New Balance	R 691 586,46	R 337 272,96	-R 12 035,74	-R 363 204,11	-R 1 564 429,32	-R 1 941 407,39
Interest	R 3 457,93	R 1 686,36	-R 173,31	-R 5 230,14	-R 22 527,78	-R 27 956,27
Closing balance	**R 695 044,39**	**R 338 959,32**	**-R 12 209,05**	**-R 368 434,25**	**-R 1 586 957,10**	**-R 1 969 363,66**

	July-2018		August-2018		September-2018		October-2018		November-2018		December-2018	Totaal:	
R	-	R	-	R	-	R	-	R	1 120 500,00	R	4 108 500,00	**R**	**5 229 000,00**
R	-	R	-	R	-	R	672 740,00	R	1 919 239,73	R	298 320,00	**R**	**2 890 299,73**
R	**-**	**R**	**-**	**R**	**-**	**R**	**672 740,00**	**R**	**3 039 739,73**	**R**	**4 406 820,00**	**R**	**8 119 299,73**
R	-	R	-	R	-	R	-	R	-	R	-	**R**	**325 913,00**
R	129 000,00	R	165 000,00	R	-	R	-	R	-	R	-	**R**	**1 139 000,00**
R	-	R	-	R	-	R	-	R	-	R	-	**R**	**1 030,25**
R	-	R	-	R	-	R	-	R	26 177,20	R	39 265,80	**R**	**65 443,00**
R	8 932,98	R	-	R	3 440,55	R	2 956,80	R	-	R	4 495,48	**R**	**30 057,40**
R	-	R	-	R	-	R	-	R	-	R	-	**R**	**217 916,67**
R	45 786,00	R	45 786,00	R	45 786,00	R	45 786,00	R	45 786,00	R	45 786,00	**R**	**549 431,83**
R	1 774,00	R	1 774,00	R	1 774,00	R	1 774,00	R	1 774,00	R	1 774,00	**R**	**21 288,25**
R	991,00	R	991,00	R	991,00	R	991,00	R	991,00	R	991,00	**R**	**11 891,92**
R	17 997,00	R	17 997,00	R	17 997,00	R	17 997,00	R	17 997,00	R	17 997,00	**R**	**215 964,08**
R	11 143,00	R	11 143,00	R	11 143,00	R	11 143,00	R	11 143,00	R	11 143,00	**R**	**133 715,92**
R	1 018,00	R	1 018,00	R	1 018,00	R	1 018,00	R	1 018,00	R	1 018,00	**R**	**12 216,33**
R	3 905,00	R	3 905,00	R	3 905,00	R	3 905,00	R	3 905,00	R	3 905,00	**R**	**46 860,00**
R	10 458,00	R	10 458,00	R	10 458,00	R	10 458,00	R	10 458,00	R	10 458,00	**R**	**125 495,50**
R	8 362,00	R	8 362,00	R	8 362,00	R	8 362,00	R	8 362,00	R	8 362,00	**R**	**100 344,08**
R	4 798,00	R	4 798,00	R	4 798,00	R	4 798,00	R	4 798,00	R	4 798,00	**R**	**57 575,92**
												R	**-**
R	-	R	-	R	-	R	-	R	-	R	-	**R**	**123 328,00**
R	117 283,56	R	117 283,56	R	117 283,56	R	117 283,56	R	117 283,56	R	117 283,56	**R**	**1 407 402,78**
R	127 479,50	R	127 479,50	R	127 479,50	R	127 479,50	R	127 479,50	R	127 479,50	**R**	**1 529 753,96**
R	488 928,04	R	515 995,06	R	354 435,61	R	353 951,86	R	377 172,26	R	394 756,34	**R**	**5 788 715,89**
-R	**488 928,04**	**-R**	**515 995,06**	**-R**	**354 435,61**	**R**	**318 788,14**	**R**	**2 662 567,47**	**R**	**4 012 063,66**	R	**2 330 583,84**
-R	**1 969 363,66**	**-R**	**2 493 691,09**	**-R**	**3 053 025,64**	**-R**	**3 456 528,69**	**-R**	**3 182 924,02**	**-R**	**527 849,68**		
-R	2 458 291,69	-R	3 009 686,16	-R	3 407 461,25	-R	3 137 740,55	-R	520 356,55	R	3 484 213,98		
-R	35 399,40	-R	43 339,48	-R	49 067,44	-R	45 183,46	-R	7 493,13	R	17 421,07		
-R	**2 493 691,09**	**-R**	**3 053 025,64**	**-R**	**3 456 528,69**	**-R**	**3 182 924,02**	**-R**	**527 849,68**	**R**	**3 501 635,05**		

Source: (Schoeman, 2018a)

Appendix B: Financial Statements of Case Study 2.

Balance Sheet for Case Study 2 On								31 December 2017			
		2017		2018		A =E + L			2017		2018
Current Assets	**R**	**1 199 689,56**	**R**	**21 429 290,30**	=			Liabilities			
Bank Balance	R	-	R	21 429 290,30				**Current liabilities**	**R**	**3 843 467,31**	**R**	**1 185 623,53**
Stock on Hand	R	819 960,00	R	-				Bank Overdraft	R	2 541 310,00	R	-
Debtors	R	-	R	-				Creditors	R	245 344,79	R	-
Other	R	379 729,56	R	-				Short term part of long term loan	R	373 888,22	R	412 211,76
								Short term part of meduim term loan	R	682 924,30	R	773 411,77
Meduim Termed Assets	**R**	**8 880 622,27**	**R**	**13 077 067,58**								
Inventory: Vehicles	R	8 880 622,27	R	5 077 067,58								
Bonds	R	-	R	8 000 000,00				**Meduim-Termed Liabilities**	**R**	**3 764 621,38**	**R**	**2 991 209,61**
								Meduim term loan	R	3 764 621,38	R	2 991 209,61
Fixed Assets	**R**	**116 209 010,58**	**R**	**113 639 366,36**				**Long-termed Liabilities**	**R**	**21 658 117,90**	**R**	**21 245 906,13**
Inventory: Fixed Improvements	R	23 376 366,43	R	21 272 493,67				Long term loan	R	21 658 117,90	R	21 245 906,13
Land: With Apples	R	53 822 760,66	R	53 822 760,66				Other	R	-	R	-
Land: With Pears	R	29 679 903,49	R	29 679 903,49								
Land: Other	R	3 281 000,00	R	3 281 000,00				**Total Liabilities**	**R**	**29 266 206,59**	**R**	**25 422 739,28**
Inventory: Tractors and Implemen	R	6 048 980,00	R	5 583 208,54								
								Equity				
Total Assets	R	126 289 322,41	R	148 145 724,24				**Owners Equity**	**R**	**97 023 115,83**	**R**	**122 722 984,96**
		2017		**2018**				Owners Investment	R	88 128 024,46	R	88 128 024,46
								Retianed Earnings	R	8 895 091,36	R	26 594 960,50
								Other	R	-	R	8 000 000,00
								Total Equity + Liabilities	R	126 289 322,41	R	148 145 724,24
										2017		**2018**

Source: (Schoeman, 2018b)

Income Statement for Case Study 2		31 December 2017	
		Total	
Total Sales/Income		R	51 752 928.69
Cash		R	44 507 518.67
Credit		R	7 245 410.02
Contract		R	-
Total Gross Production Value (GPV)		R	51 752 928.69
Total Expenses		R	22 850 604.67
Production Costs	Fertilizers	R	393 554.74
	Pesticides	R	2 507 275.51
	Herbicides	R	109 653.42
	Equipments rent	R	864 770.10
	Diverse Expenses	R	1 009 700.00
	Electricity	R	1 363 700.82
	Maintenance and Fuel	R	3 140 570.88
	Adminastration Costs	R	720 619.48
	Licenses and Insurance	R	253 434.70
	Crop insurance	R	483 444.36
Labor Costs	Wages	R	7 700 969.24
	Salaries: Production	R	1 691 727.96
	Salaries: Admin	R	610 802.80
	Salaries: Management	R	980 923.98
Overheads	Banking costs	R	41 755.00
	computer expenses	R	37 900.00
	cleaning fees	R	12 317.00
	security	R	-
	workshop expenses	R	-
	office equipment and diverse exper	R	69 774.00
	courier costs	R	3 393.00
	membership fees	R	48 737.00
	telephone	R	75 730.00
	other office expenses	R	12 600.00
	Diverse staff expenses	R	24 000.00
	other proffesional fees	R	182 213.00
	Oudit fees	R	334 392.00
	Advertising	R	-
	training	R	52 101.36
Depreciation	Vehicles	R	3 803 554.68
	Tractors and implements	R	465 771.46
	Fixed Improvements	R	2 103 872.77
Net Farm Income (NFI)		R	28 902 324.01
Total Compulsory Capital Redemption		R	2 782 454.87
Interest	Interest on long term loan	R	2 258 280.63
	Interest on medium term loan	R	589 299.80
	Interest on bank overdraft	-R	65 125.55
Farm Profit		R	26 119 869.14
Net profit/(Loss)		R	25 699 869.14
Net Worth Beginning of the year		R	97 023 115.83
Growth In Net worth		R	25 699 869.14
Net Worth End of the year		R	122 722 984.96
EBITDA		R	34 389 751.46
Total Compulsory Capital Redemption		R	2 782 454.87
Depreciation		R	5 907 427.45
Net profit/(Loss)		R	25 699 869.14

Source: (Schoeman, 2018b)

Cashflow budget for Case Study 2						
	January-2018	February-2018	March-2018	April-2018	May-2018	June-2018
Cash Inflow						
Operating Income						
Royal Gala						
Pears	R -	R 38 050 595.89	R -	R -	R -	R -
Forelle						
Pears	R -	R -	R 19 912 684.24	R -	R -	R -
Total	R -	R 38 050 595.89	R 19 912 684.24	R -	R -	R -
Cash Outflow						
Royal Gala apples						
Operating Expenses						
Production costs						
Fertilizers	R -	R -	R -	R 154 181.26	R -	R -
Pestisedes	R 391 784.08	R -	R -	R -	R -	R -
Herbisides	R 7 911.60	R 7 911.60	R 7 911.60	R 7 911.60	R 7 911.60	R 7 911.60
Wages	R 560 281.76	R 560 281.76	R 560 281.76	R 560 281.76	R 560 281.76	R 560 281.76
Salaries: Production	R 102 565.98	R 102 565.98	R 102 565.98	R 102 565.98	R 102 565.98	R 102 565.98
Salaries: Admin	R 38 497.85	R 39 923.69	R 39 923.69	R 39 923.69	R 39 923.69	R 39 923.69
Salaries: Management	R 57 995.98	R 57 995.98	R 57 995.98	R 57 995.98	R 57 995.98	R 57 995.98
Equipments rent	R 57 639.96	R 57 639.96	R 57 639.96	R 57 639.96	R 57 639.96	R 57 639.96
Diverse Expenses	R 60 435.83	R 61 534.67	R 61 534.67	R 61 534.67	R 61 534.67	R 61 534.67
Electricity	R 81 624.64	R 83 108.72	R 83 108.72	R 83 108.72	R 83 108.72	R 83 108.72
Maintenance and Feul	R 187 979.62	R 187 979.62	R 187 979.62	R 187 979.62	R 187 979.62	R 187 979.62
Adminastration Costs	R 45 230.18	R 47 286.09	R 47 286.09	R 47 286.09	R 47 286.09	R 47 286.09
Licenses and Insuranc	R 15 445.20	R 15 445.20	R 15 445.20	R 15 445.20	R 15 445.20	R 15 445.20
Crop insurance	R 29 725.86	R 29 725.86	R 29 725.86	R 29 725.86	R 29 725.86	R 29 725.86
Forelle Pears						
Operating Expenses						
Production costs						
Fertilizers	R -	R -	R -	R 154 181.26	R -	R -
Pestisedes	R 391 784.08	R -	R -	R -	R -	R -
Herbisides	R 7 911.60	R 7 911.60	R 7 911.60	R 7 911.60	R 7 911.60	R 7 911.60
Wages	R 560 281.76	R 560 281.76	R 560 281.76	R 560 281.76	R 560 281.76	R 560 281.76
Salaries: Production	R 102 565.98	R 102 565.98	R 102 565.98	R 102 565.98	R 102 565.98	R 102 565.98
Salaries: Admin	R 38 497.85	R 39 923.69	R 39 923.69	R 39 923.69	R 39 923.69	R 39 923.69
Salaries: Management	R 57 995.98	R 57 995.98	R 57 995.98	R 57 995.98	R 57 995.98	R 57 995.98
Equipments rent	R 57 639.96	R 57 639.96	R 57 639.96	R 57 639.96	R 57 639.96	R 57 639.96
Diverse Expenses	R 60 435.83	R 61 534.67	R 61 534.67	R 61 534.67	R 61 534.67	R 61 534.67
Electricity	R 81 624.64	R 83 108.72	R 83 108.72	R 83 108.72	R 83 108.72	R 83 108.72
Maintenance and Feul	R 187 979.62	R 187 979.62	R 187 979.62	R 187 979.62	R 187 979.62	R 187 979.62
Adminastration Costs	R 45 230.18	R 47 286.09	R 47 286.09	R 47 286.09	R 47 286.09	R 47 286.09
Licenses and Insuranc	R 15 445.20	R 15 445.20	R 15 445.20	R 15 445.20	R 15 445.20	R 15 445.20
Crop insurance	R 29 725.86	R 29 725.86	R 29 725.86	R 29 725.86	R 29 725.86	R 29 725.86
Total	2222071.669	1762507.724	1762507.724	1982536.153	1762507.724	1762507.724
Gross Margin	**-2222071.669**	**36288088.17**	**18150176.51**	**-1982536.153**	**-1762507.724**	**-1762507.724**
Overhead costs						
Banking costs	R 4 105.91	R 4 105.91	R 4 105.91	R 4 105.91	R 4 105.91	R 4 105.91
computer expenses	R 3 474.17	R 3 474.17	R 3 474.17	R 3 474.17	R 3 474.17	R 3 474.17
cleaning fees	R 1 108.53	R 1 108.53	R 1 108.53	R 1 108.53	R 1 108.53	R 1 108.53
security	R 1 500.00	R 1 500.00	R 1 500.00	R 1 500.00	R 1 500.00	R 1 500.00
workshop expenses	R 1 200.00	R 1 200.00	R 1 200.00	R 1 200.00	R 1 200.00	R 1 200.00
office equipment and	R 6 512.24	R 6 512.24	R 6 512.24	R 6 512.24	R 6 512.24	R 6 512.24
courier costs	R 316.68	R 316.68	R 316.68	R 316.68	R 316.68	R 316.68
membership fees	R 4 548.79	R 4 548.79	R 4 548.79	R 4 548.79	R 4 548.79	R 4 548.79
telephone	R 7 068.13	R 7 068.13	R 7 068.13	R 7 068.13	R 7 068.13	R 7 068.13
other office expenses	R 1 250.00	R 1 250.00	R 1 250.00	R 1 250.00	R 1 250.00	R 1 250.00
Diverse staaf expenses	R 2 240.00	R 2 240.00	R 2 240.00	R 2 240.00	R 2 240.00	R 2 240.00
other proffesional fees	R 17 006.55	R 17 006.55	R 17 006.55	R 17 006.55	R 17 006.55	R 17 006.55
Oudit fees	R 31 209.92	R 31 209.92	R 31 209.92	R 31 209.92	R 31 209.92	R 31 209.92
Advertising	R 1 500.00	R 1 500.00	R 1 500.00	R 1 500.00	R 1 500.00	R 1 500.00
training	R 4 502.59	R 4 502.59	R 4 502.59	R 4 502.59	R 4 502.59	R 4 502.59
Total:	R 87 543.50	R 87 543.50	R 87 543.50	R 87 543.50	R 87 543.50	R 87 543.50
Entrepreneurial comp	R 35 000.00	R 35 000.00	R 35 000.00	R 35 000.00	R 35 000.00	R 35 000.00
debt repayment 1	R 106 018.68	R 106 018.68	R 106 018.68	R 106 018.68	R 106 018.68	R 106 018.68
debt repayment 2	R 219 347.40	R 219 347.40	R 219 347.40	R 219 347.40	R 219 347.40	R 219 347.40
Total	R 360 366.08	R 360 366.08	R 360 366.08	R 360 366.08	R 360 366.08	R 360 366.08
Bank balance						
Bank balance: BEGIN	**R 22 116 039.83**	**R 19 446 058.58**	**R 55 286 237.18**	**R 72 988 504.11**	**R 70 558 058.38**	**R 68 347 641.08**
cash inflow	**R -**	**R 38 050 595.89**	**R 19 912 684.24**	**R -**	**R -**	**R -**
Cash outflow	**R 2 669 981.25**	**R 2 210 417.30**	**R 2 210 417.30**	**R 2 430 445.73**	**R 2 210 417.30**	**R 2 210 417.30**
Balance before intere	R 19 446 058.58	R 55 286 237.18	R 72 988 504.11	R 70 558 058.38	R 68 347 641.08	R 66 137 223.78
Interest on overdraft	R -	R -	R -	R -	R -	R -
Bank balance: END	**R 19 446 058.58**	**R 55 286 237.18**	**R 72 988 504.11**	**R 70 558 058.38**	**R 68 347 641.08**	**R 66 137 223.78**

01 January 2018			until		01 January 2018	
July-2018	August-2018	September-2018	October-2018	November-2018	December-2018	Totaal
						R -
R -	R -	R -	R -	R -	R -	R 38 050 595.89
R -	R -	R -	R -	R -	R -	R 19 912 684.24
R -	R -	R -	R -	R -	R -	R 57 963 280.13
R -	R -	R -	R -	R 138 984.66	R -	R 293 165.92
R -	R 349 807.22	R 349 807.22	R 349 807.22	R 349 807.22	R 349 807.22	R 2 140 820.18
R 7 911.60	R 7 911.60	R 7 911.60	R 7 911.60	R 7 911.60	R 7 911.60	R 94 939.20
R 560 281.76	R 560 281.76	R 560 281.76	R 560 281.76	R 560 281.76	R 560 281.76	R 6 723 381.09
R 102 565.98	R 102 565.98	R 102 565.98	R 102 565.98	R 102 565.98	R 102 565.98	R 1 230 791.79
R 39 923.69	R 39 923.69	R 39 923.69	R 39 923.69	R 39 923.69	R 39 923.69	R 477 658.45
R 57 995.98	R 57 995.98	R 57 995.98	R 57 995.98	R 57 995.98	R 57 995.98	R 695 951.81
R 57 639.96	R 57 639.96	R 57 639.96	R 57 639.96	R 57 639.96	R 57 639.96	R 691 679.54
R 61 534.67	R 61 534.67	R 61 534.67	R 61 534.67	R 61 534.67	R 61 534.67	R 737 317.17
R 83 108.72	R 83 108.72	R 83 108.72	R 83 108.72	R 83 108.72	R 83 108.72	R 995 820.57
R 187 979.62	R 187 979.62	R 187 979.62	R 187 979.62	R 187 979.62	R 187 979.62	R 2 255 755.39
R 47 286.09	R 47 286.09	R 47 286.09	R 47 286.09	R 47 286.09	R 47 286.09	R 565 377.22
R 15 445.20	R 15 445.20	R 15 445.20	R 15 445.20	R 15 445.20	R 15 445.20	R 185 342.42
R 29 725.86	R 30 251.98	R 30 251.98	R 30 251.98	R 30 251.98	R 30 251.98	R 359 340.92
R -	R -	R -	R -	R 138 984.66	R -	R 293 165.92
R -	R 349 807.22	R 349 807.22	R 349 807.22	R 349 807.22	R 349 807.22	R 2 140 820.18
R 7 911.60	R 7 911.60	R 7 911.60	R 7 911.60	R 7 911.60	R 7 911.60	R 94 939.20
R 560 281.76	R 560 281.76	R 560 281.76	R 560 281.76	R 560 281.76	R 560 281.76	R 6 723 381.09
R 102 565.98	R 102 565.98	R 102 565.98	R 102 565.98	R 102 565.98	R 102 565.98	R 1 230 791.79
R 39 923.69	R 39 923.69	R 39 923.69	R 39 923.69	R 39 923.69	R 39 923.69	R 477 658.45
R 57 995.98	R 57 995.98	R 57 995.98	R 57 995.98	R 57 995.98	R 57 995.98	R 695 951.81
R 57 639.96	R 57 639.96	R 57 639.96	R 57 639.96	R 57 639.96	R 57 639.96	R 691 679.54
R 61 534.67	R 61 534.67	R 61 534.67	R 61 534.67	R 61 534.67	R 61 534.67	R 737 317.17
R 83 108.72	R 83 108.72	R 83 108.72	R 83 108.72	R 83 108.72	R 83 108.72	R 995 820.57
R 187 979.62	R 187 979.62	R 187 979.62	R 187 979.62	R 187 979.62	R 187 979.62	R 2 255 755.39
R 47 286.09	R 47 286.09	R 47 286.09	R 47 286.09	R 47 286.09	R 47 286.09	R 565 377.22
R 15 445.20	R 15 445.20	R 15 445.20	R 15 445.20	R 15 445.20	R 15 445.20	R 185 342.42
R 29 725.86	R 30 251.98	R 30 251.98	R 30 251.98	R 30 251.98	R 30 251.98	R 359 340.92
1828440.35	2178190.215	2178190.215	2178190.215	2383127.163	2178190.215	R 17 447 341.66
-1828440.35	**-2178190.215**	**-2178190.215**	**-2178190.215**	**-2383127.163**	**-2178190.215**	**R 33 784 313.04**
R 4 105.91	R 4 105.91	R 4 105.91	R 4 105.91	R 4 105.91	R 4 105.91	R 49 270.90
R 3 474.17	R 3 474.17	R 3 474.17	R 3 474.17	R 3 474.17	R 3 474.17	R 41 690.00
R 1 108.53	R 1 108.53	R 1 108.53	R 1 108.53	R 1 108.53	R 1 108.53	R 13 302.36
R 1 500.00	R 1 500.00	R 1 500.00	R 1 500.00	R 1 500.00	R 1 500.00	R 18 000.00
R 1 200.00	R 1 200.00	R 1 200.00	R 1 200.00	R 1 200.00	R 1 200.00	R 14 400.00
R 6 512.24	R 6 512.24	R 6 512.24	R 6 512.24	R 6 512.24	R 6 512.24	R 78 146.88
R 316.68	R 316.68	R 316.68	R 316.68	R 316.68	R 316.68	R 3 800.16
R 4 548.79	R 4 548.79	R 4 548.79	R 4 548.79	R 4 548.79	R 4 548.79	R 54 585.44
R 7 068.13	R 7 068.13	R 7 068.13	R 7 068.13	R 7 068.13	R 7 068.13	R 84 817.60
R 1 250.00	R 1 250.00	R 1 250.00	R 1 250.00	R 1 250.00	R 1 250.00	R 15 000.00
R 2 240.00	R 2 240.00	R 2 240.00	R 2 240.00	R 2 240.00	R 2 240.00	R 26 880.00
R 17 006.55	R 17 006.55	R 17 006.55	R 17 006.55	R 17 006.55	R 17 006.55	R 204 078.56
R 31 209.92	R 31 209.92	R 31 209.92	R 31 209.92	R 31 209.92	R 31 209.92	R 374 519.04
R 1 500.00	R 1 500.00	R 1 500.00	R 1 500.00	R 1 500.00	R 1 500.00	R 18 000.00
R 4 502.59	R 4 502.59	R 4 502.59	R 4 502.59	R 4 502.59	R 4 502.59	R 54 031.04
R 87 543.50	R 87 543.50	R 87 543.50	R 87 543.50	R 87 543.50	R 87 543.50	R 1 050 521.98
R 35 000.00	R 35 000.00	R 35 000.00	R 35 000.00	R 35 000.00	R 35 000.00	R 420 000.00
R 106 018.68	R 106 018.68	R 106 018.68	R 106 018.68	R 106 018.68	R 106 018.68	R 1 272 224.10
R 219 347.40	R 219 347.40	R 219 347.40	R 219 347.40	R 219 347.40	R 219 347.40	R 2 632 168.85
R 360 366.08	R 360 366.08	R 360 366.08	R 360 366.08	R 360 366.08	R 360 366.08	R 4 324 392.95
R 66 137 223.78	**R 63 860 873.85**	**R 61 234 774.06**	**R 58 608 674.27**	**R 55 982 574.47**	**R 53 151 537.73**	
R -	**R -**	**R -**	**R -**	**R -**	**R -**	
R 2 276 349.93	**R 2 626 099.79**	**R 2 626 099.79**	**R 2 626 099.79**	**R 2 831 036.74**	**R 2 626 099.79**	
R 63 860 873.85	R 61 234 774.06	R 58 608 674.27	R 55 982 574.47	R 53 151 537.73	R 50 525 437.94	
R -	R -	R -	R -	R -	R -	
R 63 860 873.85	**R 61 234 774.06**	**R 58 608 674.27**	**R 55 982 574.47**	**R 53 151 537.73**	**R 50 525 437.94**	

Source: (Schoeman, 2018b)

Appendix C: Financial Statements of Case Study 3.

Balance Sheet for Case Study 3 on 31-December-2017								
Assets				=	Equity + Liabilities			
	2016		2018	A = E +		2016		2017
Current Assets	**R**	**691 300.00**	**R**	**703 723.00**		Liabilities		
Bank Balance	R	55 150.00	R	-	**Current liabilities**	**R**	**491 575.16**	**R** **923 590.53**
Stock on Hand	R	636 150.00	R	674 640.00	Bank Overdraft	R	-	R 483 688.57
Debtors	R	-	R	29 083.00	Creditors	R	120 500.00	R 19 218.51
Other	R	-	R	-	Short term part of Production loan	R	268 353.10	R 303 909.88
					Short term part of long term loan	R	28 564.29	R 31 492.13
Meduim Termed Assets	**R**	**1 676 850.00**	**R**	**1 671 810.00**	Short term part of meduim term loan	R	74 157.78	R 85 281.44
Inventory: Moveables	R	565 350.00	R	472 450.00				
Breeding Stock	R	1 111 500.00	R	1 199 360.00	**Meduim-Termed Liabilities**	**R**	**1 905 139.13**	**R** **1 515 947.81**
Office furniture					Meduim Term Loan	R	425 842.22	R 340 560.78
					Production Loan: Livestock	R	1 479 296.90	R 1 175 387.02
Fixed Assets	**R**	**8 416 000.00**	**R**	**8 416 000.00**				
Inventory: Fixed Assets	R	712 000.00	R	712 000.00	**Long-termed Liabilities**	**R**	**1 654 635.71**	**R** **1 623 143.58**
Land	R	7 704 000.00	R	7 704 000.00	Long term loan	R	1 654 635.71	R 1 623 143.58
					Other	R	-	R -
Total Assets	**R**	**10 784 150.00**	**R**	**10 791 533.00**	**Total Liabilities**	**R**	**4 051 350.00**	**R** **4 062 681.91**
	2016		**2017**					
					Equity			
					Owners Equity	**R**	**6 732 800.00**	**R** **6 728 851.09**
					Owners Investment	R	5 992 192.00	R 5 992 192.00
					Retianed Earnings	R	740 608.00	R 736 659.09
					Other	R	-	R -
					Total Equity + Liabilities	**R**	**10 784 150.00**	**R** **10 791 533.00**
						2016		**2017**

Source: (Schoeman, 2018c)

Income statement for Case Study 3		31-December-2017	
		Total	
Total Sales/Income		R	732 804.48
Cash		R	703 721.48
Credit		R	16 542.00
Contract		R	-
Other		R	12 541.00
Total Consumption		R	6 700.00
Household		R	3 800.00
Labor		R	2 900.00
Internal/Other		R	-
Total Stock Adjustment		R	48 468.44
Closing Stock		R	1 874 000.00
Opening Stock		R	1 747 650.00
Purchases		R	77 881.56
Total Gross Production Value (GPV)		R	787 972.93
Total Expenses		R	388 646.21
Production Costs	Fuel	R	102 784.00
	Oil	R	714.34
	Maintenance and Repairs	R	18 659.46
Labor Costs	Non-seasonal workers	R	74 606.40
Overhead costs	Insurance: Equipment and Tools	R	15 012.00
	Insurance: Fixed improvements	R	18 360.00
	Licenses	R	5 850.00
	Water	R	23 850.00
	Oudit costs	R	9 900.00
	Banking costs	R	10 800.00
	Telephone	R	10 800.00
	Office stationery	R	2 250.00
	Membership fees	R	2 160.00
Depreciation	Fixed improvements	R	-
	Moveables	R	92 900.00
Net Farm Income (NFI)		R	399 326.72
Total Interest		R	415 791.63
Interest	Interest on Long term Loan	R	172 528.00
	Interest on Production Loan	R	231 563.63
	Interest on medium term loan	R	11 700.00
Farm Profit		-R	16 464.91
Plus		R	12 516.00
Non Farm Income		R	12 516.00
Net Profit/(Loss)		-R	3 948.91
Net Worth Beginning of the year		R	6 732 800.00
Growth In Net worth		-R	3 948.91
Net Worth End of the year		R	6 728 851.09
EBITDA		R	504 742.72
Total Interest		R	415 791.63
Net Profit/(Loss)		-R	3 948.91
Depreciation		R	92 900.00

Source: (Schoeman, 2018c)

Cashflow Budget for Case Study 3						
Cash Flow Period	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17
Cash Flow						
Dorper Sheep	R -	R 173 795.76	R -	R -	R -	R 173 795.76
Mixed-Cattle	R -	R -	R -	R -	R -	R 120 454.40
Total	**R -**	**R 173 795.76**	**R -**	**R -**	**R -**	**R 294 250.16**
Cash Outflow						
Dorper Sheep	R 1 940.68	R 770.01	R 4 470.72	R 9 269.50	R 440.68	R 770.01
Mixed-cattle	R 955.81	R 955.81	R 955.81	R 8 024.41	R 955.81	R 2 715.81
Total	**R 2 896.49**	**R 1 725.82**	**R 5 426.53**	**R 17 293.91**	**R 1 396.49**	**R 3 485.82**
Cash Flow after production	-R 2 896.49	R 172 069.94	-R 5 426.53	-R 17 293.91	-R 1 396.49	R 290 764.34
Non-Direct Assignable production costs						
Brandstof	R 10 706.67	R 10 706.67	R 10 706.67	R 10 706.67	R 10 706.67	R 10 706.67
Olie	R 70.03	R 70.03	R 70.03	R 70.03	R 70.03	R 70.03
Onderhoud en Herstelwerk	R 1 636.80	R 1 636.80	R 1 636.80	R 1 636.80	R 1 636.80	R 1 636.80
Totaal:	R 12 413.50	R 12 413.50	R 12 413.50	R 12 413.50	R 12 413.50	R 12 413.50
Fixed Costs						
Insurance: Mashinery and equipment	R 1 390.00	R 1 390.00	R 1 390.00	R 1 390.00	R 1 390.00	R 1 390.00
Insurance: Fixed Improvements	R 1 700.00	R 1 700.00	R 1 700.00	R 1 700.00	R 1 700.00	R 1 700.00
Lincenses	R 541.67	R 541.67	R 541.67	R 541.67	R 541.67	R 541.67
Non-seasonal workers	R 6 908.00	R 6 908.00	R 6 908.00	R 6 908.00	R 6 908.00	R 6 908.00
Water	R 2 208.33	R 2 208.33	R 2 208.33	R 2 208.33	R 2 208.33	R 2 208.33
Ouditor	R 916.67	R 916.67	R 916.67	R 916.67	R 916.67	R 916.67
Banking Costs	R 1 000.00	R 1 000.00	R 1 000.00	R 1 000.00	R 1 000.00	R 1 000.00
Telephone	R 1 000.00	R 1 000.00	R 1 000.00	R 1 000.00	R 1 000.00	R 1 000.00
Office needs	R 208.33	R 208.33	R 208.33	R 208.33	R 208.33	R 208.33
Membership Fees	R 200.00	R 200.00	R 200.00	R 200.00	R 200.00	R 200.00
Total	R 16 073.00	R 16 073.00	R 16 073.00	R 16 073.00	R 16 073.00	R 16 073.00
Total outflow	R 28 486.50	R 28 486.50	R 28 486.50	R 28 486.50	R 28 486.50	R 28 486.50
	-R 31 382.99	**R 143 583.44**	**-R 33 913.03**	**-R 45 780.41**	**-R 29 882.99**	**R 262 277.84**
Entrepreneurial compensation	R 12 000.00	R 12 000.00	R 12 000.00	R 12 000.00	R 12 000.00	R 12 000.00
Long term debt instalment	R 25 151.47	R 25 151.47	R 25 151.47	R 25 151.47	R 25 151.47	R 25 151.47
Short term debt instalment	R 11 846.44	R 11 846.44	R 11 846.44	R 11 846.44	R 11 846.44	R 11 846.44
Total	R 48 997.91	R 48 997.91	R 48 997.91	R 48 997.91	R 48 997.91	R 48 997.91
	-R 80 380.90	**R 94 585.53**	**-R 82 910.94**	**-R 94 778.32**	**-R 78 880.90**	**R 213 279.93**
Bank Saldo BEGIN	**R 50 000.00**	**-R 24 667.25**	**R 66 987.23**	**-R 9 421.21**	**-R 77 997.79**	**-R 139 545.27**
Inflow	R -	R 173 795.76	R -	R -	R -	R 294 250.16
Outflow	R 77 484.41	R 77 484.41	R 77 484.41	R 77 484.41	R 77 484.41	R 77 484.41
Cash Flow before interest	-R 27 484.41	R 71 644.10	-R 10 497.17	-R 86 905.62	-R 155 482.20	R 77 220.48
interest	-R 2 817.15	R 4 656.87	-R 1 075.96	-R 8 907.83	-R 15 936.93	R 5 019.33
Bank Saldo END	**-R 24 667.25**	**R 66 987.23**	**-R 9 421.21**	**-R 77 997.79**	**-R 139 545.27**	**R 72 201.15**

01 January 2018												until												31 December 2018	
	Jul-17			Aug-17			Sep-17			Oct-17			Nov-17			Dec-17			Totaal	
R	-		R	-		R	-		R	173 795.76		R	-		R	-		R	521 387.28	
R	-		R	-		R	-		R	-		R	-		R	120 454.40		R	240 908.80	
R	**-**		**R**	**-**		**R**	**-**		**R**	**173 795.76**		**R**	**-**		**R**	**120 454.40**		**R**	**762 296.08**	
R	476.52		R	9 269.50		R	5 934.88		R	770.01		R	476.52		R	13 443.57		R	48 032.62	
R	955.81		R	955.81		R	955.81		R	8 024.41		R	955.81		R	8 548.07		R	34 959.18	
R	**1 432.33**		**R**	**10 225.31**		**R**	**6 890.69**		**R**	**8 794.42**		**R**	**1 432.33**		**R**	**21 991.64**		**R**	**82 991.80**	
-R	1 432.33		-R	10 225.31		-R	6 890.69		R	165 001.34		-R	1 432.33		R	98 462.76		R	679 304.28	
R	10 706.67		R	10 706.67		R	10 706.67		R	10 706.67		R	10 706.67		R	10 706.67		R	128 480.00	
R	70.03		R	70.03		R	70.03		R	70.03		R	70.03		R	70.03		R	840.41	
R	1 636.80		R	1 636.80		R	1 636.80		R	1 636.80		R	1 636.80		R	1 636.80		R	19 641.54	
R	12 413.50		R	12 413.50		R	12 413.50		R	12 413.50		R	12 413.50		R	12 413.50		R	148 961.95	
R	1 390.00		R	1 390.00		R	1 390.00		R	1 390.00		R	1 390.00		R	1 390.00		R	16 680.00	
R	1 700.00		R	1 700.00		R	1 700.00		R	1 700.00		R	1 700.00		R	1 700.00		R	20 400.00	
R	541.67		R	541.67		R	541.67		R	541.67		R	541.67		R	541.67		R	6 500.00	
R	6 908.00		R	6 908.00		R	6 908.00		R	6 908.00		R	6 908.00		R	6 908.00		R	82 896.00	
R	2 208.33		R	2 208.33		R	2 208.33		R	2 208.33		R	2 208.33		R	2 208.33		R	26 500.00	
R	916.67		R	916.67		R	916.67		R	916.67		R	916.67		R	916.67		R	11 000.00	
R	1 000.00		R	1 000.00		R	1 000.00		R	1 000.00		R	1 000.00		R	1 000.00		R	12 000.00	
R	1 000.00		R	1 000.00		R	1 000.00		R	1 000.00		R	1 000.00		R	1 000.00		R	12 000.00	
R	208.33		R	208.33		R	208.33		R	208.33		R	208.33		R	208.33		R	2 500.00	
R	200.00		R	200.00		R	200.00		R	200.00		R	200.00		R	200.00		R	2 400.00	
R	16 073.00		R	16 073.00		R	16 073.00		R	16 073.00		R	16 073.00		R	16 073.00		R	192 876.00	
R	28 486.50		R	28 486.50		R	28 486.50		R	28 486.50		R	28 486.50		R	28 486.50		R	341 837.95	
-R	**29 918.83**		**-R**	**38 711.81**		**-R**	**35 377.19**		**R**	**136 514.84**		**-R**	**29 918.83**		**R**	**69 976.27**		**R**	**337 466.33**	
R	12 000.00		R	12 000.00		R	12 000.00		R	12 000.00		R	12 000.00		R	12 000.00		R	144 000.00	
R	25 151.47		R	25 151.47		R	25 151.47		R	25 151.47		R	25 151.47		R	25 151.47		R	301 817.64	
R	11 846.44		R	11 846.44		R	11 846.44		R	11 846.44		R	11 846.44		R	11 846.44		R	142 157.27	
R	48 997.91		R	48 997.91		R	48 997.91		R	48 997.91		R	48 997.91		R	48 997.91		R	587 974.91	
-R	**78 916.74**		**-R**	**87 709.72**		**-R**	**84 375.10**		**R**	**87 516.93**		**-R**	**78 916.74**		**R**	**20 978.36**		**-R**	**250 508.58**	
R	**72 201.15**		**-R**	**4 741.72**		**-R**	**73 797.95**		**-R**	**135 775.91**		**-R**	**35 419.44**		**-R**	**101 331.20**		**-R**	**413 509.35**	
R	-		R	-		R	-		R	173 795.76		R	-		R	120 454.40		R	762 296.08	
R	77 484.41		R	77 484.41		R	77 484.41		R	77 484.41		R	77 484.41		R	77 484.41		R	929 812.86	
-R	5 283.25		-R	82 226.12		-R	151 282.35		-R	39 464.56		-R	112 903.84		-R	58 361.20		-R	581 026.13	
-R	541.53		-R	8 428.18		-R	15 506.44		-R	4 045.12		-R	11 572.64		-R	5 982.02		-R	65 137.60	
-R	**4 741.72**		**-R**	**73 797.95**		**-R**	**135 775.91**		**-R**	**35 419.44**		**-R**	**101 331.20**		**-R**	**52 379.18**		**-R**	**515 888.53**	

Source: (Schoeman, 2018c)

Appendix D: Financial Statements of Case Study 4.

Balance sheet for Case Study 4				ON		31-December-2017		
Assets				=		Equity + Liabilities		
		2016	2017	A = E + L			2016	2017
Current Assets	R	**479 049.84**	**1 492 850.43**			Liabilities		
Bank balance	R	100 000.00	969 881.32		Current liabilities	R	**399 704.46**	**507 742.85**
Stock on Hand	R	199 004.75	469 761.94		Bank Overdraft	R	-	-
Debtors	R	147 513.34	34 416.69		Creditors	R	-	64 000.00
Other	R	32 531.75	18 790.48		Production loan	R	-	-
					Short term part of long term loan	R	195 125.52	215 125.88
Meduim Termed Assets	R	**6 558 865.08**	**4 641 600.00**		Short term part of meduim term lo	R	204 578.94	228 616.96
Inventaris Loskapitaal	R	6 316 090.00	4 332 000.00					
Breeding Stock	R	84 000.00	159 600.00					
Office furniture	R	158 775.08	150 000.00		Meduim-Termed Liabilities	R	**1 405 028.92**	**1 098 160.51**
					Meduim term Loan	R	1 405 028.92	1 098 160.51
					Other	R	-	-
Fixed Assets	R	**55 409 933.33**	**55 352 036.67**		Long-termed Liabilities	R	**10 124 425.21**	**9 929 299.69**
Inventory: Fixed Improvements	R	4 909 933.33	4 852 036.67		Long term loan	R	10 124 425.21	9 929 299.69
Land	R	50 500 000.00	50 500 000.00		Other	R	-	-
Total Assets	R	**62 447 848.25**	**61 486 487.09**		**Total Liabilities**	R	**11 929 158.59**	**11 535 203.05**
					Equity			
					Owners Equity	R	**50 518 689.67**	**49 951 284.04**
					Owners Investment	R	32 837 148.28	34 965 898.82
					Retianed Earnings	R	17 681 541.38	14 985 385.21
					Other	R	-	-
					Total Equity + Liabilities	R	**62 447 848.26**	**61 486 487.09**
		2016	**2017**				**2016**	**2017**

Source: (Schoeman, 2018d)

Income Statement for Case Study 3			31 December 2017
			Total
Total Sales/Income		R	**10 926 341.73**
Cash		R	**9 324 990.47**
Credit		R	**1 038 234.17**
Contract		R	**563 117.09**
Other		R	**-**
Total Consumption		R	**20 570.20**
Household		R	**12 121.00**
Labor		R	**8 449.20**
Internal/Other		R	**-**
Total Stock Adjustment		R	**270 757.19**
Closing Stock		R	**629 361.94**
(Opening Stock)		R	**283 004.75**
(Purchases)		R	**75 600.00**
Total Gross Production Value (GPV)		R	**11 217 669.12**
Total Expenses		R	**10 367 659.55**
Production Costs	Seed	R	**490 525.00**
	Fertilizers	R	**875 856.00**
	Pestisedes and Herbisides	R	**1 387 096.20**
	Machanical Costs	R	**1 927 914.30**
	Feed Costs	R	**1 100 603.70**
	Veterinary costs	R	**96 225.10**
	Sheering costs for sheep	R	**41 305.95**
	Other directly allocatable costs: Merino Sheep	R	**44 015.87**
Overhead Costs	Insurance	R	**171 441.90**
	Repairs amd Maintenance	R	**52 107.00**
	Licenses	R	**3 818.70**
	Interest of long termed loan	R	**1 060 700.34**
	Interest on other loans	R	**205 136.71**
	Oudit costs	R	**86 400.00**
	Electricity	R	**102 600.00**
	Feul and oil (general use)	R	**97 695.00**
	Tyres (general use)	R	**21 600.00**
	Wages and salaries	R	**380 214.00**
	Bonus structure	R	**30 417.12**
Depreciation	Fixed Improvements	R	**57 896.67**
	Moveables	R	**2 134 090.00**
	Others	R	**-**
Net Farm Income (NFI)		R	**850 009.56**
Total Compulsory Capital Redemption		R	**1 417 415.19**
Interest	Interest on Long term loan	R	**1 178 555.93**
	Interest on Meduim term loan	R	**227 929.67**
	Interest on bank overdraft	R	**10 929.59**
Farm Profit		-R	**567 405.63**
Plus			
Net Profit/(Loss)		-R	**567 405.63**
Net Worth Beginning of the year		R	**50 518 689.67**
Growth In Net worth		-R	**567 405.63**
Net Worth End of the year		R	**49 951 284.04**
EBITDA		R	**3 041 996.23**
Total Compulsory Capital Redemption		R	**1 417 415.19**
Net Profit/(Loss)		-R	**567 405.63**
Depreciation		R	**2 191 986.67**

Source: (Schoeman, 2018d)

Cashflow budget for Case Study 4						
Cash Flow Period	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17
Cash Inflow						
Wheat	R 1 221 625.00	R 1 221 625.00	R 1 221 625.00	R -	R -	R -
Barley	R 968 625.00	R 968 625.00	R 968 625.00	R -	R -	R -
Merino Sheep	R -	R -	R -	R -	R -	R -
Wool	R -	R 461 760.38	R -	R -	R -	R -
Meat from slaugters	R -	R -	R 1 107 604.13	R -	R -	R -
Total Cash Inflow	R 2 190 250.00	R 2 652 010.38	R 3 297 854.13	R -	R -	R -
Cash Outflow						
Variable Costs	R -	R -	R -	R -	R -	R -
Seed	R -	R -	R -	R -	R 245 262.50	R 245 262.50
Fertilizers	R -	R -	R -	R -	R 437 928.00	R 437 928.00
Pestisedes and Herbisides	R -	R -	R -	R 308 243.60	R 308 243.60	R 308 243.60
Machanical Costs	R -	R -	R -	R 428 425.40	R 428 425.40	R -
Purchases of breeding rams	R 84 000.00	R -	R -	R -	R -	R -
Feed Costs	R 203 815.50	R 203 815.50	R 203 815.50	R -	R -	R -
Veterinary costs	R -	R 32 075.03	R -	R -	R 21 383.36	R -
Sheering costs for sheep	R -	R 22 947.75	R -	R -	R -	R -
directly allocatable costs: Merino	R 4 075.54	R 4 075.54	R 4 075.54	R 4 075.54	R 4 075.54	R 4 075.54
Overhead costs	R -	R -	R -	R -	R -	R -
Insurance	R 15 874.25	R 15 874.25	R 15 874.25	R 15 874.25	R 15 874.25	R 15 874.25
Repairs amd Maintenance	R 4 824.72	R 4 824.72	R 4 824.72	R 4 824.72	R 4 824.72	R 4 824.72
Licenses	R 4 243.00	R -	R -	R -	R -	R -
Interest of long termed loan	R 98 212.99	R 98 212.99	R 98 212.99	R 98 212.99	R 98 212.99	R 98 212.99
Interest on other loans	R 18 994.14	R 18 994.14	R 18 994.14	R 18 994.14	R 18 994.14	R 18 994.14
Oudit costs	R -	R 96 000.00	R -	R -	R -	R -
Electricity	R 9 500.00	R 9 500.00	R 9 500.00	R 9 500.00	R 9 500.00	R 9 500.00
Feul and oil (general use)	R 9 045.83	R 9 045.83	R 9 045.83	R 9 045.83	R 9 045.83	R 9 045.83
Tyres (general use)	R 2 000.00	R 2 000.00	R 2 000.00	R 2 000.00	R 2 000.00	R 2 000.00
Wages and salaries	R 35 205.00	R 35 205.00	R 35 205.00	R 35 205.00	R 35 205.00	R 35 205.00
Bonus structure	R -	R -	R -	R -	R -	R -
	R -	R -	R -	R -	R -	R -
Total Cash Outflow	R 489 790.98	R 552 570.77	R 401 547.98	R 934 401.48	R 1 638 975.34	R 1 189 166.58
	R -	R -	R -	R -	R -	R -
nce (Total Cash inflow vs Total Ca	R 1 700 459.02	R 2 099 439.61	R 2 896 306.14	-R 934 401.48	-R 1 638 975.34	-R 1 189 166.58
Bank balance						
Bank balance: BEGIN	**R 969 881.32**	**R 4 138 163.22**	**R 6 271 389.85**	**R 9 217 354.34**	**R 8 327 818.86**	**R 6 725 074.75**
Difference	R 1 700 459.02	R 2 099 439.61	R 2 896 306.14	-R 934 401.48	-R 1 638 975.34	-R 1 189 166.58
	R -	R -	R -	R -	R -	R -
Bank balance before interest	R 4 115 868.93	R 6 237 602.83	R 9 167 695.99	R 8 282 952.86	R 6 688 843.52	R 5 535 908.17
Interest	R 22 294.29	R 33 787.02	R 49 658.35	R 44 865.99	R 36 231.24	R 29 986.17
Bank balance: END	**R 4 138 163.22**	**R 6 271 389.85**	**R 9 217 354.34**	**R 8 327 818.86**	**R 6 725 074.75**	**R 5 565 894.34**

01 January 2018					until					31 December 2018		
Jul-17		Aug-17		Sep-17		Oct-17		Nov-17		Dec-17		Total
R	-	R	-	R	-	R	-	R	-	R	1 221 625.00	**R 4 886 500.00**
R	-	R	-	R	-	R	-	R	-	R	968 625.00	**R 3 874 500.00**
R	-	R	-	R	-	R	-	R	-	R	-	**R -**
R	-	R	461 760.38	R	-	R	-	R	-	R	-	**R 923 520.75**
R	-	R	-	R	1 107 604.13	R	-	R	-	R	-	**R 2 215 208.25**
R	-	R	461 760.38	R	1 107 604.13	R	-	R	-	R	2 190 250.00	**R 11 899 729.00**
R	-	R	-	R	-	R	-	R	-	R	-	**R -**
R	-	R	-	R	-	R	-	R	-	R	-	**R 490 525.00**
R	-	R	-	R	-	R	-	R	-	R	-	**R 875 856.00**
R	308 243.60	R	308 243.60	R	-	R	-	R	-	R	-	**R 1 541 218.00**
R	-	R	-	R	-	R	642 638.10	R	642 638.10	R	-	**R 2 142 127.00**
R	-	R	-	R	-	R	-	R	-	R	-	**R 84 000.00**
R	-	R	-	R	-	R	203 815.50	R	203 815.50	R	203 815.50	**R 1 222 893.00**
R	-	R	21 383.36	R	-	R	-	R	32 075.03	R	-	**R 106 916.78**
R	-	R	22 947.75	R	-	R	-	R	-	R	-	**R 45 895.50**
R	4 075.54	R	4 075.54	R	4 075.54	R	4 075.54	R	4 075.54	R	4 075.54	**R 48 906.53**
R	-	R	-	R	-	R	-	R	-	R	-	**R -**
R	15 874.25	R	15 874.25	R	15 874.25	R	15 874.25	R	15 874.25	R	15 874.25	**R 190 491.00**
R	4 824.72	R	4 824.72	R	4 824.72	R	4 824.72	R	4 824.72	R	4 824.72	**R 57 896.67**
R	-	R	-	R	-	R	-	R	-	R	-	**R 4 243.00**
R	98 212.99	R	98 212.99	R	98 212.99	R	98 212.99	R	98 212.99	R	98 212.99	**R 1 178 555.93**
R	18 994.14	R	18 994.14	R	18 994.14	R	18 994.14	R	18 994.14	R	18 994.14	**R 227 929.67**
R	-	R	-	R	-	R	-	R	-	R	-	**R 96 000.00**
R	9 500.00	R	9 500.00	R	9 500.00	R	9 500.00	R	9 500.00	R	9 500.00	**R 114 000.00**
R	9 045.83	R	9 045.83	R	9 045.83	R	9 045.83	R	9 045.83	R	9 045.83	**R 108 550.00**
R	2 000.00	R	2 000.00	R	2 000.00	R	2 000.00	R	2 000.00	R	2 000.00	**R 24 000.00**
R	35 205.00	R	35 205.00	R	35 205.00	R	35 205.00	R	35 205.00	R	35 205.00	**R 422 460.00**
R	-	R	-	R	-	R	-	R	-	R	33 796.80	**R 33 796.80**
R	-	R	-	R	-	R	-	R	-	R	-	**R -**
R	505 976.08	R	550 307.19	R	197 732.48	R	1 044 186.08	R	1 076 261.12	R	435 344.78	**R 9 016 260.87**
R	-	R	-	R	-	R	-	R	-	R	-	**R -**
-R	505 976.08	-R	88 546.81	R	909 871.64	-R	1 044 186.08	-R	1 076 261.12	R	1 754 905.22	**R 2 883 468.13**
R	**5 565 894.34**	**R**	**5 087 326.15**	**R**	**5 025 856.06**	**R**	**5 967 879.56**	**R**	**4 950 363.48**	**R**	**3 895 087.08**	
-R	505 976.08	-R	88 546.81	R	909 871.64	-R	1 044 186.08	-R	1 076 261.12	R	1 754 905.22	
R	-	R	-	R	-	R	-	R	-	R	-	
R	5 059 918.26	R	4 998 779.33	R	5 935 727.70	R	4 923 693.47	R	3 874 102.36	R	5 649 992.30	
R	27 407.89	R	27 076.72	R	32 151.86	R	26 670.01	R	20 984.72	R	30 604.12	
R	**5 087 326.15**	**R**	**5 025 856.06**	**R**	**5 967 879.56**	**R**	**4 950 363.48**	**R**	**3 895 087.08**	**R**	**5 680 596.43**	

Source: (Schoeman, 2018d)