DETERMINANTS OF INVESTMENTS: A COMPARATIVE STUDY OF RSA RETAIL SAVINGS BONDS AND STOKVELS

by

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ABSTRACT

This research established the determinants of the investment choices between the RSA Government Retail Bonds and the stokvel by salaried individuals. The research carried out a comparative analysis between the two investment instruments. The main data was drawn from FinMark for the period 2011 to 2015. The research used a combination of data tables and graphs to analyse frequency (distribution) of use in each of the investment choices. The research used Pearson's Chi square and Fishers' t-test to determine the distribution, independence and Cramer's V coefficient was applied to establish the correlation between the investment choices and the demographic under review. The outcome of the research indicated that more than risk or return inherent in the investment instruments under review, social, psychological and cultural disposition towards these investment instruments played a significant part in influencing the investment choices under review. Furthermore, lower educated individuals at low salary levels had the highest usage in stokvel and the highly educated at the higher level of education opted to invest in the RSA Government Retail Bonds. There was a very low usage in both the investment instruments by the 'no formal education' and primary education levels. Pearson's Chi square and Fishers' exact tests indicated that, race, education, location and salary levels can be used to explain the differences in investment choices between the RSA Government Retail Bonds and stokvel. According to these tests, age was statistically insignificant to explain the effects of the demographics under review on making investment choices. The results indicate that racial, educational, salary and location differences need to be properly factored into the policy development in so far as investment and savings are concerned.

Key words: RSA Government Retail Bonds; Stokvel; Investment usage; Savings

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DECLARATION

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I declare that the above thesis is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

_____ _____

SIGNATURE DATE

LIST OF ACRONYMS

CPI : Consumer Price Index

BDTV : Business Day Television

RSA : Republic of South Africa

TABLE OF CONTENTS

ABSTRACT ..... **i**

ACKNOWLEDGEMENT ..... **ii**

DECLARATION ..... **iii**

LIST OF ACRONYMS ..... **iv**

CHAPTER 1 Introduction **1**

1.1. Background 1

1.2. Problem Statement 2

1.3. Aim of Study 3

1.4. Research Objectives 3

1.5. Development of the Stokvel Market 3

1.6. Development of the RSA Government Retail Bonds Market 4

1.7. Significance of the Research 5

1.8. Dissertation Outline 6

CHAPTER 2 Literature Review **8**

2.1. Introduction 8

2.2. Definition of Key Concepts 8

2.3. An overview of stokvels 9

2.4. An overview of RSA Government Retail Bonds 12

2.5. Theoretical Literature Review 16

2.6. Empirical Literature Review 25

2.7. Conclusion 37

CHAPTER 3 Research Methodology **38**

3.1. Introduction 38

3.2. Research Design 38

3.3. Research Technique of the Research Design 40

3.4. Research Instruments 44
3.5. Further Data Analysis 45
3.6. Research Ethics 47
3.7. Conclusion 48

CHAPTER 4 Research Findings 49

4.1. Introduction 49
4.2. Choice of Data Analysis Techniques 49
4.3. Short to Medium-term Investment as per Data Obtained from FinMark, 2011 to 2015 50
4.4. Investment Choices between the RSA Government Retail Bonds and Stokvel by Race, 2011 to 2015 53
4.5. Investment Choices between the RSA Government Retail Bonds and Stokvel by Age, 2011 to 2015. 58
4.6. Investment Choices between the RSA Government Retail Bonds and Stokvel by Education, 2011 to 2015 60
4.7. Investment Choices between the RSA Government Retail Bonds and stokvel by Salary, 2011 to 2015. 63
4.8. Investment Choices between the RSA Government Retail Bonds and Stokvel by Location, 2011 to 2015 66
4.9. Statistical analysis of Investment Choices in terms of the Demographics under review. 70
4.10. Conclusion 79

CHAPTER 5 Conclusions and recommendations 81

5.1. Introduction 81
5.2. Summary of theories reviewed in this research 81
5.3. Summary of Findings 82
5.4. Contribution of this study, recommendations and policy implications 86

List of Tables

Table 1.5-1: Informal savings, 2009 to 2017 4

Table 3.3-1: Total research population from FinMark and sample for this research 42

Table 3.3-2: Median and average relative frequencies of investment/savings usage per levels of education, 2011 to 2015 43

Table 3.3-3: Median and average frequencies of investment/savings usage per age groups, 2011 to 2015.....43

Table 3.3-4: Median and average frequencies of investment/savings usage by racial group, 2011 to 2015 44

Table 3.3-5: Median and average frequencies of investment/savings usage by location (geographic type) , 2011 to 2015.....44

Table 3.3-6: Median and Average frequencies of investment/savings usage by income categories, 2011 to 2015 44

Table 4.3-1: Summary of investment/savings usage in RSA Government Retail Bonds from 2011 to 2015 (sampled individuals over the research period) 51

Table 4.3-2: Summary of investment/savings usage in RSA Government Retail Bonds from 2011 to 2015 (relative frequencies of individuals over the research period) 51

Table 4.3-3: Summary of investment/savings usage in stokvel from 2011 to 2015 (sampled individuals over the research period) 52

Table 4.3-4: Summary of investment/savings usage in stokvel from 2011 to 2015 (relative frequencies of individuals over the research period) 52

Table 4.9-1: Pearson chi2 test and Fisher's exact test in terms of race 71

Table 4.9-2: The t-test for mean difference RSA Government Retail Bonds and stokvel investment 73

Table 4.9-3: The t-test and distribution in terms of educational levels 75

Table 4.9-4: Two-sample t-test with equal variance for salary levels.....77

Table 4.9-5: The t-test and distribution in terms of location 78

List of Figures

Figure 3.3-1: Three levels of sampling by FinMark 41

Figure 4.9-1: Distribution of age groups in each investment choice. 72

Figure 4.9-2: Investment choices in terms of salary levels 76

List of Annexures

Annexure 1: Interest Rates By Banks And Return On RSA Government Retail Bonds..101

Annexure 2: Fixed Deposit Return In South African Banks 101

Annexure 3: Annualised Inflation Linked Return On RSA Government Retail Bonds.....102

Annexure 4: Annualised Fixed Rates Of RSA Government Retail Bonds 102

Annexure 5: Characteristics Of RSA Government Retail Bonds And The Stokvel 103

CHAPTER 1 Introduction

1.1. Background

According to the traditional finance theories such as the Modern Portfolio Theory (Ricciardi & Simon, 2000:pp.7–9) and the Market Efficient Theory (Peleg, 2014:p.457) , the most important purpose to investing in any financial instrument is the highest possible return with the minimum possible risk. The premises of Modern Portfolio Theory are that all people are risk averse and they will invest in any financial instrument as long as the return they receive is in proportion to the risk of that financial instrument. Similarly the Capital Market Theory (Reilly & Brown, 2006:pp.230–233) that built upon Capital Market Pricing Model is based also on the assumption that all investors have common expectations of making a profit at a particular level of risk. This attitude towards risk is also accentuated by (Swart, 2002:p.132) and Mishkin (2016:pp.121–123).

Amidst the mentioned theories and research findings, there are two investment instruments in the South African financial environment, which are directly related to individuals and household investment choices, the RSA Government Retail Bonds and the Stokvel. RSA Government Retail Bonds should offer lower return because they have a guaranteed return and there is no investment risk and transaction costs associated with them (de Jong & Mfundo, 2013:p.1). The previous research (Kgomo, 2007:p.34) established that, for some reasons, only one individual out of one-hundred-and-seventy-two had taken up the option of investing in RSA Government Retail Bonds. Furthermore, investment in RSA Government Retail Bonds reflected a constant decline in value and in the number of investors between 2011 and 2015. On the contrary, the usage in stokvel was on an uneven trend in the same period.

As at 31 March 2015 the total investment in RSA Retail Bonds was R11,4 billion (National Treasury, 2015:p.19). The introduction of RSA government Bonds in 2004, was intended primarily to encourage the greater masses of salaried individuals to save. On the other hand, stokvel was taking a greater share of the investment savings market. According to the South African Savings Institute other collective investment schemes in South Africa are worth about R2 trillion in total (Holburn, 2016) . There were about 16,3 million members in formal savings with a value of R33 billion between 2010 and 2014 (Van Wyk, Botha & Goodspeed, 2012:pp.86–90). According Mazwai

(2015:p.1), the stokvel market value was R45 billion with about 11 million members in 2015. This large difference in value of investment and number of investors between the RSA Government Retail Bonds and the stokvel was the crux of this research paper, namely the determinants of investment choice in the RSA Government Retail Bonds and the stokvel.

1.2. Problem Statement

The introduction of the RSA Government Bonds in 2004, was primarily intended to encourage the greater masses of middle to higher income earners to save.

The main purpose was to drive and incentivise South Africans to develop the culture of saving and being financially well positioned for their future (National Treasury, 2015:p.19).

Notwithstanding, relatively fewer individual investors purchased RSA Government bonds over the years. For the same purpose as for the introduction of RSA Government Retail Bonds, the Mzansi accounts was a government supported programme that was aimed at promoting the culture of saving in South Africa. Mzansi accounts opened by the major commercial banks failed to promote savings culture in South Africa because these banks introduced their own entry level accounts to the disadvantage of the Mzansi accounts (Jacks, 2012:p.1).There were many Mzansi accounts opened but there were very low balances or no money in these accounts (James, 2014:p.3; Kirsten, 2006:p.6).

Comparatively, the stokvel has proven to be popular as a savings instrument amongst the low- to middle-income earners in South Africa. The present study sought to unravel the determinants of investments of South African low-to middle-income earners with particular regard to the stokvel and RSA Government Bonds investment instuments. To the researcher's best knowledge, this is the first research that focuses on the determinants of investment/savings in RSA Government Retail Bonds in comparison with stokvel usage.

1.3. Aim of Study

The main aim of the study is to establish the determinants of investment into the RSA Government Retail Bonds and the stokvel. The results should contribute to the development of investment products that are relevant to individuals, to the policy priorities of National Treasury and other financial institutions.

1.4. Research Objectives

In order to guide the study, the following research objectives are addressed:

(i) To examine the relationship between investment choice and the demographics of South Africans.

(ii) To determine whether the level of remuneration has an influence on how South African individuals select investment vehicles.

(iii) To determine if the level of education has an effect on the investment choices of South African individual investors.

(iv) To establish whether investment choices of South African investors is influenced by their location.

(v) To compare the stokvel and RSA Government Retail Bonds as investment vehicles for South African individual investors.

1.5. Development of the Stokvel Market

Stokvel refers to an undertaking by a group of individuals who, because of their common goals, pool funds in order to meet specific financial or social needs in the future. In South Africa, stokvel developed during the early 19th century where people would rotate live animals in an activity called stock fair. During the course of time, stock fair was adopted by black people and adapted it to suit their common social needs during dire economic circumstances (Calvin & Coetzee, 2010:p.3). Different types of stokvel were developed to suit different kinds of financial needs of a group. There were stokvel for socialising and having parties, there were burial stokvels and investment stokvels that focused on buying assets and investing (Van Wyk, Botha & Goodspeed, 2012:pp.86–90).

Table 1.5-1: Informal savings, 2009 to 2017

	Nov 2009	July 2010	Nov 2010	July 2011	Nov 2011	July 2012	Nov 2012	July 2013	July 2014	July 2015	July 2016	July 2017
Informal savings												
Savings club or stokvel	26%	32%	31%	31%	22%	32%	31%	34%	32%	43%	42%	40%
Burial society	Not measured		33%	20%	17%	26%	25%	24%	21%	26%	26%	25%
Funeral parlour cover	Not measured											23%
Grocery scheme	Not measured		13%	7%	6%	10%	8%	8%	8%	11%	13%	11%
Cash savings - not banked	10%	14%	14%	6%	4%	7%	7%	5%	9%	6%	17%	10%

*Source: Old Mutual Investment Monitor (2017: p91)

The table above indicates a gradual increase in stokvel usage from 2011 and reaching a peak in 2015. The stokvel followed a slightly opposite trend to the RSA Government Retail Bonds in the same period.

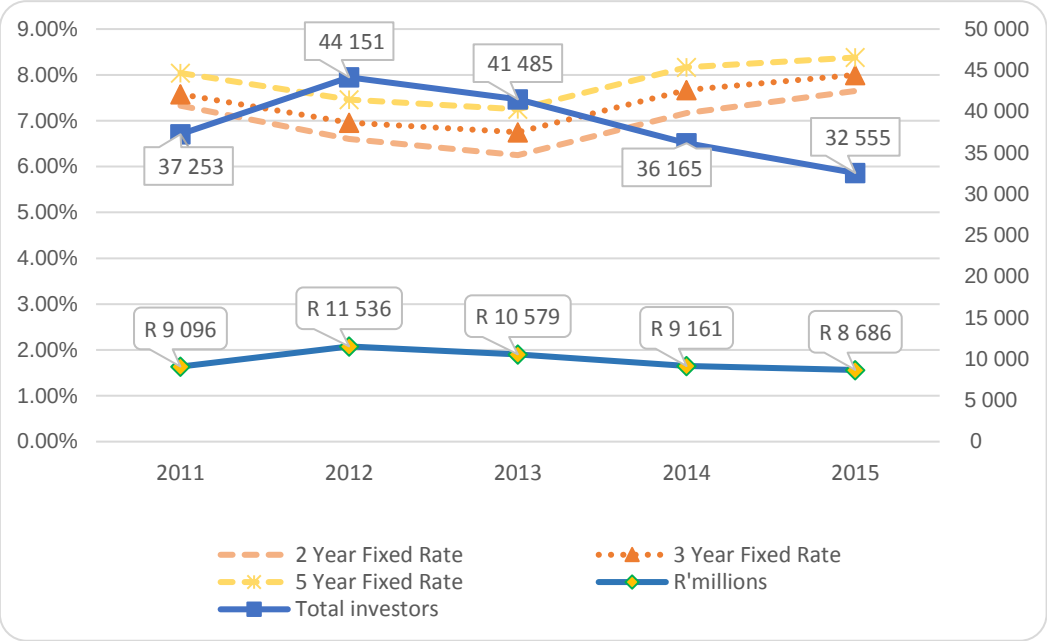
According to Swart (2002:p.343) there is high risk in stokvel usage in that members can walk away with the money and members can defraud the group (Covey, 1978:p.5). Some pyramid schemes operate like stokvel (Business DayTelevision, 2018) which makes it difficult to determine whether an individual's investment savings are safe and secure. Despite these risks, stokvels have been growing since 19th century to current times.

1.6. Development of the RSA Government Retail Bonds Market

RSA Government Retail Bonds were introduced by the National Treasury in 2004 in order to inculcate a culture of saving in South Africa (National Treasury, 2015:p.19). The investment return is guaranteed, there are no transaction costs to bite one at the return at the end of the investment period. Investment in RSA Retail Bonds remained very low in terms of the reports from the National Treasury (de Jong & Mfundo, 2013:p.1).

The graph below shows the investment trend in RSA Government Retail Bonds in terms of total value of investment and number of investors.

Graph 1.6-1: Actual (unsampled) investors and value of invest in the RSA Government Retail Bondsment, 2011 to 2015



*Source of data: Moloto (2017)

The graph indicates an investment trend that runs opposite the value and number of investors throughout the research period.

1.7. Significance of the Research

The main reason for the research in the investment choices in RSA Government Retail Bonds and stokvel was to get to understand the nature of investors in these instruments. The research aimed to test the intuitive thinking that there were more investors in stokvel than in the RSA Government Retail Bonds. This effort was also a follow up research that attempts to track the investors in the RSA Retail Government by conducting a comparative analysis with regard to stokvel usage by the same sampled individuals.

The outcome of the research should contribute to the policy directive of the National Treasury as far as investment products are concerned. It will enable the National Treasury to improve on their marketing and communication strategies when advertising Retail Government Bonds.

The focus of the research was only on salaried individuals. The users of the results of this research will know where to focus their efforts in marketing their investment products. This does not, however, rule out the potential inferences and use of the results in broader investor- based segments, as long as caution is taken when such inferences are made.

All financial institutions rely on the National Treasury to give direction in economic and financial priorities. For instance, an undertaking to exempt certain investments from taxation can be followed by disinvestment from private financial institutions, such as insurance companies, commercial banks and cooperatives banks. In other words, deeper knowledge of the investor base will enable the National Treasury not to introduce policy priorities that will destabilise the financial markets.

The research outcome should also educate the stokvels associations about the benefits inherent in RSA Government Retail Bonds. The National Treasury in conjunction with the Stokvel Association can use the results to be a partner in investment strategies in order to siphon stokvel funds into the return generating investments without destroying the foundation upon which stokvel are based.

International and national businesses need demographics of the individuals within a country in which they would like to invest. They will analyse the country, the industry, firms within industries, wholesale and retail business and ultimately individuals and households. When business knows who has more savings and investments they will establish businesses that will follow the money (Van Wyk, Botha & Goodspeed, 2012:p.535). The outcome of this research can contribute towards establishing business within the country.

1.8. Dissertation Outline

The rest of the study is organised as follows:

Chapter Two: Literature review

In this chapter, theories and literature on investment determinants are discussed. Although there are not specific theories that pertain specifically to stokvel or RSA Government Retail Bonds, discussion of these theories is contextualised in so far as it relates to investment instruments by individuals.

Chapter Three: Research Methodology

This chapter discusses the data collection methodology that was applied and research approach used. This research used random sampling as first stage and then used purposive sampling to obtain only the salaried individuals for the analysis. Data was quantitatively analysed to establish the determinants to investment choices.

Chapter Four: Research Findings

This chapter entails the analysis and discussion of results. Tabulations, correlations and statistical tests were applied for the detailed interpretation of results. Pearson's Chi square and Cramer's' V coefficient were applied for testing independence of means and correlation of nominal variables.

This chapter also compared stokvel and RSA Government Retail Bonds in terms of characteristics that could influence investment choices.

Chapter Five: Conclusions and Recommendations

This chapter derives conclusions from background discussion, theoretical and empirical literature review and research findings and then make recommendations on investment choices about investment instruments that are studied

CHAPTER 2 Literature Review

2.1. Introduction

This chapter reviews some theories and empirical literature on the dynamics that affects investment choices by households or individuals. It explains theories of investment as they relate to investment in Retail Government Bonds and stokvel. This research deals specifically with the determinants of usage in RSA Government Retail Bonds in comparison to stokvel usage. The chapter also examines some empirical evidence on the determinants of investments and savings.

The rest of the chapter is organised as follows:

- Section 2.2 is the definition of key concepts.
- Section 2.3 is an overview of stokvels
- Section 2.4 is an overview of RSA Government Retail Bonds
- Section 2.5 discusses the investment theories.
- Section 2.6 reviews empirical literature
- Section 2.7 concludes the chapter.

2.2. Definition of Key Concepts

(i) Government bonds means RSA Government Retail Bonds unless context dictates otherwise.

(ii) RSA Government Retail Bonds means RSA Retail Savings Bonds.

(iii) Farms: refers to the geographic area owned and controlled by an individual or household for agricultural production and animal stock production. The residents living in the locality are linked to these production activities. Land is allocated to working households in an unorganised or unstructured manner.

(iv) Fixed rate bond yields: Refers to fixed interest rate that is paid to the RSA Fixed Rate Retail Savings Bonds half-yearly over the term of the bonds. Investors have an option of interest capitalisation. These bonds have two-, three- and five-year locked maturity term. Any withdrawal before the end of the term is penalised by the government.

(v) Inflation- linked rate bonds: Refer to an inflation-linked interest rate that is paid to the RSA Inflation-Linked Retail Savings Bonds. Investors do not have an option of interest capitalisation. Interest is paid half-yearly over the term of the bonds. These bonds have a three-, five- and 10-year locked maturity term. Any withdrawal before the end of the term is penalised by the government.

(vi) Usage: In the context of this research, usage will mean investment or savings in RSA Government Retail Bonds or stokvel.

(vii) Stokvel: This is a financial scheme of individuals who pool funds and periodic payouts are made to individual members at an agreed time in future. The purpose of each stokvel will differ from one another

(viii) Traditional area: It is a geographic area which under the traditional or tribal authority such as indunas chiefs and kings. These areas are serviced by the local or district municipalities with regard to water, electricity and solid waste removal.

(ix) Urban areas: It is geographic area that falls under local or district municipal councils and not under the chiefs or indunas. Land is usually allocated in an organised and structured manner in the form of equal plots or yards. Households then pay for the basic services provided by the municipality.

2.3. An overview of stokvels

2.3.1. Background of the study

A stokvel is a form of societal non-formal financial organisation that consists of members who have similar medium to long-term goals such as saving for education, buying a car, burial, birthdays and other social functions. According to Musewe cited in (University of Pretoria, 2008:p.64), a stokvel is established to serve a common purpose of a group of individuals. It is a social institution that brings different individuals with the same social and financial needs to pool their funds under one umbrella in order to achieve their common goals. In the South African context it consists mainly of black South Africans (Mashigo & Schoeman, 2010:p.29)

Perhaps the most apt definition of stokvel was given by Verhoef (2008:p.60) who contended that :

[Over time stokvel evolved into an investment vehicle more than a tool that was meant for short-term consumption by the poor. Stokvels ventured into property, capital investment and investment in financial instruments and developed to cater for the financial needs of the middle- to high- income earners. People were not attracted to formal financial institutions. An interesting observation is that the wealthier members do not resort to more sophisticated investment products offered by other modern financial intermediaries …. The problem was the rigid requirements, lack of trust that and conscious exclusion that was an impediment to investment].

In South Africa stokvel is known by its many names in local languages such as Umgalelo, (Calvin & Coetzee, 2010:p.2), mogodisano or lekgotla or gooi-gooi (Patricia Holburn, 2014; Kibuuka, 2006:p.18).

2.3.2. Membership of stokvels

Stokvels were originally black dominated non-formal financial groups. Socio-cultural factors affecting poor black people brought them together whereby people pooled their resources and obtain moral support from the association. In the course of time, groups were formed for pooling funds to cover burial expenses and make some savings for emergencies. It was mainly adult individuals who had migrated from rural areas to search for work because of the socio-political environment prevalent in the twentieth century (Verhoef, 2008:p.59).

Members of the stokvel are community members or groups of people known to each other. They are mainly not formalised, do not have to have a bank account, there are no credit checks or contract completion (Mashigo & Schoeman, 2012:p.2; Covey, 1978:p.5; Verhoef, 2008:p.58). Only a few appointed individuals will do the banking for the whole group, which caters for those individuals who do not have bank accounts and those with a poor credit record.

In many instances, the members of the stokvel are friends. Regular meetings serve to remind members of the benefits carried by regular contribution. Meetings also motivate members because, if a member does not pay the required premium as agreed, other members will publicly know that a member has missed a contribution. There are usually twelve or more members, and each member contributes a certain amount each month. This can be anything from R50 to R1,000 (Skade, 2014:p.1). The stokvel is run according self-imposed regulations, which means they are very much independent in administration. It is led by individuals who are appointed by the group.

Stokvel members meet physically for a common purpose and the meeting is organised and planned (Van Wyk, Botha & Goodspeed, 2012:p.89). The meeting itself motivates members to commit to their premium payments. Meeting with fellow stokvel members gives them an opportunity to be involved in their financial needs and objectives. There is no specified age limit with the stokvel.

2.3.3. Savings and investment

According to Van Wyk, Botha and Goodspeed (Van Wyk, Botha & Goodspeed, 2012:pp.86–89), amongst all membership-based financial organisations were top of the list in terms of number of members and value of savings. This is also emphasised by Calvin and Coetzee (2010:p.3), stokvel is the most-used form of investment/savings in South Africa. In 2003, the value on investment was about R33 billion and the membership was about R16,3 million (Van Wyk, Botha & Goodspeed, 2012:pp.86–90). In 2015, it accounted for the lion's share of about R45 billion in the savings market in South Africa. According to Mulaudzi (2016:p.1) and Mazwai (2015:p.1) stokvel groups between R44 and R45 billion per annum. If this amount were invested in RSA Government Retail Bonds, it could generate a huge return for the members.

The term of investment/savings usage in stokvel is linked to the common objective of the group (South Africa, 2006:paras40–45).

Investment/saving in the stokvel has some clear and consistent periodic payments. Members themselves decide on the amount, time and frequency of the premium payment. Members commit to the premium payment to keep access to credit and avoid embarrassment and expulsion from the group (Van Wyk, Botha & Goodspeed, 2012:pp.87–88; Swart, 2002:p.343).

According to Swart (2002:p.343) stokvel members do not receive interest at the end of the investment cycle. However, this could be a different case where stokvel users pool funds in order to invest in shares, purchase capital assets or start a business, as alluded to by Van Wyk, Botha and Goodspeed (2012:p.88).

2.3.4. Credit

It was easy to obtain credit from the stokvel as long as one paid his premium as required by the stokvel group (Swart, 2002:p.343). On the other hand stokvels are

more liquid in that members can borrow money without penalty from the stokvel as long as their periodic premium is not missed (Napier & Masilela, 2008:p.3; Van Wyk, Botha & Goodspeed, 2012:pp.87–88).

Stokvels provide credit, receive deposits but are exempt from the rigid requirement of credit issuing in terms of the National Credit Act (South Africa, 2006:sec.8(2)(c)). It is also exempt from Banks Act in terms of Notice 887, Government Gazette No. 31342 (Van Wyk, Botha & Goodspeed, 2012:p.89).

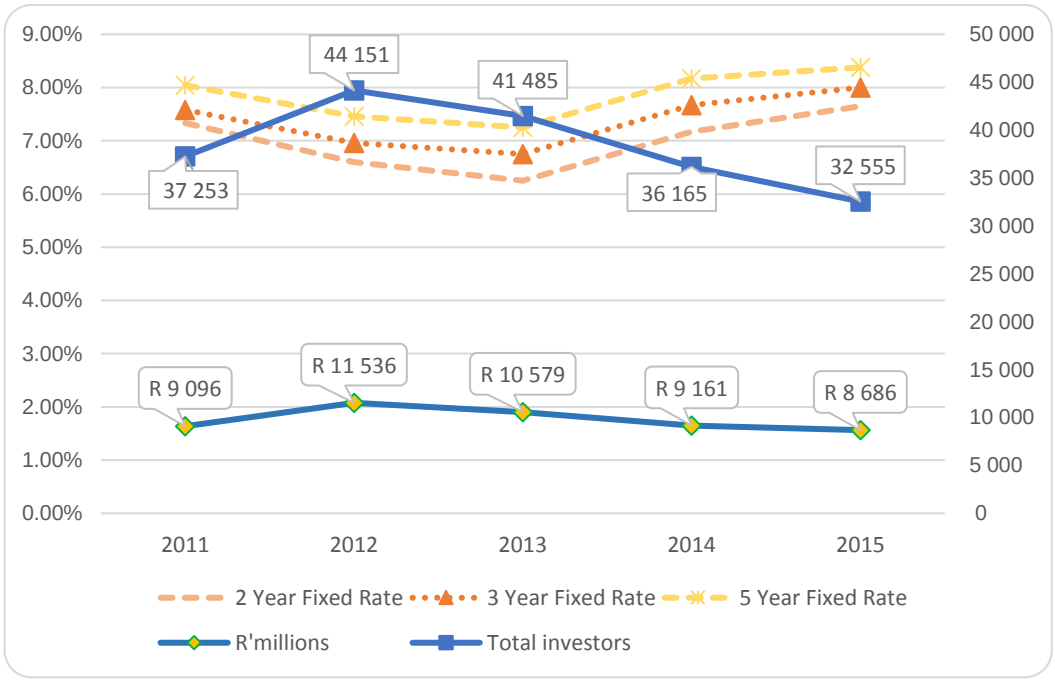
The following section provides an overview of RSA Government Retail Bonds.

2.4. An overview of RSA Government Retail Bonds

2.4.1. Backgroung of the study

RSA Government Retail Bonds are fixed-term investment products, introduced by South African government in 2004 to inculcate the culture of saving. The investment in these instruments remained low despite the National Treasury's aggressive marketing strategies that were implemented (National Treasury, 2015:p.19,43).The demand was low in absolute terms and it is the purpose of this research to investigate the investment in these government bonds relative to the investment in stokvels.

Graph 2.4-1: Actual (unsampled) investors and value of investments in the RSA Government Retail Bonds, 2011 to 2015



*Source of data: (Moloto, 2017)

According to an interview with Krynauw (2006), there were about 20 000 investors in the RSA bonds who lived in the major cities like Pretoria, Port Elizabeth, Durban and Cape Town. Fifty-two percent of these investors were male and forty-eight percent were female. Sixty-five percent of these investors were aged above 50 years and the thirty-five percent was made up of ages between 18 and 49. The same pattern in investments in the RSA Bonds in terms of age still surfaced in 2015. Whilst the National Treasury is currently targeting young people in its marketing strategies, it has emerged that most of the investors in the government Bonds of South Africa are over the age of 60 (National Treasury, 2015:p.29).

In 2004, a few months after the launching of the RSA government bonds, the four major banks as well as the Postbank launched the most affordable and accessible account ever in the country, the Mzansi Account (Kirsten, 2006:pp.5–6). The main purpose of this account was to provide affordable and accessible banking to the populace who could previously not afford banking in the conventional banking institutions. As at 15 May 2005 in excess of 6000 accounts were opened each day (Banking Association of South Africa, 2006:p.8) in line with the Financial Services Charter. The Mzansi account seems to have attracted the age group that the National Treasury was then targeting in its marketing strategy but has not been successful in retaining active accounts. How was Mzansi able to attract the economically active sector of the population and why did it fail? The answer lies elsewhere in the determinants of investment and savings factors.

According to Choudhury (2002:p.1), while most investors are older investors, of which 73% in 1984 and 69% in 1998 respectively were Whites who received income from assets. Further literature (Zhao, 2005:p.47) suggests that bond fund investors, especially those who invest in government security funds, are more risk averse but wealthier and sophisticated than equity investors.

Olsen (1998:pp.10–11) stated that, amongst other things, emotions, the environment, the economy of the country, the social order and other culture components influence people to invest or not to invest, to invest for income or to invest for wealth accumulation. Yazdipour (2011:p.48), argued that many personal emotions and factors that affect the choice of a person also filter down to a person's decision as far as investment choices are concerned. Gutter, Fox and Montalto, (1999:p.151) also found out that race has a definite effect on investment choices. According to him, White

households were not risk averse whilst Black households were more risk averse and this was reflected in their investment proportion in stocks and bonds.

While wealth varies by race and ethnicity, Choudhury (2002:p.4) accentuates the fact that the disparity investments can also be explained by other factors such as age. From his studies, he found that Hispanics expected not to live longer than 75 years.

There are other many studies (Gutter, Fox & Montalto, 1999; Patricia Holburn, 2014) , which according to Choudhury (2002:p.9–10,20),explains differences in savings by race. He alluded that in the case of USA, many Blacks missed the most economically viable stock rally in the USA history, and they invested less in financial securities, particularly in equities, and preferred traditional investment vehicles such as real estate and insurance. He goes on to cite the level of education as one other factor that influences investment decisions in stocks and bonds. Eighty-five per cent of White college graduates owned risky assets while only half of their black counterparts owned such assets.

In order to accommodate low-income and risk-averse investors the Federal Government introduced the Retail Government Bonds, which were similar to the RSA Government Retail Bonds. This initiative did not achieve what was its original objective as intended, instead it attracted the wealthy high-income earners (Tufano & Schneider, 2005:p.12–16,39).Could this be the case with RSA Retail Government Bonds?.

To remove bias towards high-income earners (South African Reserve Bank, 2014:p.3) , the South African Government introduced many initiatives to accommodate the lower-income earners.

In South Africa, the total investment by individuals in government bonds remained below 1% throughout the research period. This research tried to analyse this 1% investment in the government bonds by salaried workers in terms of their age, race, location, education level and income.

According to Wray (2006:14), in future income disparities will be visible in terms of class rather than race. He goes on to say this as affirmative action advances the black majorities. If this is justified, then it could be true that investment choices will be visible in terms of class rather than race. It is an objective of this research paper to examine whether these studies hold when investment/savings in the RSA Government Retail Bonds are compared with investment/savings in the stokvels.

2.4.2. Savings and investment

RSA Government Retail Bonds have a guaranteed return; there are no transaction costs or administrative fees. All South African citizens qualify to invest in these products. The minimum investment is R1000 and is capped at R1000 000. Investors can purchase the products at the Post office, through the internet, at the Bank and retail stores such as Pick'n Pay and Boxer stores (National Treasury, 2006; Brown, 2012)

According to Krynauw (2006) there were about eighty-eight investors who had invested more than a million in the RSA government bonds. Whether these investors invest for income or value maintenance requires a separate investigation.

Older people have covered most of their debt and only need to have income for daily needs and perhaps invest their surplus to maintain the value of their assets. According to National Treasury (2015:p.20) the statistics indicated that the most investors in the RSA Government Retail Bonds are aged 50 years +. However, unlike in the case of the Choudhury's (2002:p.2) research, there is no information explaining these statistics in terms of race, education, residential area or perhaps economic status of investors.

According to the South African Reserve Bank (2005: S156), household debt to the household disposable income was 62.1% in 2005. In 2006 it was in the range of 76.6% (South African Reserve Bank, 2016) and the most indebted individuals were black middle class (James, 2014:p.S20). These low-income earners and the middle to high-income and highly indebted households' earners had, in the context of this research paper, an investment choice between investment in the RSA Government Retail Bonds and the stokvel.

(James, 2014; Risenga, 2012; Kibuuka, 2006) proved that most South Africans do not save for the future. All households with access to debt might have borrowed much more than 75% per cent. It is important to note that these categories of people who are so indebted are actually those, who have been the target of the National Treasury to invest in RSA Government bonds. This research, however, endeavours to establish the reason why the same category of individuals turns out to be the major contributor to stokvel associations.

2.5. Theoretical Literature Review

2.5.1. Theories on the determinants of investment

A theory is a set of abstract principles and models that are tried and tested to explain a certain human phenomena or behaviour (Schiffman & Wisenblit, 2015:p.468). This section is going to discuss the Market Segmentation Theory, Preferred Habitat Theory, Expectation Theory, Efficient Market Hypothesis, Markowitz Portfolio Theory and Liquidity Theory.

2.5.1.1. Market segmentation Theory

This theory states that bonds of different maturities and the relevant return are not related. The supply and demand determines the return in a bond of a particular segment. Returns of other bonds in other maturity segments do not influence the demand and supply of bonds in other segments.

The demand of bonds are segmental (Johnson, Zuber & Gandar, 2002:pp.6–7).This theory assumes that whether short-term bonds have a lower return due to lower risk or long-term bonds have higher return due to higher holding risk and inflation, that does not influence the choices of bonds selection, only the demand and supply forces in each segment determine the return (Mishkin, 2016:p.175). This means the higher demand for the bond of a particular segment will trigger lower interest rate offers by the borrowers of funds but investors will not switch to other maturities because they have a preferred maturity in mind. This theory falls short of explaining why the long-term bonds offer higher yields than the short-term bonds or securities and why return on short-term bonds are volatile (Johnson, Zuber & Gandar, 2002; Munasib, 2015)

There is some evidence that when yields of RSA Government Retail Bonds were increasing, investment in these bonds was decreasing or vice versa, in terms of value and number of investors (Graph 2.4-1).The investors were investing in or pulling out of the bonds as results of changes in yields in government bonds.The inferences from the sample being studied should shed light on the most probable demographics of data as shown in Graph 2.4-1.

2.5.1.2. Preferred Habitat Theory

The habitat theory is somewhat similar to the Market Segmentation Theory in that it indicates that individuals have a preference to investment instruments of a specific maturity. Investors will only move to other maturities if they expect to receive better returns. In addition, demand and supply factors induce investors of a preferred habitat in various investment maturities to move out of their habitat if demand and supply drivers are not similar for these maturities. For instance, corporate institutions prefer to supply long-term bonds to supply the long-term infrastructure needs while the investors would prefer shorter-term maturities that offer somewhat higher returns. In order for the suppliers of bonds to get buyers, they will lower the prices of the bonds and thereby increase the yields of such bonds. Only then will investors move out of their preferred habitat because of the better yields offered by long-term bonds (Johnson, Zuber & Gandar, 2002).

Johnson, Zuber and Gandar (2002:p.5) also state that the upper middle-aged investors may prefer investment with short-maturities and young adults may have a preference to investment with a long-term investment horizon. According to (Boermans & Vermeulen, 2018) corporate bodies such as insurance companies prefer long-term government bonds even if interest rates are lower in order to be able to cover the risk of the capital shortfall when claims are made against it.

Quantitative easing is undertaken to stimulate the economy by lowering interest rates (Boermans & Vermeulen, 2018:n.Abstract). In 2015, the European Central Bank purchased bonds from euro zone investors and non-euro zone investors. Lowering interest rates means that the prices of bonds become expensive and the demand for these bonds would drop. This Quantitative Easing did not change the stance of most euro-zone corporates and households that invested in sovereign bonds. This means the preferred habitat theory held for euro zone investors and did not hold for investors outside the euro zone (Boermans & Vermeulen, 2018:p.4).

The theory mentioned above can be appropriate in generic terms and perhaps explain why individuals earning the same salary and of the same age would prefer particular investment instruments, the RSA Government Retail Bonds or the stokvel in the context of this research paper.

2.5.1.3. Expectation Theory

According to Expectation Theory, short-term bonds and long-term bonds are perfect substitutes of one another. Buyers can opt to buy a one-year bond and when it expires, buy another one-year bond. Alternatively, the buyers can buy one five-year bond and at the end of the term, the return for both two one-year bonds and the one five-year bond will be almost equal. For example, considering the two scenarios:

(5%+6%)/2 = 5.5 %

And, interest rate on five-year long bond is,

(5%+ 6% +7% +8%+ 9%)/5 =7 %.

The example above indicates that there is actually no increase in the longer-term return, instead long-term returns are the average of the future shorter-term rates (Mishkin, 2016:p.172).

This theory does not consider the risk versus the return. According, to this theory the return on long term-bonds is not the compensation for holding the bonds for the longer period and the factor of prices increase. The return on a long-term bond is an average of the expected return of the short-term bonds over the period of the long-term bonds. While the expectation theory correctly explains the direction of the short- and the long-term bonds, it does not, however, explain why the return on long-term bonds are higher than return on short-term bonds and why the slope of the long-term bonds is upward sloping (Munasib, 2015:sec.2)[1]. It also does not also indicate why different maturities of bonds exist and why would individuals choose to invest in different maturities when the expected return is equal for different maturities. The theory is far from indicating who, in terms of age, race, location, income, education and culture would prefer a certain maturity.

2.5.1.4. Efficient Market Hypothesis

The EMH is split into three types ,namely the weak form, the semi-strong and the strong EMH (Fama, 1969:p.383). The weak form of EMH is just about the historical prices discussed. The strong test relates to whether price moves swiftly in line with the public announcement. The strong EMH test relates to whether there are other market

[1] This was a handout prepared using Frederic Mishkin's Money, Banking, and Financial Markets (8th edition), and Stephen Cecchetti's Money, Banking, and Financial Markets

participants who are privy to certain information that will impact on financial instruments and the market in general.

The Efficient Market Theorists (Fama, 1969:pp.383–385; Ricciardi & Simon, 2000:p.1) state that any security traded in the market reflects all information available to the investors and therefore the price of the securities is a fair value of an asset. Therefore, the fund manager cannot produce any of the above market returns. This hypothesis falls short of the market deficiencies that manifest themselves in market information asymmetries. There would be no reason for investing in any fixed-income security according to this hypothesis. Perhaps individuals would opt to invest in informal investment instruments such as stokvel. They contend that investors' analysis of the market for undervalued stock or expected market return cannot enable them to achieve higher returns in future because any information affecting stock prices will be spread quickly amongst market participants and is quickly factored into the prices of the stock or the investment instrument. Market participants will utilise even the slightest information as quickly as possible so that all risk-return factors are reflected in the instrument. No market participant can profit on market information asymmetry. These proponents believe that, the fact that tomorrow's news is unpredictable, any price based on tomorrow's unpredictable markets is also random or a guess. The guess does not require any education or expertise and, as such, the non-expert investors can achieve a generous return similar to that of expert investment analysts by just throwing their money in any investment instrument. The proponents of this theory also believe that psychological factors and human behaviour, namely rationality, was not essential for individuals to select stocks with potential profit, profitability was a matter of coincidence.

At the turn of the twenty-first century most economists started believing that the market was predictable in part based on some economic fundamentals and psychological and behavioral elements (Malkiel, 2003:p.60).This implied that investors could look at economic indicators and also study the behavior of market participants to select investment instruments with the potential of higher returns.

Michael Spence, George Akerlof and Joseph Stiglitz argued and proved that information was not symmetrically available to individuals and investors do not always make rational decisions when engaging in investments (Peleg, 2014:p.457).

Milkiel (2003:pp.62–63) found that markets are more efficient and semi-predictable such that participants cannot just make abnormal profits. It is worth noting that making abnormal profits due to insider trading (unfair information access) or other unpermitted practices, will eventually lead to penalties and punishment when authorities discover these culprits and that boils down to the reduced normal profits (South Africa, 1998:sec.58 and 59). The reason for the penalties is that there are some individuals who will have unfair access to market information that others do not have and as such take advantage on the market direction (Peleg, 2014:p.457).

The Efficient Market Theory does not dwell much on cultural and demographic factors that can influence individuals' behavior in response to market dynamics. This study looked at those factors that could be possible determinants of investment in the medium to long-term government bonds. It looked into the socio-cultural factors, demographic factors to establish what the most possible determinants are with regard to investment in the government bonds.

Perhaps the weak and semi-strong EMH can hold under certain circumstances, but in South Africa, there is a strong possibility of information unfairly leaking to certain sectors of investors. The Competition Act (South Africa, 1998:pp.2–3) is meant to prevent unfair market practices and discipline those who illegally get access to confidential information. The existence of the Act means that there will always be information asymmetry in favour of or to the disadvantage of some market participants.

As far the RSA Government Retail Bonds are concerned, the National Treasury (2015:p.19,43) undertook aggressive marketing strategy to notify the potential investors about these bonds. Stokvel also remained well known in South Africa (Van Wyk, Botha & Goodspeed, 2012:p.90). The investment choice between these two instruments is not likely to be caused by information asymmetry and the Market Efficiency Hypothesis holds as far as information distribution is concerned.

2.5.1.5. Markowitz Portfolio Theory (Modern Portfolio Theory)

The Modern Portfolio Theory centres on portfolio maximisation (efficient portfolio) where the standard deviation, expected return and the correlation of investment instruments are examined. The efficient portfolio refers to the portfolio that has the highest possible portfolio return for a given level of risk or the lowest possible risk for the given level of return. This theory is based on the premise that all investors are risk

averse. The riskier the investment the more expected return they will require (Ricciardi & Simon, 2000:p.8). The efficient portfolio can be achieved by mixing assets that are not perfectly correlated with each so the increase in the risk of some will ascertain the expected return in the other assets (Administration Social Security, 2007:p.1). In his article Markowitz (1952:p.77) states that investment choices of individual investors are based on observation and the past experiences and influenced by the belief about the future of investment performance. Historical performance of investment securities becomes the basis for the future expected return, which is a desired outcome. Any variance from the expected outcome is a risk that investors have to accommodate in their choice of investment instrument.

2.5.1.6. Liquidity Premium Theory

According to the Liquidity Premium theory, investors prefer short-term bonds to long-term bonds because of the higher risk associated with the long-term bonds. The uncertainty regarding potential default into the future and uncertainty regarding the direction of interest rates increases the risk that the investors will loose from hold such bonds and forces them to hold short-term bonds despite the lower return. Liquidity Premium does consider return on long-term and short-terms bonds as substitutes of each other, though not strong substitutes (Mishkin, 2016:p.176) . Unlike the Expectation Theory, that assumes that the return on the long-term bonds is just an average return of the short-term bonds purchased each year over the long-term period, the Liquidity Premium Theory accepts that, for investors to purchase long-term bonds, they will have to be enticed by increasing the interest rate over the investment period. This is to compensate for the inflation risk, interest rate risk and the risk of possible default (Munasib, 2015:sec.4; Peleg, 2014:pp.42–43).

Liquidity of government bonds relative to other bonds makes these bonds more attractive to investors. The demand for these bonds will push up the price of the bonds and yield downwards (Cecchetti & Schoenholtz, 2015:pp.146–149).This implies that not only higher interest rate will attract investors into a particular maturity but also its tradability in secondary markets.

2.5.2. Other important theories of behavioral finance

There are also other behavioral financial theories mentioned below that require scrutiny in order to determine the behavior of individuals with regard to investment in

financial instruments. According to Ricciardi and Simon (2000:p.1) there many factors that influence investment decisions that include financial management by individuals, marketing by investment funds and institutions, technology available to process investment transaction, psychology of investment, psychology of finance and behavioral economics. The latter three aspects of behavioral finance would dictate a particular kind of thinking pattern as the emotional thinking process is triggered.

Shefrin and Statman (2000:pp.149–150) consider investment decisions and interaction of the psychology of investors and their actions and practices. They differentiate between investors with aspiration who invest to get rich quickly and low aspiration investors who invest to avoid poverty.

This stance of behavioural finance differs from the traditional stance of investment namely that individuals will invest only if the investment vehicle has the highest possible return for a given risk or the lowest possible risk for a given return on investment (Yazdipour, 2011:p.45)

There are four themes of behavioral finance that Ricciardi and Simon (2000:sec.7) mention, namely overconfidence, financial cognitive dissonance, regret theory and prospect theory. All these themes have an impact on decision investment by individuals, groups or institutions. Each of the themes are briefly discussed below.

2.5.2.1. Overconfidence

Investment managers will overemphasise their ability to select winning securities and when they securities fail to yield required returns, it becomes difficult for them to accept failure (Ricciardi & Simon, 2000:p.8). The overconfident investors or investment managers tend to overestimate positive news and profits and underestimate negative news and losses (Reilly & Brown, 2006:p.190) .This behavioral aspect can be detrimental to immature investors because their investments can be left in underperforming investment vehicles with no prospects of profitable return for the duration of the investment.

2.5.2.2. Financial Cognitive Dissonance

Individuals with financial cognitive dissonance will feel great tension when subject to different believes and perceptions. Investors who are in cognitive dissonance can hold on to underperforming assets, not admitting that they have failed in their investment

choices and decisions. To be realistic these investors will need to change their past values, feelings and opinions and make investment decisions that are based not only on traditional financial rules of risk versus return fundamentals but also on financial behavior from other human aspects such as those stated under liquidity preference (Ricciardi & Simon, 2000:p.4).

2.5.2.3. The Theory of regret

Ricciardi (2000:p.5) further states that there are instances where investors would compare the forgone opportunity with their expected future outcome. They initially would evaluate events based on the expected outcome in future. When the future investment outcomes do not yield the expected outcome, they will then regret for having missed an opportunity elsewhere. They will tend to keep the underperforming stock to avoid reporting failure or loss. In the case of mutual funds, they will tend to rationalise losses since a group and not individuals would have lost some investment return. This fallacy to admit failure can be detrimental to amateur investors who will be advised to keep underperforming stock with the hope improving in the future.

2.5.2.4. Prospect theory

Key to the prospect theory is that preference is a function of a number of weighted differences. There are some psychological biases motivated by psychological factors under conditions of uncertainty. Investors will evaluate outcomes by considering some reference point other than the wealth outcome (Ricciardi & Simon, 2000:p.5) . When faced with the possibility of losing money investors will take riskier decisions to avert the anticipated loss. They will reverse their investment decisions, that is, withdraw completely from their investment or increase their risk premium to compensate for their acceptance of high risk securities .They have more negative perceptions on losses than a more positive perception on gains on their investment (Reilly & Brown, 2006:p.190). This means they change their investment choice based on negative outcomes that occurred in the past rather than the potential gains they can achieve. They do not consider the actual outcome when making investment decisions. This approach correctly underpins most of the investment decisions as knowing the actual outcome is seldom possible due to changing economic conditions. However, with the RSA Government Retail Bonds the Prospect Theory does not hold because when one

invests in them one knows exactly what the return is as there are no transaction fees, brokerage costs and other administration costs (National Treasury, 2017:p.1).

2.5.2.5. Life-Cycle Theory

Life-Cycle Theory contends that consumption and expenditure varies according to age groups. When individuals are still young and newly employed they focus on wealth accumulation such as building a house and buying a car and they have little to save. In their middle ages, they have settled most of their debts and have accumulated some assets. (Reilly & Brown, 2006:pp.39–41). Bodie, Treussard and Willen (2007:p.1) also concur that at younger age individuals consume more of their income than saving.

From the perspective of Modern Portfolio Theory, individuals would invest to attain the highest possible return for a given level of risk or the lowest possible risk for a given return. The above-mentioned theories indicate that, not only risk-return balance will determine an individual's decisions to invest in a particular security or bond. A plethora of factors will deter or attract an individual to a particular investment vehicle.

The primary aim of the introduction of the RSA Government Retail Bonds was to promote the culture of savings by South African households whilst utilising the alternative source of government funding. (National Treasury, 2015:p.19). Like the introduction of the RSA Government Retail Bonds, the Mzansi account was a government-supported programme aimed at promoting the culture of saving in South Africa. Though there are many lessons that can be learned from the Mzansi initiative, Mzansi accounts opened by the major commercial banks failed to promote a savings culture in South Africa because the four major banks were focused on promoting their profitable entry accounts (Jacks, 2012:p.1; Kirsten, 2006:pp.5–6).

Already there are limitations on the tax-exempt savings accounts. The latter will not encourage individuals who fall outside the tax brackets to invest in or save in fixed-income instruments because they will not benefit from the tax exemption (Swart, 2002:p.148). Further limitations of the tax-exempt savings accounts are that they are offered through private investment fund managers and insurances. The government has little control on costs such as advisors' fees, management fees and VAT charged by these financial institutions. These costs will take a bite of about 2% on savings or investment returns of individuals. Markets with lower transaction costs promote participation in transactions other than the one with higher transaction costs (Reilly &

Brown, 2006:p.106). Perhaps this was the reason why National Treasury made the RSA Retail Government Bond free investments instruments.

The tax-exempt savings accounts have penalties for early withdrawals and there is annual life contribution limit that is very low. The early withdrawal penalty will mean that investors will not be able to move to other investments when returns in alternative investment vehicles are higher. These rigid factors are most likely to discourage investment in these tax-exempt accounts (Axelson, 2014:p.10).

2.6. Empirical Literature Review

2.6.1. Macro-economic and micro-economic determinants of investment choices

The economic dynamics in a country affect investment choices in any investment vehicle. These economic dynamics are divided into macro and micro determinants to investments.

2.6.1.1. Macro financial factor in determining the investment choices

This section discusses the macro-economic indicators and highlights how they are likely to affect savings' investment choices. The macro-economic indicators discussed under this section are inflation, political environment, Gross Domestic Product and the structure of government bonds. As opposed to micro determinants, the macro determinants relate to aggregates of individual variables and look at the phenomena from the perspective of a 'whole' picture.

2.6.1.2. Inflation factor

Inflation factor is the rate of the change in the prices of goods using the Consumer Price Index (Swart, 2002:pp.136–136). Inflation is an important component of the interest rates;

$$i = rrfi + if + r$$

where i=interest rate
rrfr=real risk free rate
if=inflation (factor)
r=risk premium

When inflation factor (if above increases then the interest rates (i) will increase and affect all interest rates in the financial markets (Reilly & Brown, 2006:pp.17–19).

For the inflation linked gilts, the interest on coupon and capital amount are adjusted in line with the direction of inflation rate thus ensuring that the value of expected income and the redeemable capital amount is preserved against inflation effect. The compilation of inflation index has a limitation because it lacks time implementation. When inflation rises over the lag period the investor will lose and when inflation falls then the investor will gain. This will mean imperfect inflation protection (Deacon & Derry, 1994). It may be irrelevant to use an inflation index to determine whether one should invest in the inflation-linked bonds because at the time of the investment decision, there could have been a huge change as compared to the time when pricing of the index compilation took place.

The expected decrease in inflation will induce investor to invest “now” in order to lock-in income in the fixed-interest bearing instruments or keep their current investment in inflation-linked securities to protect their income against inflation (Reilly & Brown, 2006:p.659). According to Cecchetti and Schoenholtz (2015) investors will turn to focus to the most liquid bonds to read the whole bond market. However, liquidity alone cannot be the determinant of investment in bonds. The bond price and interest rates also determine the forces of supply and demand. When market interest is higher than the bonds coupon, suppliers of bonds will be willing to sell their bonds at a discount in order to attract investors who might otherwise invest in bonds with higher interest rates and their higher expected yield at maturity.

2.6.1.3. Political environment

Interest rates are very sensitive to the political environment. Any political instability that triggers uncertainty in the political landscape affects the investor’s perception about investment. Change in policies may lead to uncertainty with regard to, amongst others, taxes on dividends, taxes on profits, taxes on repatriation of funds and minimum wages. International investors may temporarily or permanently sell off their investment and thereby cause or contribute to the domestic currency depreciation. According to Malkiel (2003:p.73), there were political uncertainties that rocked through the economy to the extent that investors were frightened by the conscious depreciation of the dollar Depreciation of the currency is one of the important contributors to inflation (Mishkin,

2016:pp.368–369). When imported inflation is factored into the required rate of rate of return, this will turn to a higher yield for securities, including investment in bonds. Investors in bonds will require more return to compensate for the value eroded by inflation or sell the bonds if they are too risk averse.

Investors in medium to long-term bonds should also be comfortable with the political leadership style. The government policies should create the environment conducive for investment that guarantees the payment of a principal invested amount and the coupon interest as, and when it is due. Any hint to changes in economic policy that will render the government incapable of paying back the principal and the coupon interest, will deter potential investors and lead to the selling of the bonds by the existing bondholders. In 2013, an American politician threatened to let the treasury default when they did not agree on the budget. Investors had demanded a higher risk premium in order to hold on to bonds with increased risk (Mishkin, 2016:pp.162–163).

2.6.1.4. Gross Domestic Product (GDP)

GDP is an aggregated measure indicating the value of production and income within a country for a particular year (Lepenies, 2016:p.1). Gross Domestic Product is an indicator of the health of the economy of a country. Financial institutions, International funders, investors and economists all use the GDP as the measure of economic growth of a country. An increase in the GDP might be indicating and increase in economic activity that will fuel the inflation rate and therefore interest rates (Swart, 2002:pp.529–530). The increased interest rate will be good for the new purchases of bonds including the government bonds and depositors of funds such as stokvel groups. However, it requires investigation on how did the RSA Retail Government and stokvel usage respond to the changing interest rate over the research period.

2.6.2. Micro financial factors in determining investment choices

Micro determinants are those factors that affect certain sectors or individuals. Factors such as race, age, education, location, access to finance or funding, culture, personal disposable income have a bearing on how an individual views the investment opportunities presented to him or her.

2.6.2.1. Race as determining factor on investment and savings

According to Choudhury (2002:p.20) race had an effect in investment in that Blacks and Hispanics had low savings rate than their White counterpart. Gutter, Fox and Montalto's (1999:p.156) further found that Blacks preferred short-term and less risky a assets than White households. In South Africa the usage of stokvel was associated with Black more than any race group Verhoef (2008:pp.60–66).These studies indicated that different race groups have different disposition to different investment instruments.

2.6.2.2. Age as determining factor on investment choices

The consumption and expenditure of goods and services differs according to age groups. Young individuals have financial needs such building a house and buying start assets. Some are just from universities and have to settle their educational loans (Reilly & Brown, 2006:pp.39–41). As individual become older they also prefer fixed investment instruments because they need fixed income and are also risk averse (Administration Social Security, 2007:p.1). Risenga (2012:p.96) found that individuals in the age group 35 to 54 invest more than other age groups and this concurs with Life Cycle Theory (Bodie, Treussard & Willen, 2007:pp.1–3) which contends that young adults are in the accumulation phase as opposed to the middle aged and the pensioners. These factors favours the argument that age has an effect on investment and investment choices through various stage of life.

2.6.2.3. Education as determining factor on investment choices

The findings by Denizer, Wolf and Ying (2000:sec.4) indicated that graduates in Russia were induced to save less when the economy was improving because of their guaranteed fixed income. On the contrary Risenga's (2012:pp.105–106) findings indicated that the more educated individuals were, the more they saved and invested. In America, Choudhary (2002:sec.20) found that for the same level of education, Whites had more investment than Blacks. This disposition towards different investments in terms of educations illustrated that education has an effect on investment choices.

2.6.2.4. Salary as determining factor on investment choices

According Old Mutual Savings Monitor (2016:p.18) informal savings by households is not based on income. There are other studies that contend that the higher the income of individuals, the higher will be the aptitude to saving and investment (Chakraborty & Digal, 2012:p.2). According to Van Wyk, Botha and Goodspeed (2012:p.88) stokvel for savings and investment is one of the major informal savings in South Africa and mainly consists of affluent individuals.

All other factors held constant, expected higher lifetime income and employment certainty, especially of those individuals who have tertiary education, is associated with lower saving rate (Denizer, Wolf & Ying, 2000:sec.4).Highly education is associated with high income and therefore the argument by Old Mutual can be correct. Napier and Masilela (2008:p.2) state that when economic conditions are bad, young workers will earn less than pensioners and as such have nothing or little to save.

According to Blanchett and Ratner (2015:pp.117–118) the safest and high yielding fixed securities attract more taxes which will bite on the return received. However, they emphasise that investors might be willing to be taxed on their income as long as they are assured of the stream of income. The taxation of income from current investment is the price that income investors are prepared to pay and as such, any saving/investment product that suggests lower tax or tax exemptions for longer maturity savings will not attract this type of investor. Individuals who invest for income are prepared to invest in short-term investment as long as they receive stable streamlined income even if their current income is likely to be taxed.

Perhaps the positive correlation of income with formal savings such as the Retail Government Bonds may be true. However, in the informal saving sector such stokvel, there could be more factors, than higher income, that determine individuals' investment choices (Van Wyk, Botha & Goodspeed, 2012:pp.86–87).

2.6.2.5. Location

Many individuals who live in South African rural and traditional areas are poor and sparsely populated (Kirsten, 2006:p.3; Mashigo & Schoeman, 2010:sec.4). It was urbanisation that led to the formation of more informal savings groups in urban areas in addition to the existing formal saving institutions (Verhoef, 2008:pp.55–56). These

dynamics explains why stokvels usage is more prevalent in urban areas than in rural areas. In India, Bophal, poor people who lived in slums increased their savings in order to move themselves out the predicament of living in slums (Lall, Suri & Deichmann, 2006:p.1026). Because of the lack of access to formal financial institution, they saved in the informal instrument called chit, which is similar to the South African stokvel. The chit became their investment choice imposed on them by the location and the lack of access to formal funding. The type of the location induced these individuals to save even more in order to build for themselves houses.

2.6.2.6. Micro-lender facilities.

According to Swart (2002:p.351) the micro-lending industry originated from a need for credit by millions of people who, due to their level of income or their disposable income are not able to obtain credit from formal institutions. Some of these people borrow not to invest, but to borrow money for consumption spending or to satisfy their immediate wants. Most of these people tend to be trapped in a debt cycle using other loans to settle their debts. According Van Wyk, Botha and Goodspeed (2012:pp.87–88) stokvel appeared to be the most attractive vehicle for household to use as a credit and investment instrument. There are no credit checks and the credit facility is provided based on trust.

2.6.2.7. Culture

Extant studies (Gülseven & Ekici, 2016; Francis & Hezel, 2009; Olsen, 1998; Gutter, Fox & Montalto, 1999) have found that investments in financial instruments are not only guided by the return on investments. Factors such as culture, race, social order and education play an important role in the investment decisions by individuals. Francis and Hezel (2009:pp.1–11) alluded to Micronesians where individuals are less concerned with personal economic considerations of savings and money multiplication. Instead, individuals in Micronesia are more inclined to non-income transfer of money such as money to a relative to strengthen ties. These individuals will not be courageous enough to leave their money with anyone or any institution. Technological development alone will not bring about economic benefits, but a change of mindset, values and habits will do much to add to the economic development. In some cultures, investment in fixed-income investment instruments is a religious

transgression. As mentioned elsewhere in the document, in Turkey the policy makers have to design bonds compliant to their religion in order to attract investors to fixed-income investment instruments (Gülseven & Ekici, 2016:p.42).

2.6.3. Some international perspectives on determinants of investment and savings in government bonds and stokvel

In Turkey, it was found that households do not switch to fixed investment instruments even if there is a higher expected return, because it was un ethical to invest in fixed interest bearing securities (Gülseven & Ekici, 2016:p.42) . In Russia highly educated and high-income earners were induced to save less due to their guaranteed income in future (Denizer, Wolf & Ying, 2000:sec.4). The Indian research by Lall, Suri and Deichmann (2006:pp.1031–1032) found that poor people who lived in slums used their own savings to accumulate funds for building houses. They saved for themselves because they did not have access to credit from formal financial institutions. In fact, they used the chit fund (Lall, Suri & Deichmann, 2006:p.1026), similar to the stokvel in function, to accumulate their own savings.

In East Asia, the growth of savings is attributable to the reduced fertility ratio and the changes in population age composition (Nduku & Simo-Kengne, 2011:p.4). Nduku and Simo-Kengne (2011:p.15) further indicated that in China the old age dependency did not to have an effect on savings rate. In a dependency ratio studied, 31 provinces were covered and four samples were drawn. The results indicated that of the four samples only one was statistically significant in terms of savings versus dependency ratios. The research further stressed that a cross-country study of savings cannot be relevant to some countries as demographic factors differ from one country to another.

The research on savings by Chakraborty and Digal (2012:p.3) in Orrisa indicated that the higher the income at the lower levels of development , the higher the savings. They also found that savings do not only change in line with income, but also changed in accordance to age, income and occupation.

In Albania there was a consistent increase in investment in government securities, though the share of investment in government securities by individuals remained below 1% from 2008 until 2013 (Jakupi, 2014:p.63). He further cited other reasons for the poor investment in government securities as the rigid regulatory environment, history of dominance formal financial institutions and lack of incentives as a reason.

In America, the Federal government has tax-exempt government bonds, targeted specifically to private individuals and business. Private persons from the public enjoy most of the tax-exempt benefit. However, in some instances the pre-tax return would be equal to an after-tax return achieved from other non-exempt government securities such that the real after-tax return is the same (Driessen, 2016:pp.1–2). This in effect means that, the tax-exemption will not attract investors to these government bonds unless there is any other benefit other than profit.

2.6.4. Comparison of the Characteristics of the RSA Government Retail Bonds and the Stokvel

This section reviews literature on analyses of RSA Retail Bonds and stokvels in terms of characteristics. Some researchers in the financial areas of study (Yazdipour, 2011; Francis & Hezel, 2009; Gülseven & Ekici, 2016) have contended that it is not only the return on investment that deters, discourages or attracts people to invest in an instrument, but culture, emotions, social order, liquidity, accessibility state of the economy even religion have an impact on peoples attitude or willingness to invest or save.

2.6.4.1. Comparison in terms of return

RSA Government Retail Bonds paid out a guaranteed return with no administration costs incurred. The face value of the return is the real interest rate that investors receive semi-annual and can be capitalised. The stokvel investors/ savers receive money equivalent to what they contributed during the stokvel cycle.

The RSA Retail Bonds return has been higher than the fixed deposit interest rate return over the research period (Annexure 1). This means that for those stokvel members who opted to keep their pooled funds with commercial banks, still earned lower returns than the interest they would have obtained in the RSA Retail Bonds. However, the investment /savings usage in stokvel remained higher than stokvel usage throughout the period. This attitude towards stokvel is congruent to research outcomes (Chakraborty & Digal, 2012) that individuals do not necessarily change investment/savings due to higher return, but would prefer to keep investments that meet their social and financial needs.

2.6.4.2. Comparison in terms of tax benefit

Income earned from RSA Retail Government Bonds is subject to normal personal income tax. There was no special tax benefit achieved by investing in them (Julie Brownlee, 2015). Tax exemption in terms of old age can be made(National Treasury, 2017).

The stokvel groups flow of funds are far from the tax radar of SARS. Furthermore, most of the stokvel investment/savings users fell outside the tax bracket of SARS. Until June 2015, the threshold for income tax payment was R250 000 (equivalent of R29 167 salary per month (South Afircan Revenenue Services, 2015). The highest stokvel usage was at the lowest salary level exempted from paying personal income tax. Therefore, any tax benefit that affected individuals above the tax threshold would not benefit them because they were in any case exempted.

The tax policy did not therefore benefit the stokvel investors most of whom were falling in the lower salary level. However, the fact that the return on the RSA Government Retail Bonds was taxable, such taxation was just sufficient to discourage more investment in RSA Government Retail Bonds and to opt for stokvel investment/saving.

2.6.4.3. Comparison in terms of liquidity

The RSA Government Retail Bonds cannot be redeemed until maturity date, cannot be traded on secondary markets or used as a collateral. It is therefore illiquid and effectively locked for the duration of the investment (Brown, 2012).

On the other hand stokvel are more liquid in that members can borrow money without penalty from the stokvel as long as their periodic premium is not missed (Napier & Masilela, 2008; Van Wyk, Botha & Goodspeed, 2012).

2.6.4.4. Comparison in terms of the maturity term

The maturity term of RSA Government Retail Bonds is fixed at 1,3,5 and 10 years accordingly regardless of financial needs of individuals.

The term of investment/savings usage in stokvel is linked to the common objective of the group. Van Wyk, Botha and Goodspeed (2012) differentiate between three types of stokvel, namely

(i) Traditional stokvels that focus on periodic parties where the person receiving the money hosts the gathering and sells food and liquor at a profit.

(ii) Burial Stokvels, which keep the pooled fund with the commercial bank and withdraw only when death occurs in one of members' household. This can be long-term in nature (Business DayTelevision, 2018; Van Wyk, Botha & Goodspeed, 2012).

(iii) Investment/savings stokvels that pool funds for bigger assets such buying cars, houses or starting a business.

From the discussion in the preceding paragraphs, stokvels are more flexible and adjusted to the needs of investors than RSA Government Retail Bonds.

2.6.4.5. Comparison in terms security and risk of invested funds

The security of investment/savings usage in the RSA Government Retail Bonds is guaranteed (National Treasury, 2013). The National Treasury pays the full capital amount plus interest at the end of investment term.

The inflation linked bond returns are protected against the negative inflation effect as they are periodically adjusted according to the reported CPI. The fixed government bond return can only suffer inflation effect when inflation goes up, but investors can still buy 'new' RSA Government Retail Bonds whose interest is in line with the inflation to compensate for lower interest earning RSA Government Retail Bonds.

Most stokvels funds are susceptible to inflation effects because members receive funds as invested. Where funds are invested with commercial banks, a portion will be lost to administration costs. In addition, fixed deposit interest rates were lower than the return on RSA Retail Bonds through the research period.

The security of stokvel funds is mainly based on trust. Default and fraud is rife within stokvels (Covey, 1978). According to Andile Mazwai's comments on BDTV (2018) programme on stokvels, most of the pyramid schemes operate like stokvels. This places the funds of stokvel investors at risk.

2.6.4.6. Comparison in terms accessibility of the investment/savings instrument

The RSA Government Retail Bonds can be purchased at retail shops such Pick'n Pay, the Post Office, or a visit to the National Treasury, a visit to banks and through the internet (National Treasury, 2006; Brown, 2012; Moloto, 2012). All these purchase terminals lack common human contact and interaction amongst investors that a stokvel possesses.

Stokvel members meet physically for a common purpose and the meeting is organised and planned (Van Wyk, Botha & Goodspeed, 2012). The meeting itself motivates members to commit to their premium payments. According to Dawney and Shah cited in (Makwakwa, 2013) people need to appease each other in their behaviour while they also want to be involved in planning for issues that affect them. Meeting with fellow stokvel members gives them an opportunity to be involved in their financial needs and objectives.

2.6.4.7. Comparison in terms of legal requirements

The investors in the RSA Government Retail Bonds should be above 21 years of age and be South African citizens. If the potential investor is under 21 he should obtain the approval of a guardian and also complete a form with personal details (National Treasury, 2006).

There is no specified age limit with the stokvel. The stokvel runs according self-imposed regulations, which means it is independent in administration. Stokvel is run by individuals who are appointed by the group. Stokvel provides credit, receive deposits but are exempt from the National Credit Act (Act No. 24 of 2005) (South Africa, 2006) that is rigid as far as giving credit is concerned. It is also exempt from the Banks Act in terms of Notice 887, *Government Gazette* No. 31342 (Van Wyk, Botha & Goodspeed, 2012).

These exemptions make stokvel easy to form and run. They also enable it to make financial transactions with their members without being on the wrong side of the law.

2.6.4.8. Comparison in terms of becoming an investor

To be an investor in RSA Government Retail Bonds, a person needs to a South Africa citizen, above 21 years and have a minimum of R1000.00. There are no credit checks. (National Treasury, 2006; Brown, 2012).

Members of the stokvel are community members or a group of people known to each other. They are not formalised, do not have to have a bank account, there are no credit checks or contract completion (Van Wyk, Botha & Goodspeed, 2012; Mashigo & Schoeman, 2012; Covey, 1978; Verhoef, 2008). Only a few appointed individuals will do the banking for the whole group, which caters for those individual who do not have bank accounts and those with bad credit record.

2.6.4.9. Comparison in terms of minimum amount required and premium payment

The National Treasury sets the minimum amount payable (Brown, 2012) for investment in the RSA Retail Government Bonds and there is no specified consistent time for investment and in the stokvel.

Investment/saving in the stokvel involves some clear and consistent periodic payments. Members themselves decide on the amount, time and frequency of the premium payment. Members commit to the premium payment to keep access to credit and avoid embarrassment and expulsion from the group (National Treasury, 2010; Van Wyk, Botha & Goodspeed, 2012).

2.6.4.10. Comparison in terms of motivation to invest

The social cohesion, common objective and easy access to credit (Verhoef, 2008) motivate individuals to invest/save with the stokvel rather than with RSA Government Retail Bonds

RSA Government Retail Bonds lack direct contact between members that the stokvel possesses. Investors have to interact with terminals and technology (Moloto, 2012) that does not have the effect of human connection.

2.7. Conclusion

The empirical literature review and theories reviewed in this chapter indicated that no single factor could be a determinant of investment and saving in any financial instruments. The investment return was traditionally, the main driving factor of investment decision (Reilly & Brown, 2006:pp.189–190). However, all components of culture, economic status, habits, preferences and demographic character of individuals have an impact in the ultimate manifestation of psychological disposition in relation to investment decisions (Francis & Hezel, 2009:p.19; Gutter, Fox & Montalto, 1999:p.150).

The following chapter on data analysis will look into the methodology and techniques followed in studying the determinants of investment choices between the RSA Retail Bonds and the Stokvel in comparative terms.

CHAPTER 3 Research Methodology

3.1. Introduction

The previous chapter reviewed some literature and explored some theories that affect individuals' investment choices and decisions. This chapter proceeds on to describe the methods of data collection applied for this research. It further presents the research design that is relevant to the nature of data collected.

This research obtained data from FinMark (2015) with the purpose of analysing the household investment/savings usage in the government bonds and the stokvel. The nature of data obtained was qualitative in terms of race, age, education, level of income and location. Qualitative questions were posed by FinMark to the individuals described in terms of the mentioned variables. This research obtained these qualitative answers and quantified them along the mentioned variables to describe the relationship between the said variables.

The rest of the chapter is organised as follows:

- Section 3.2 outlines the research design
- Section 3.3 outlines the research techniques
- Section 3.4 describes the research instruments and tools.
- Section 3.5 describes the statistical techniques used
- Section 3.6 explains the research ethics followed and
- Section 3.7 concludes the chapter

3.2. Research Design

3.2.1. Qualitative Research Approach

Qualitative research is the research that calls for responses in words from a sampled population and other research approaches can then be built upon it (Patten, 2007:sec.7). This point is emphasised by Ridenour and Newman (2008) where they contend that the qualitative method actually lays the foundation for all other research approaches including the quantitative approach. According to Roller and Lavrakas (2015) one qualitative research question will derive answers from other multiple questions related to human behavior that is being studied.

3.2.2. Quantitative Research Approach

The quantitative research approach analyses elements of variables in a way that can be measured. Furthermore, non-quantitative data can be collected using appropriate instruments or questions and is then converted into quantitative data. (Mark & Caputi, 2001:pp.4–6; Sukamolson, 2007:pp.2–3)

The advantages associated with the use of a quantitative research approach are that researchers can measure change of an element over a period of time, can measure increase or decrease in frequency of the elements of variables and also measure these changes between different variables or elements of variables moving to the same direction or in opposite directions. The quantitative research approach can also be used to establish other factors that have an impact in the direction of the change (Mark & Caputi, 2001).

The quantitative research approach has its own limitations. It cannot be used to study problems in depth and it is also not efficient in the development of a hypothesis (Sukamolson, 2007).

3.2.3. Mixed Method Research

According to Ridenour and Newman (2008:pp.8–9) students who leave universities with a one-sided research approach will be weak and one sided with regard to asking detailed research questions. They, however, also indicate that their poor application of the mixed method of research risks producing an irrelevant panacea for research studies. Scientifically valid research is a sequential, planned, systematic and structured undertaking to come to conclusions that are supported by the logical, systematic and organised reason of the researcher. They recommend the use of both quantitative, qualitative and mixed methods in a way that is scientifically valid.

A multiple of researchers (Hesse-Biber & Johnson, 2015:pp.39–40; Walsh, 2012:p.10) argue against the war between quantitative and qualitative approaches, instead they advocate for scientific well-integrated applications of qualitative, quantitative and mixed methods of research. They stress the importance of the application of different research methods as a continuum rather than separate silos of research at war with one another.

The mixed method of research is not appropriate in the context of this research because this research studies the breadth and not the depth of usage of RSA

Government Retail Bonds and stokvel in terms of selected demographics, namely, age, race, location, level of education and salary level,

3.2.4. Quantitative Research Approach Preference

This research has chosen the quantitative research approach because qualitative responses had to be quantified in order to determine the frequency of a response for each type of variable. The research chose the quantitative approach because the sample size was large and the larger sample size reduces the effect bias factor in analysis. According to Mark and Caputi (2001:sec.1.3) quantitative research is more appropriate when studying the breadth of a phenomena than qualitative research. This research aims to study the breadth (frequency of usage of RSA Government Retail Bonds and stokvel) and not the depth of usage, which makes the quantitative research approach more appropriate in this instance.

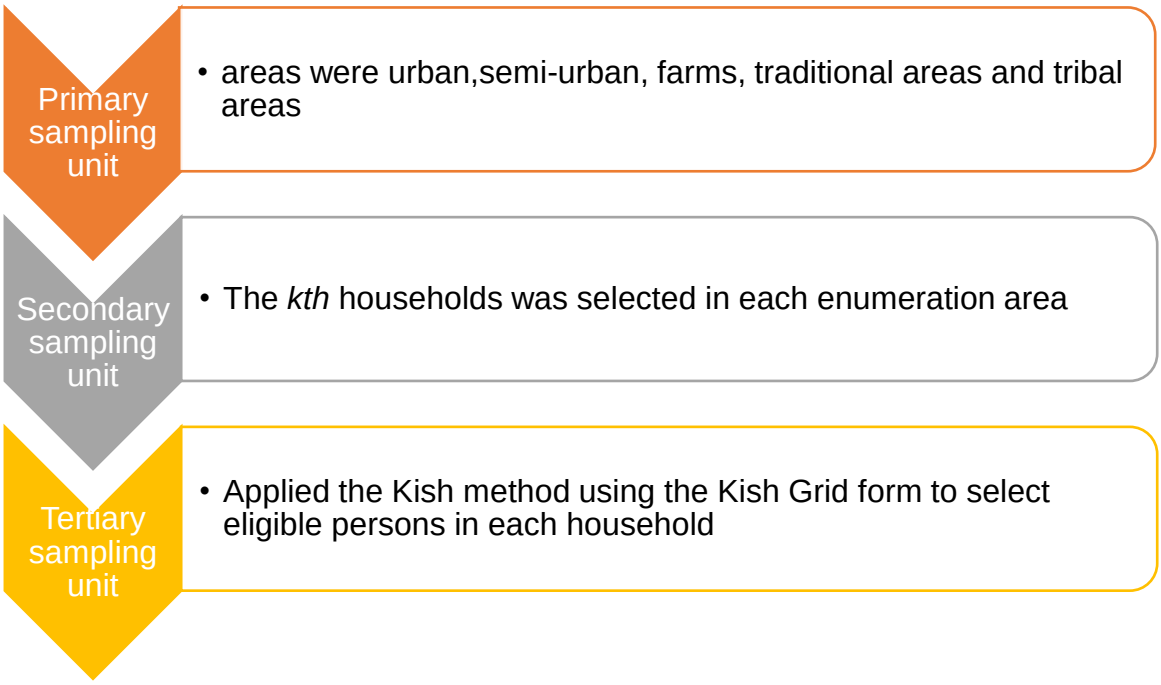
The qualitative responses to 'Have now', 'Did not know' and 'Don't have' (RSA Government Retail Bonds or stokvel) were quantified (quantitative approach) in terms of race, age, education level, level of income and location. Then the relative quantities were spread over five years in relation to each other to determine frequency of usage of government bonds or stokvel. The frequencies of usage were also compared in terms of the demographic factors covered by the research.

3.3. Research Technique of the Research Design

3.3.1. Sampling Plan, Sample Frame Sample Size

The research obtained data from FinMark as a secondary source. The highest level of sampling was at provincial level in all provinces. The within each province Enumerator Area (EA) areas were designed geographical type level urban, semi-urban, farms, traditional areas and tribal areas. Within each EA's, household were selected according to systematic random sampling method. The enumeration areas were primary sampling units. The research institution used simple random sampling which is a form of probability sampling. The survey selected every kth household in the enumeration area, which made the random sampling systematic. FinMark used the enumeration areas (EA's) as demarcation points to ensure that different areas in South Africa were fairly presented in the sample.(FinMark Trust, 2017:p.2). FinMark applied typical three-stage sampling. See the diagram below.

Figure 3.3-1: Three levels of sampling by FinMark



*Source: Adapted from FinMark (2017). Chart by author

This research merged geographical areas in the following manner,

- Urban and semi-urban to urban areas
- Traditional areas and tribal areas to traditional areas

The research chose to merge some geographical areas because the two geographical sets are closely related.

Random sampling reduces errors of inclusion or exclusion and removes bias from the data that is being utilised for the research (Ridenour & Newman, 2008). This research supported the use of random sampling because of the large size of the population (Table 3.3-1 on page 42). Random sampling from a large population size minimises bias and ensures a fair representation of a population by means of the sample (Flick, Metzler & Scott, 2014:p.50).

This research merged these geographic types to make only three location types, namely, farms, urban, and traditional areas. The research further sampled only individuals or households that earned a salary from formal employment.

The following table indicates sampled individuals/households before and after further sampling in this research.

Table 3.3-1: Total research population from FinMark and sample for this research

Sampling	2011	2012	2013	2014	2015
Population	3900	3900	3900	3900	5000
Sample (only salaried individuals)	1570	1745	1483	1516	2003

*Source: Adapted from FinMark data (2015)

Following the random sampling by FinMark, this research used purposive sampling from the secondary data in order to focus the research only on salaried individuals. Purposive sampling is a non-random sampling method based on some pre-defined criteria. Not everyone who is available is included, only individuals who meet the predefined criteria are included (Alvi, 2016)

The main advantage of purposive sampling is that it provides internal validity of data, more especially when the data is obtained following robust and scientific collection methodology. It is easy to use and requires little effort.

It is imperative that readers and users of the outcome of this research are cautious of this sampling method in making inferences to other areas of investment choices and decisions where non-salaried individuals might be involved (Alvi, 2016).

3.3.2. Data Validation

This research used the average mean and the median in the tables below (See Table 3.3-2 to Table 3.3-6 test the data validity and reliability of the sampled stratum (salaried individuals). The average mean is very sensitive to outliers while outliers do not affect the median. An outlier above the average will pull or push the average upward, while an outlier below the average will pull or push the average downward. Most of the variables within categorical variables showed that the average was not too much spread from the mean values, which meant that most values were not far from the average over the research period.

The tables below have not yet separated the frequency of use between government bonds and stokvel. The research describes in detail the investment/savings usage in government bonds and stokvel in the next chapter in terms of age, race, location education and salary level.

Table 3.3-2: Median and average relative frequencies of investment/savings usage per levels of education, 2011 to 2015

Education	2011	2012	2013	2014	2015	Median	Average
Apprenticeship	3,1%	2,0%	3,0%	3,3%	3,2%	3,1%	2,9%
Diploma	9,0%	8,3%	14,4%	15,0%	15,2%	14,4%	12,4%
Matric	36,9%	42,0%	43,0%	42,0%	47,4%	42,0%	42,3%
No formal education	1,1%	1,1%	0,8%	0,7%	0,5%	0,8%	0,9%
Primary school	12,5%	6,6%	5,3%	5,1%	3,2%	5,3%	6,6%
Some high school	26,4%	35,1%	23,9%	26,8%	20,2%	26,4%	26,5%
University degree	10,9%	4,9%	9,6%	7,1%	10,2%	9,6%	8,5%
Grand Total	100,0%	100,0%	100,0%	100,0%	100,0%		

Source: Author's computation

Table 3.3-3: Median and average frequencies of investment/savings usage per age groups, 2011 to 2015

Age	2011	2012	2013	2014	2015	Median	Average
-19	1.0%	12.3%	1.3%	0.8%	0.9%	1.0%	3.2%
20-29	25.0%	29.7%	23.1%	23.7%	19.8%	23.7%	24.2%
30-39	31.4%	22.2%	29.5%	30.9%	34.3%	30.9%	29.7%
40-49	25.0%	18.3%	29.2%	26.1%	26.8%	26.1%	25.1%
50-59	13.0%	10.6%	14.1%	16.0%	16.0%	14.1%	13.9%
60-69	3.0%	5.3%	2.3%	2.1%	2.0%	2.3%	2.9%
70+	0.4%	1.5%	0.4%	0.3%	0.1%	0.4%	0.6%
Refuse to answer	1.3%	0.1%	0.1%	0.2%	0.0%	0.1%	0.3%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%		

Source: Author's computation

Table 3.3-4: Median and average frequencies of investment/savings usage by racial group, 2011 to 2015

Race	2011	2012	2013	2014	2015	Median	Average
Asian/Indian	5.7%	7.9%	7.3%	5.9%	6.4%	6.4%	6.6%
Black	58.5%	52.6%	55.0%	56.8%	57.3%	56.8%	56.0%
Coloured	15.7%	18.5%	17.1%	15.5%	16.5%	16.5%	16.6%
White	20.1%	21.1%	20.7%	21.8%	19.8%	20.7%	20.7%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%		

Source: Author's computation

Table 3.3-5: Median and average frequencies of investment/savings usage by location (geographic type) , 2011 to 2015

Location	2011	2012	2013	2014	2015	Median	Average
Farms	7.0%	4.1%	5.9%	6.9%	6.0%	6,0%	6,0%
Traditional areas	8.9%	13.4%	8.4%	10.4%	6.9%	8,9%	9,6%
Urban	84.1%	82.5%	85.7%	82.7%	87.0%	84,1%	84,4%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%		

Source: Author's computation

Table 3.3-6: Median and Average frequencies of investment/savings usage by income categories, 2011 to 2015

Salary intervals2	2011	2012	2013	2014	2015	Median	Average
R375 - R9 500	40,9%	29,6%	29,9%	35,4%	34,6%	34,6%	34,1%
R9 500 - R18 625	10,2%	13,1%	16,9%	9,4%	10,3%	10,3%	12,0%
R18 625 - R27 750	4,8%	9,7%	10,8%	7,5%	9,7%	9,7%	8,5%
R27 750 - R36 875	1,4%	3,1%	3,4%	2,2%	3,1%	3,1%	2,6%
R36 875 - R46 000	1,9%	2,1%	3,5%	3,5%	3,9%	3,5%	3,0%
Refuse to answer	40,83%	42,46%	35,47%	42,08%	38,34%	40,8%	39,8%
Grand Total	100,0%	100,0%	100,0%	100,0%	100,0%		

Source: Author's computation

3.4. Research Instruments

3.4.1. Data obtained from FinMark

This research obtained the main source of data from FinMark. FinMark used household visits by field workers. From 2011 to 2014, FinMark field workers used Paper and Pen Interviewing (PAPI). The field workers used Computer-Assisted Personal Interviewing

(CAPI) from 2015. This was a reason why FinMark was able achieve a response of 5000 individuals/households due to quicker capturing of data.

The research obtained secondary data through e-mail requests from FinMark. FinMark provided the requested data in Excel format. There was constant telephonic and e-mail communication between the research and FinMark to clarify concepts that changed over the research period and other changes in methodology.

In addition to data requested from FinMark, this research obtained additional data that was available from the Reserve Bank and the National Treasury website.

3.5. Further Data Analysis

This research has used cross tabulations, linear graphs and bar graphs to establish correlations in investment/savings usage or non-usage in government bonds and in stokvel. Correlation coefficient (r) is the measure of linear relationship between two variables (x;y)

The formula for the Correlation coefficient (r) is;

$$r = Sxy \div SxSy$$

Where $Sxy = \frac{1}{(n-1)} \sum_{i=1}^{n} (X_i - \overline{X}_i)(Y_i - \overline{Y}_i)$

Where S_{xy} is a covariance between x and y. S_x is the standard deviation of x and S_Y is the standard deviation of y.

Where correlation (r) = 0, then there is no correlation between the variables studied

Where the correlation (r) >1, then the variables are perfectly positively correlated

Where the correlation (r) < 1, then the variables are perfectly negatively correlated (Swanepoel et al., 2016:pp.139–140).

This research also used a summary of statistical mean, median and standard deviation to emphasise the validity and reliability of data presented in charts and by cross tabulations in the research. The research also used theoretical studies to explain relationships and trends of government bond and stokvel usage in the sample.

This research also used Pearson's Chi square t-test to measure the difference between averages of the two investment choices as determined by Age and Salary level.

Where the t-statistic is the ratio that shows that difference between the appraised value and the hypothesised value to its standard error.

The formula for the t-test:

$$t = \frac{\bar{X} - \mu}{S/\sqrt{n}}$$

The $\bar{X}$ is the sample mean

μ *is the mean of the population*

S is the standard deviation of the sample and

n *is the number of observations*

(Swanepoel et al., 2016:p.238)

The Chi2 and Cramer's V tests were also used to measure the nature of association between (Race, Location, and Education) and the choice between the two investment categories.

Where the chi square (X^2) statistic is used to measure to what extent the distributions of categorical variables differ from one another.

The formula for the Chi square test statistic:

$$\sum_{i=1}^{n} \chi^2 = \frac{(O-E)^2}{E}$$

χ^2 is the cell Chi-square value

'O' is the observed value

'E' is the expected value and

'n' is the number of groups or categorical variables

(Mchugh, 2013:p.145)

Where the Cramer's V coefficient is based on Pearson chi-squared statistic and measure the relationship between two nominal variables.

The Cramer V coefficient gives a range of values from 0 and +1. Values towards 1 means correlation is becoming stronger and values below 0.5 towards 0 means that correlation is becoming weaker.

The formula for the Cramer's V tests:

$$\text{Cramer's V coefficient} = \sqrt{\frac{\chi^2/_n}{(k-1)}}$$

'$\chi^{2'}$ is the cell Chi-square value

'n' is the number of rows or columns whichever is lesser in a data matrix

'k' is the column in tabulated data

(Mchugh, 2013:p.148)

3.6. Research Ethics

The ethical clearance form was completed for the university as part of professional and academic study for record purposes.

To make sure that the request for data did not undermine ethical considerations, a clear request was forwarded to FinMark indicating clearly, which specific data was requested for the research.

The institution FinMark is a renowned research institution that takes into account all ethical considerations when collecting financial data. The nature of data that the research requested from FinMark did not have any personal identifiers such physical addresses, Identity numbers, postal address, personal information, e-mails, names and surnames, banking details or property details. This ethical consideration made the analysis more reliable. The collection and the analysis of data on the racial variable is not expected to fuel any racial tensions. Only individuals above the age of 16 were eligible for responding to questions as household heads or representative. The response was carried out with the consent of those involved.

The research also undertook to communicate to FinMark any anomaly of data that can lead to the distrust of FinMark as a research institution, with a copy of the dissertation once it is completed.

3.7. Conclusion

This research used quantitative data of the RSA Government Retail Bonds and stokvel usage received from FinMark. Quantitative values were converted to relative frequencies in order to smoothen the effects of unequal samples over the research period. The use of Pearson's Chi square and Fisher's t-test tested differences between means of the investment choices and the demographics under review. Cramer's V coefficient was applied on data to test correlation between these investment choices and the demographics.

Chapter four analyses the data on investment choices in terms of race, age, location, education and salary level. It will also compare characteristics of the RSA Government Retail Bonds and the stokvel.

CHAPTER 4 Research Findings

4.1. Introduction

The preceding chapter looked into the methodology and research frame that was followed to analyse the data.

This chapter analyses the determinants of investment in the RSA Government Retail Bonds and stokvel in terms of age, race, location, education and income (measured in terms of salary).

The rest of the chapter is organised as follows:

- Section 4.2 explains the choice and use of the data analysis techniques.
- Section 4.3 describes short to medium term investment instruments.
- Section 4.4 discusses investment choices in terms of race.
- Section 4.5 discusses investment choices in terms of age.
- Section 4.6 discusses investment choices in terms of education.
- Section 4.7 discusses investment choices in terms of salary.
- Section 4.8 discusses investment choices in terms of location.
- Section 4.9 provides test of statistical distribution, correlation and difference of sample means.
- Section 4.10 concludes the chapter.

4.2. Choice of Data Analysis Techniques

There was a constant use of percentages throughout the chapters in order to mitigate the effect of unequal samples over the different years of the research period. The percentages reflect a fair change in the size because the size is analyse relative to that of the sample (Wegner, 2016:p.28).

This research used cross tabulations, linear curve and bar charts to establish correlations in investment/savings usage or non-usage in RSA Government Retail Bonds and in stokvel. The use of tables (cross tabulations) is important for comparing properties or relationships of variables because it allows comparison and the

determination of similarities and differences of these variables (Flick, Metzler & Scott, 2014:p.28; Wegner, 2016). This research used graphs combined with tables to show the trend and the frequency level of usage.

4.3. Short to Medium-term Investment as per Data Obtained from FinMark, 2011 to 2015

The research data only relates to salaried individuals. The research excluded all other individuals getting income from pension, domestic work, self-employment, grants, selling fruit or other self-employed activities.

The total sum of 'Do not know' are those individuals who had no knowledge of the RSA Government Retail Bonds or stokvel, total sum of 'Have now' are those who in the particular year purchased RSA Government Retail Bonds or invested or saved with stokvel.

The distribution of size of the individuals in the sample was unequal over the five-year period and averaged about 1663 individuals (Table 4.3-1)

In addition, a significant event in 2012 seems to have had impact on investment in RSA Government Retail Bonds. South Africa joined the Global Bond Index, there was a foreign net sale of R5,5 billion worth of SA bonds as the rand weakened. Many socio-economic variables were at play during the second half of 2012. The lower than expected inflation rates, the decrease in the repo rates, strikes in the mining sector and inclusion of South Africa in the World Government Bond Index contributed to the decrease in the bond yields (South African Reserve Bank, 2012). The events made bonds more expensive for South African rand holders and the yield to be lower (Stanlib, 2013). The decline in the RSA Retail Government Bond return in 2012 reflects these economic developments.

Table 4.3-1: Summary of investment/savings usage in RSA Government Retail Bonds from 2011 to 2015 (sampled individuals over the research period)

Status	2011	2012	2013	2014	2015
Total Sum of 'Do not know'	2	22	6	0	27
Total Sum of 'Have now'	16	6	10	5	11
Total Sum of 'Don't have'	1 552	1 717	1 467	1 511	1 965
Total	1 570	1 745	1 483	1 516	2 003

*Source: Adapted from FinMark data (2015)

When above table is converted into percentages, then the trend emerges as follows;

Table 4.3-2: Summary of investment/savings usage in RSA Government Retail Bonds from 2011 to 2015 (relative frequencies of individuals over the research period)

Status	2011	2012	2013	2014	2015
Total Sum of 'Do not know'	0,1%	1,3%	0,4%	0,0%	1,3%
Total Sum of 'Have now'	1,0%	0,3%	0,7%	0,3%	0,5%
Total Sum of 'Don't have'	98,9%	98,4%	98,9%	99,7%	98,1%
Total	100,0%	100,0%	100,0%	100,0%	100,0%

*Source: Adapted from FinMark data (2015)

Those individuals that had no usage in RSA Government Retail Bonds from 2011 to and 2015 amounted to almost 100% of the sampled individuals when rounded to zero decimal. It was, however, interesting to note some trends and relationship that emerged when the "Have now" was further analysed in the subsequent sections.

Individuals who did know about the RSA Government Retail Bonds ranged between zero (0) and one per cent from 2011 through to 2015. This means that almost all people in the sample as per table total had information or knowledge about the bonds. The somewhat higher number in 2012 and 2015 can be attributed to the number of observations in each year when compared to the other years. When these numbers are converted to percentages, they level out smoothly over the research years.

Table 4.3-3: Summary of investment/savings usage in stokvel from 2011 to 2015 (sampled individuals over the research period)

Status	2011	2012	2013	2014	2015
Total Sum of 'Do not know'	1	8	4	0	11
Total Sum of 'Have now'	80	96	139	82	166
Total Sum of 'Don't have'	1 489	1 641	1 340	1 434	1 826
Total	1 570	1 745	1 483	1 516	2 003

*Source: Adapted from FinMark data (2015)

Table 4.3-4: Summary of investment/savings usage in stokvel from 2011 to 2015 (relative frequencies of individuals over the research period)

Status	2011	2012	2013	2014	2015
Total Sum of 'Do not know'	0,1%	0,5%	0,3%	0,0%	0,5%
Total Sum of 'Have now'	5,3%	5,9%	10,4%	5,7%	9,1%
Total Sum of 'Don't have'	94,9%	94,0%	90,4%	94,6%	91,2%
Total	100,0%	100,0%	100,0%	100,0%	100,0%

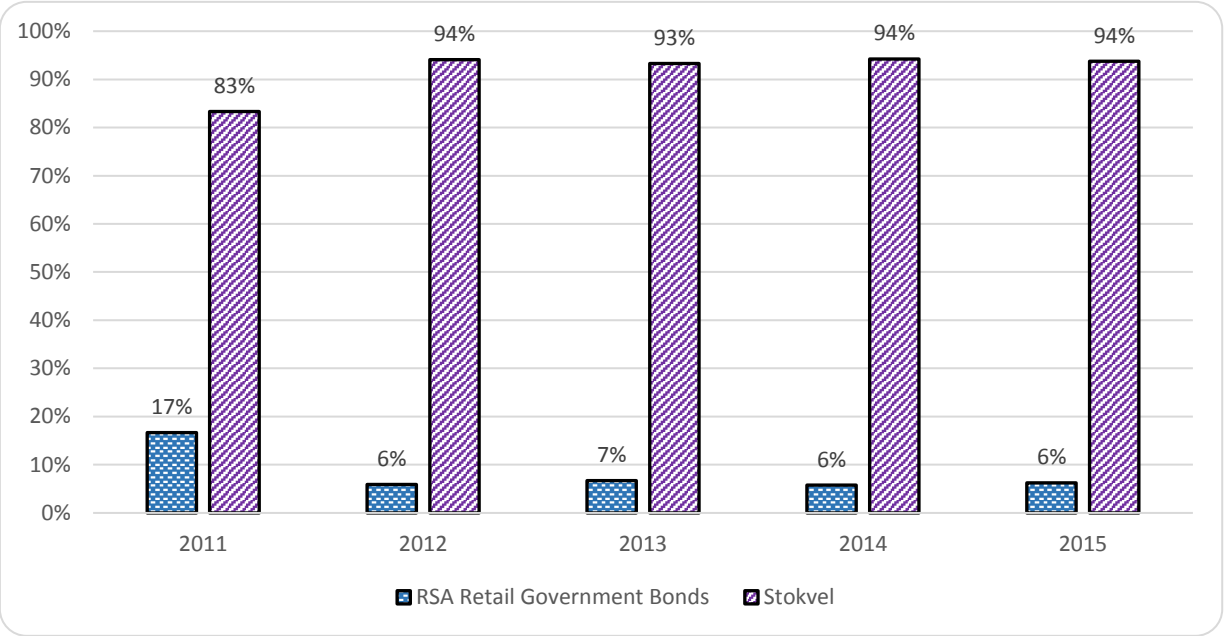
*Source: Adapted from FinMark data (2015)

When comparing Table 4.3-2 and Table 4.3-4 usages, there was a consistently higher usage in stokvel than in RSA Government Retail Bonds. The 'Do not have' percentage in stokvel is consistent with figures as recorded by Calvin and Coetzee (2010:p.2) There is very little literature that has made a study of RSA Retail Government usage in comparison with usage in stokvel, particularly with regard to formally employed individuals only.

The research endeavoured to look into the investment/savings pattern in RSA Government Retail Bonds and the stokvel by individuals who had a choice to use either of the investment/savings instruments, by comparing usage through the research period

The research also looked into the most important characteristics of the RSA Government Retail Bonds and the stokvel and how these characteristics can deter or attract individuals to invest/save in them.

Graph 4.3-1:Consolidated investment/savings usage in RSA Government Retail Bonds and usage Stokvel, 2011-2015



Source: Author's computation

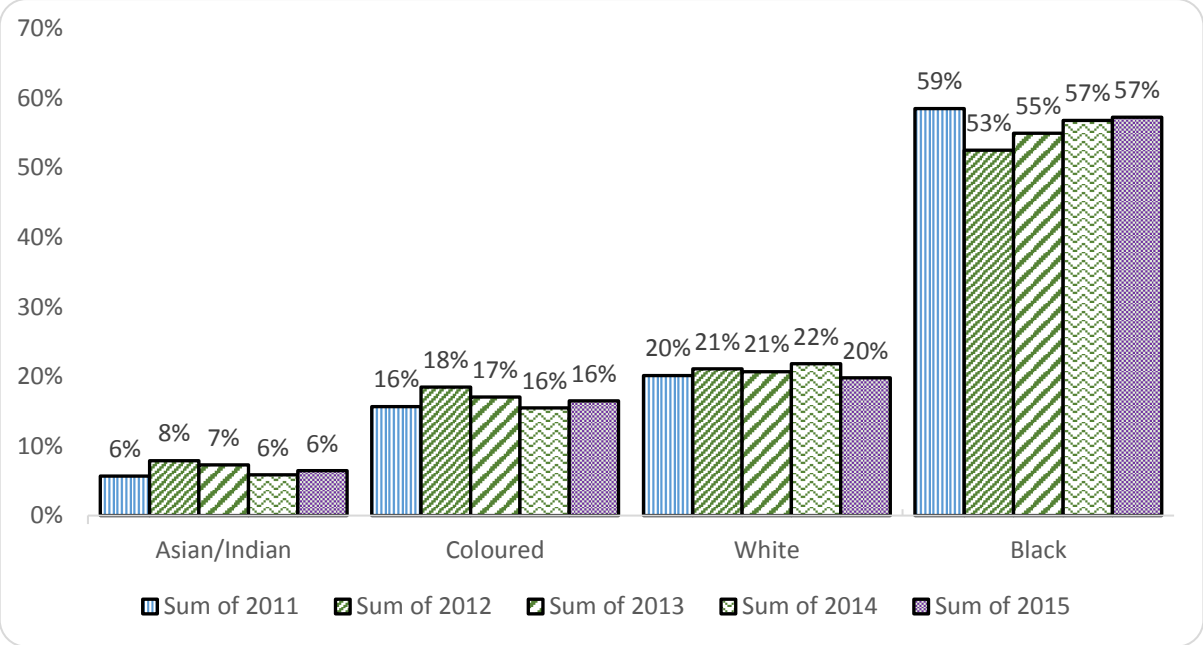
Graph 4.3-1 above, indicates that the number of individuals who had investment/savings in stokvel was consistently above investment/savings in RSA Government Retail Bonds from 2011 to 2015. The stokvel usage also averaged insignificantly upward while the RSA Retail Bonds was the opposite through 2011 to 2015 when factoring the linear curve into the chart. To minimise the effect of unequal sample size, the research converted the absolute numbers of investments/savings in either of the products into percentages.

4.4. Investment Choices between the RSA Government Retail Bonds and Stokvel by Race, 2011 to 2015

The racial factor like other demographic aspects, is an important natural phenomenon that adds to the determinants of investments (Choudhury, 2002; Gutter, Fox & Montalto, 1999).

4.4.1. The composition of the sample by race, 2011 to 2015

Graph 4.4-1:% Total composition of the sample by race from 2011 to 2015



Source: Author's computation

The graph above indicates that the presentation of race groups in the sample was consistent from 2011 to 2015. It is a comparison of usage in RSA Government Retail Bonds and stokvel by race, 2011 to 2015.

4.4.2. RSA Government Retail Bonds investment choice by race compared to racial proportion in the sample, 2011 to 2015

The average race composition of the sample over the five years since 2011 is as follows: Black 56% (932), White 21% (344), Coloured 17% (277) and Asian/Indian (6%) (See Graph 4.4-1).

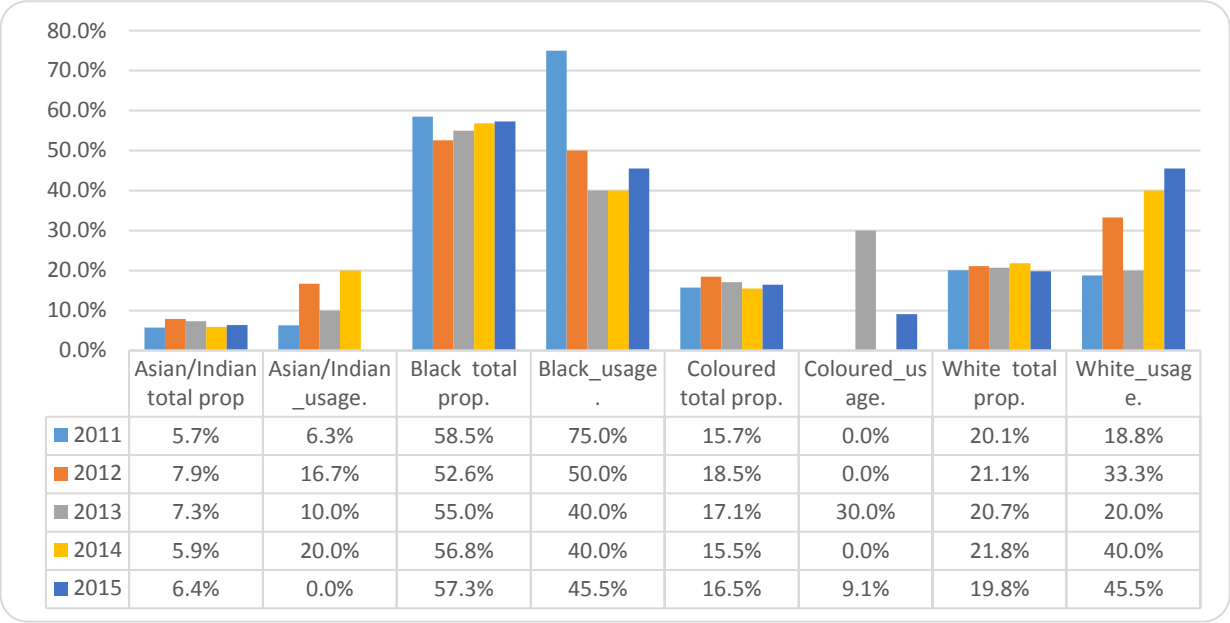
Asians/Indians were also beyond their proportion in the sample from 2011 to 2014. In 2015 they were not presented in the in the investment in the RSA Government Retail Bonds. Their investment in percentage terms was consistently above their sample proportion from 2011 through 2014. Their investment was averaging upward if two years moving average is applied. The calculated correlation coefficient of household disposable income and investment in the RSA Government Retail Bonds was weak at -0.31 for the Asians/Indians. Contrary to Chakraborty and Digal (2012:p.2)'s position

that higher income will lead to higher savings and investment, it has not happened with Asians/Indians investment choice with RSA Government Retail Bonds

Black individuals were highly presented in RSA Retail Government Bond investments in 2011. From 2012 through 2015, their investment usage in RSA Government Retail Bonds was below their sample proportion.

In terms of investment in RSA Government Retail Bonds, Whites invested beyond their proportion in 2012, 2014 and 2015. Moreover, their investment was on the upward trend from 2011 to 2015. In line with high inflation expectations (Gülseven & Ekici, 2016:p.43), RSA Government Retail Bonds could have been influenced by rising inflation because of the high yield expected on interest bearing instruments.

Graph 4.4-2: RSA Retail RSA Government Retail Bonds investment choice by race compared to racial



	Asian/Indian total prop	Asian/Indian _usage.	Black total prop.	Black_usage.	Coloured total prop.	Coloured_usage.	White total prop.	White_usage.
2011	5.7%	6.3%	58.5%	75.0%	15.7%	0.0%	20.1%	18.8%
2012	7.9%	16.7%	52.6%	50.0%	18.5%	0.0%	21.1%	33.3%
2013	7.3%	10.0%	55.0%	40.0%	17.1%	30.0%	20.7%	20.0%
2014	5.9%	20.0%	56.8%	40.0%	15.5%	0.0%	21.8%	40.0%
2015	6.4%	0.0%	57.3%	45.5%	16.5%	9.1%	19.8%	45.5%

Source: Authors computation

The Coloured group usage surfaced twice in the investment sample. In 2011, they were well above their average presentation and 2015 well below their average sample proportion. In 2013, their usage was above their sample representation and in 2015; their usage in RSA Government Retail Bonds was way below their presentation. In the main, Coloureds had a zero usage in RSA Government Retail Bonds except for 2013 and 2015. This instance seems to be matching the Prospect Theory. According to the Prospect Theory individuals investment choices can motivated by some psychological

biases resulting from conditions of uncertainty (Ricciardi & Simon, 2000:p.5). They seemed to have had a particular disposition when coming to the stokvel as an investment choice (See Graph 4.4-3).

According to Graph 4.4-2 above, Asians/Indians in the sample invested more than their representation in relative terms. More of them preferred for RSA Government Retail Bonds than Coloureds and Blacks.

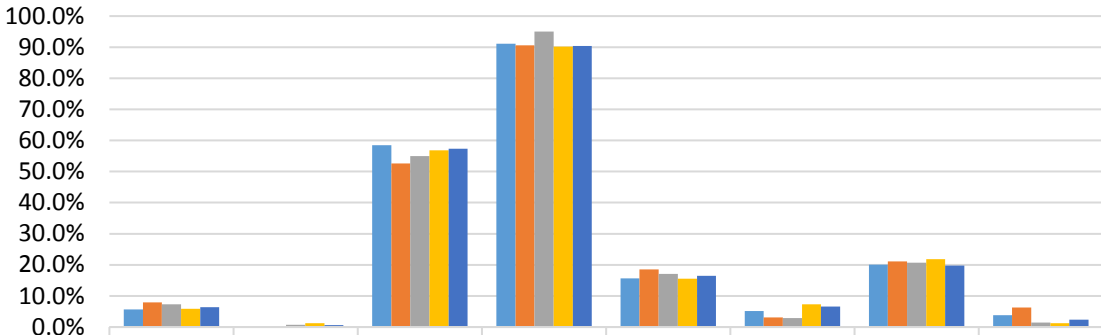
Black usage on RSA Government Retail Bonds was above their sample representation in 2011. From 2012 until 2015, their usage was below their presentation in the sample. This means many of them did not prefer to invest in the RSA Government Retail Bonds.

White usage in the RSA Government Retail Bonds was slightly below their presentation in 2011 and 2013, otherwise their usage in RSA Government Retail Bonds was above their presentation in the sample.

The analysis above indicates that usage in RSA Government Retail Bonds by Blacks was lower than that of the Indians and Whites when analysed relative to their presentation in the sample. Gutter, Fox and Montalto (1999:p.151,158) found that there is a racial effect on investment choices by individuals. They, however, emphasised that it was not race itself that influenced choices, but it was racial differences that influenced investment choices.

4.4.3. Stokvel investment choice by race compared to racial proportion in the sample, 2011 to 2015

Graph 4.4-3: Stokvel usage by race compared to racial proportion in the sample



	Asian/Indian total prop	Asian/Indian_usage	Black total prop	Black_usage	Coloured total prop	Coloured_usage	White total prop	White_usage
2011	5.7%	0.0%	58.5%	91.1%	15.7%	5.1%	20.1%	3.8%
2012	7.9%	0.0%	52.6%	90.6%	18.5%	3.1%	21.1%	6.3%
2013	7.3%	0.7%	55.0%	95.0%	17.1%	2.9%	20.7%	1.4%
2014	5.9%	1.2%	56.8%	90.2%	15.5%	7.3%	21.8%	1.2%
2015	6.4%	0.6%	57.3%	90.4%	16.5%	6.6%	19.8%	2.4%

Source: Author's computation

Graph 4.4-3 above indicates that Asians usage in stokvel was consistently well below the proportional presentation in the sample. This indicates that they were not inclined to use stokvel as was the case with other races during the research period . Blacks presentation in the sample averaged 56% between 2011 and 2015. Their usage in stokvel between 2011 and 2015 (average of 92%) was well beyond their presentation in the sample. Coloured individuals' usage was well below their presentation in the sample throughout the research period.Whites usage in stokvel was similar. Whites usage in stokvel was also below their presentation in the sample throughout the research period.

It is important to note that there were Coloureds and White individuals who crossed racial lines to invest in stokvel in the context of Black savings investment schemes although stokvel was considered as an informal savings platform for poor Black individuals (Mashigo & Schoeman, 2010).

More Black people had usage in stokvel, followed by Coloureds and Whites respectively and this is consistent with the findings of Verhoef (2008:pp.60–66) that

Blacks usage dominates in stokvels. There was almost zero usage by Indian/Asian races. One the important factors of the Market Efficiency Theory is that all investors make rational decisions to fulfil their utility of consumption (Peleg, 2014:p.457). If this aspect of Market Efficiency Theory holds, then it was irrational for Asians/Indians to opt for the investment in stokvel but rational to Blacks, Coloureds and Whites in differing degrees.

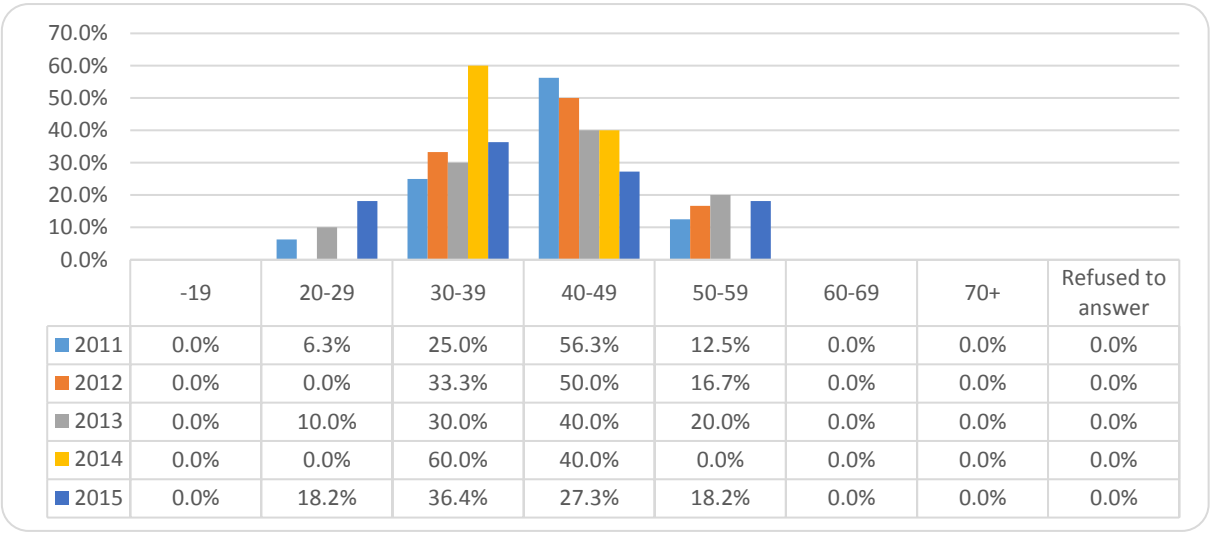
4.5. Investment Choices between the RSA Government Retail Bonds and Stokvel by Age, 2011 to 2015.

4.5.1. Investment choices in RSA Government Retail Bonds in terms of age, 2011 to 2015

It is important to note that the analysis of usage in RSA Government Retail Bonds is composed of an average of one per cent of the total individuals in the sample. The analysis of usage in Graph 4.5-1 therefore analyses this one per cent in terms of age.

As can be seen from Graph 4.5-1 the majority of investors are between ages 40-49, followed by 50-59, 30-39 and finally age 20-29 in some years.

Graph 4.5-1: Investment/savings usage in government bonds in terms of age



	-19	20-29	30-39	40-49	50-59	60-69	70+	Refused to answer
2011	0.0%	6.3%	25.0%	56.3%	12.5%	0.0%	0.0%	0.0%
2012	0.0%	0.0%	33.3%	50.0%	16.7%	0.0%	0.0%	0.0%
2013	0.0%	10.0%	30.0%	40.0%	20.0%	0.0%	0.0%	0.0%
2014	0.0%	0.0%	60.0%	40.0%	0.0%	0.0%	0.0%	0.0%
2015	0.0%	18.2%	36.4%	27.3%	18.2%	0.0%	0.0%	0.0%

Source: Author's computation

The overall usage for age 20-29 and 30-39 was on the up from 2011 to 2015. Age group 40-49 shows a constant decline in usage. Age group 50-59 increased from 2011 to 2013 and then declined.

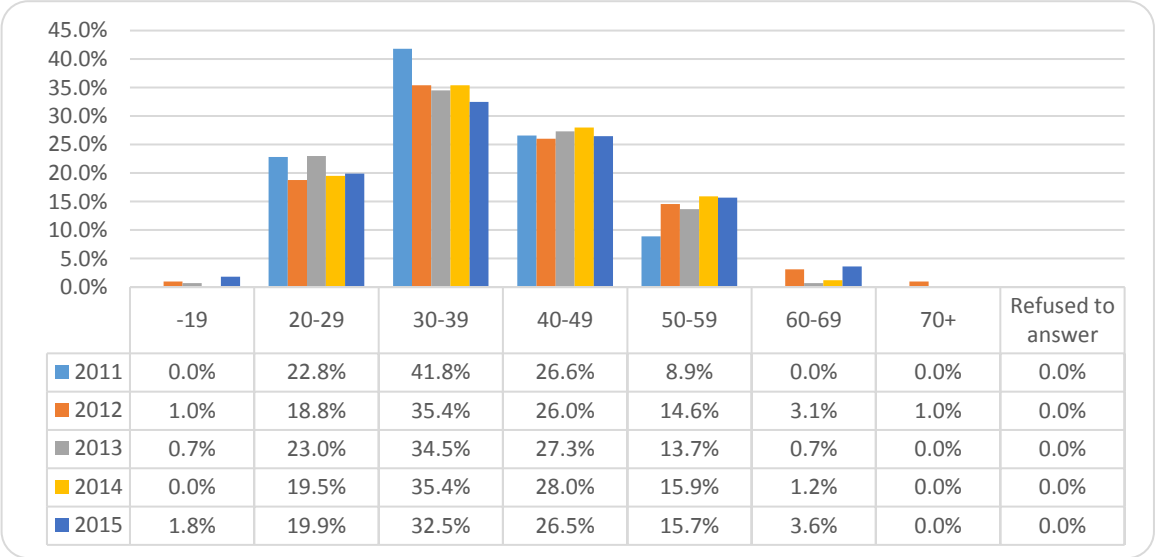
When studying age over the research period it also shows that age group 40-49 which is the biggest investor in RSA Government Retail Bonds was on a downward trend.

Age 60+ does not show any investment in RSA Government Retail Bonds. In the context of the research, this is a confirmation of validity of data because the research focuses only on salary earning individuals who have formal employment.

4.5.2. Investment/savings usage in stokvel terms of age, 2011 to 2015

Research evidence (Chakraborty & Digal, 2012; Nduku & Simo-Kengne, 2011) has shown that an attitude to saving is influence by factors such age, level of income and occupation. The reason for investment at different age levels will also influence individuals' reasons for selecting types of investment vehicles such as investment in equity, bonds, real estate.

Graph 4.5-2: Investment/savings usage in stokvel in terms of age



	-19	20-29	30-39	40-49	50-59	60-69	70+	Refused to answer
2011	0.0%	22.8%	41.8%	26.6%	8.9%	0.0%	0.0%	0.0%
2012	1.0%	18.8%	35.4%	26.0%	14.6%	3.1%	1.0%	0.0%
2013	0.7%	23.0%	34.5%	27.3%	13.7%	0.7%	0.0%	0.0%
2014	0.0%	19.5%	35.4%	28.0%	15.9%	1.2%	0.0%	0.0%
2015	1.8%	19.9%	32.5%	26.5%	15.7%	3.6%	0.0%	0.0%

Source: Author's computation

Graph 4.5-2 indicates that age group 30-39 was the highest investment group in stokvel by age but there was consistent decline from 2011 to 2015. The age group 40-49 was second highest in investment/savings usage in stokvel and the investment trend was somewhat stable, an average of 28. The third group was age 20-29 hovering between 19% and 23% between 2011 and 2015.

The trend above is consistent to the Life-Cycle Theory that at younger age individuals consume more of their income than saving (Bodie, Treussard & Willen, 2007:p.1). It is also emphasised by Reilly and Brown (2006:pp.39–41) in terms of four phases, namely, accumulation phase, the consolidation phase and the spending phase. In the accumulation phase, young individuals spend more on basic assets and needs and have little to save. In the consolidation, phase individuals have settled much of their debts and are likely to be able to save. In the spending phase individuals are approaching retirement and most of their debts and basic needs have been settled and, they have surplus that can be saved or invested.

Although investment choices between the RSA Government Retail Bonds followed the same pattern in line with the Life-cycle Theory, it should be noted that in comparative terms stokvel usage was higher than usage in the RSA Government Retail Bonds for all age groups.

For age group -19 the investment/savings usage was recorded only for stokvel. That is the reason why there is no comparative correlation chart for investments/savings usage in RSA Government Retail Bonds. This also an indication that when given an opportunity with regard to investment instruments younger individuals invested in stokvel as opposed to RSA Government Retail Bonds. One of the reasons for the no show by this age group RSA Government Retail Bonds is the tighter legal requirements for those under 21. A potential investor who is under 21 years requires the endorsement by the legal guardian or proof that he has been granted majority status in line with the legislation. There is also more information such as proof of residence and nomination of beneficiaries that is required to finalise the investment (National Treasury, 2006:pp.1–4). No contract is signed when joining the stokvel (Mashigo & Schoeman, 2012:p.6) and therefore these age requirements fall away when joining a stokvel.

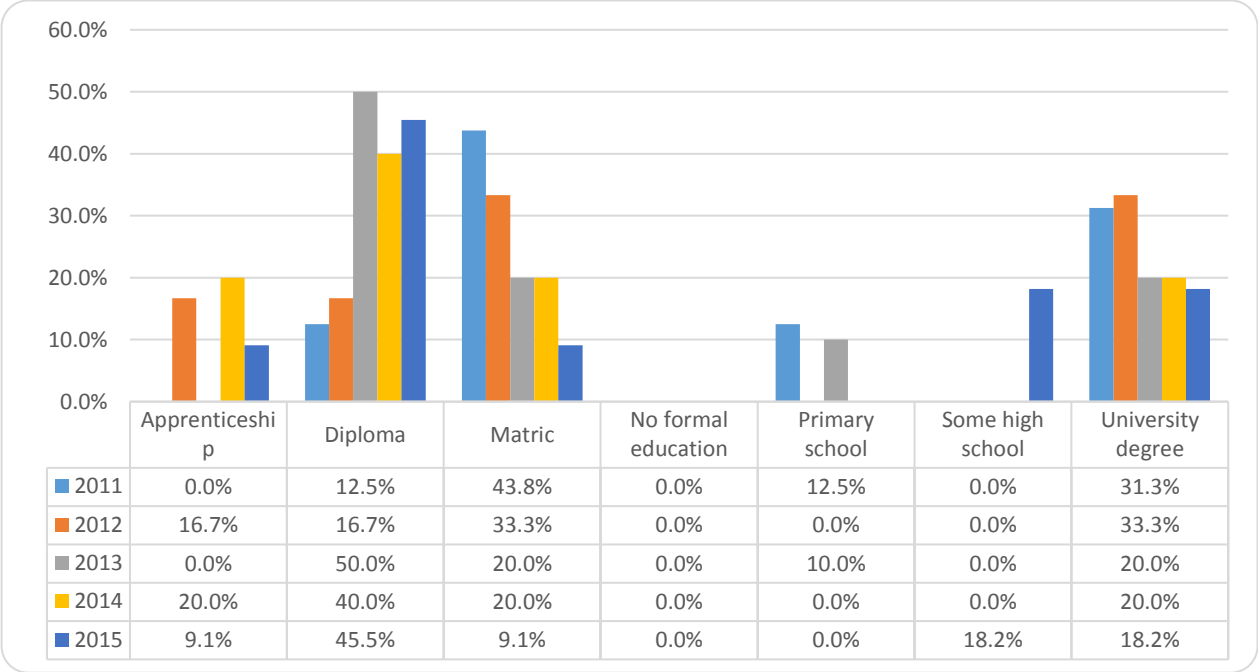
4.6. Investment Choices between the RSA Government Retail Bonds and Stokvel by Education, 2011 to 2015

According to Denizer, Wolf and Ying (2000:sec.4), Russian graduates earned equal or less than factory workers. Furthermore, he indicated that the prospects of the permanent income by the highly paid individuals induced less saving by such individuals. Mashigo and Schoeman (2012:p.55) found that entry to stokvel

membership was by low level of education because rules of the stokvel are kept simple. In his studies Choudhury (2002:p.20) found that the lower educated Hispanics and Blacks owned less stocks and bonds than Whites on the same level of education. However, it is important to note that tertiary education is not financial education by default (Mulaudzi, 2016:p.72). This means highly educated individuals can still make irrational investment choices.

4.6.1. Investment choices between RSA Government Retail Bonds usage by education, 2011 to 2015

Graph 4.6-1: Comparison of usage in RSA Government Retail Bonds by level of education, 2011 to 2015



	Apprenticeship	Diploma	Matric	No formal education	Primary school	Some high school	University degree
2011	0.0%	12.5%	43.8%	0.0%	12.5%	0.0%	31.3%
2012	16.7%	16.7%	33.3%	0.0%	0.0%	0.0%	33.3%
2013	0.0%	50.0%	20.0%	0.0%	10.0%	0.0%	20.0%
2014	20.0%	40.0%	20.0%	0.0%	0.0%	0.0%	20.0%
2015	9.1%	45.5%	9.1%	0.0%	0.0%	18.2%	18.2%

Source: Author's computation

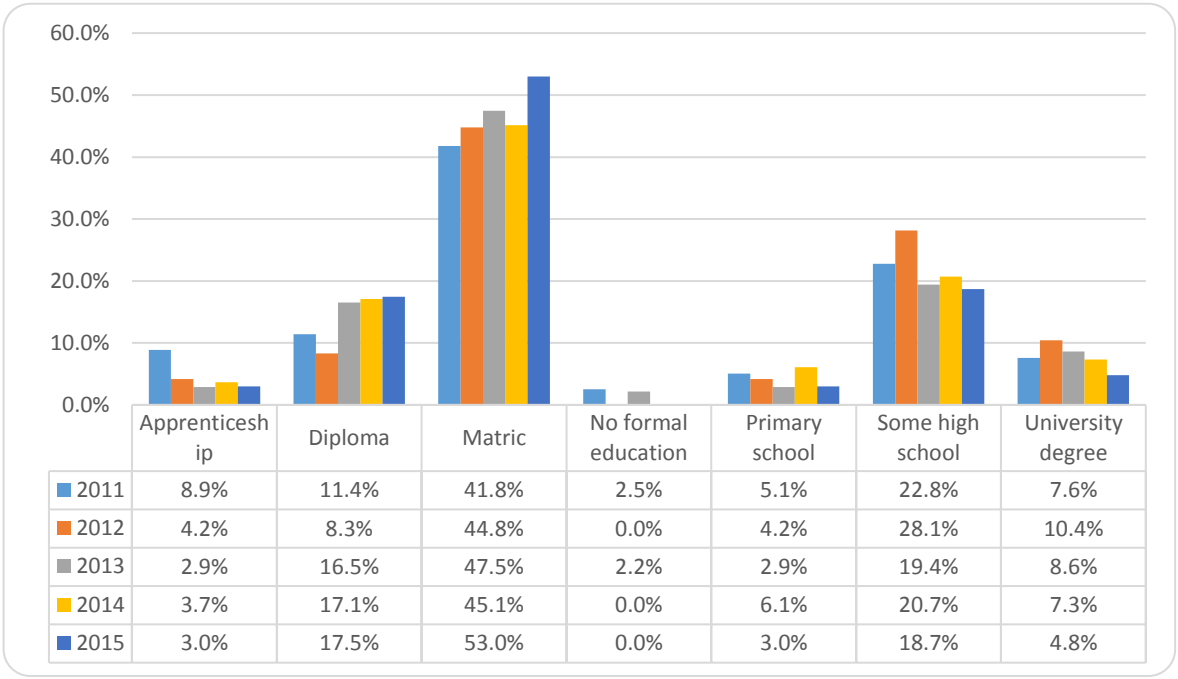
Graph 4.6-1 indicates the individuals who had investment usage in RSA Government Retail Bonds, were mainly educated. Investment/savings usage of the RSA Government Retail Bonds was concentrated on the individuals who had matriculation certificates, diplomas and university degrees. Investment/savings usage of individuals who had a diploma was on the increase from 2011 to 2015. Investment/savings usage by individuals who held a matric certificate and university degree were on the decline through the research period. Perhaps this was also induced by the prospects of earning

a permanent income as happened in the Russian context (Denizer, Wolf & Ying, 2000:sec.4).

The usage in RSA Government Retail Bonds by individuals with no formal education, primary schooling, and some high school education was very low and non-existent in some years. The low usage in the RSA Government Retail Bonds by lower level of education could be because of the formal nature of the investment requirement that deterred or discouraged individuals from investment saving (National Treasury, 2006:p.3).

4.6.2. Investment choices in Stokvel usage by education, 2011 to 2015

Graph 4.6-2 Comparison of stokvel usage by level of education, 2011 to 2015



	Apprenticeship	Diploma	Matric	No formal education	Primary school	Some high school	University degree
2011	8.9%	11.4%	41.8%	2.5%	5.1%	22.8%	7.6%
2012	4.2%	8.3%	44.8%	0.0%	4.2%	28.1%	10.4%
2013	2.9%	16.5%	47.5%	2.2%	2.9%	19.4%	8.6%
2014	3.7%	17.1%	45.1%	0.0%	6.1%	20.7%	7.3%
2015	3.0%	17.5%	53.0%	0.0%	3.0%	18.7%	4.8%

Source: Author's computation

Graph 4.6-2 indicates that matriculants were the highest users of stokvel in comparison to other levels of education levels. Individuals with some high school education, diplomas, university degrees, primary schooling and apprenticeships followed. Contrary to Risenga's findings (Risenga, 2012:p.105) that individuals with higher education are likely to save more, this research indicates that there were more lower level education individuals who invested/saved in stokvel than individuals with higher levels of education. Perhaps investment and saving could be happening in other

financial instruments not covered by this research. The result of this research are also accentuated in the research by Denizer, Wolf and Ying (2000:sec.4) that individuals with tertiary education are associated with lower saving.

This research found that there was lowest usage of stokvel by the two lowest levels of education relative to other levels of education. According to Mashigo and Schoeman (2012:p.55) the rules of the stokvel are kept simple and therefore education has little effect in becoming a member of the stokvel group. Simple stokvel rules did not result in high usage of stokvel by lowest education level individuals in the period of the research. This is consistent with Lown, J. M., Kim, J.,Gutter, M. S. and Hunt, A.T. (2015:p.498) who found that there was no correlation between education and savings in the study done in the US. One should be cautious when making inferences to the result of this research because only salaried individuals are being analysed in this research.

4.7. Investment Choices between the RSA Government Retail Bonds and stokvel by Salary, 2011 to 2015.

This research sampled only salaried individuals and used salary levels to measure the level of the possible income and to establish whether this level of income determines investment/savings in RSA Government Retail Bonds or stokvel.

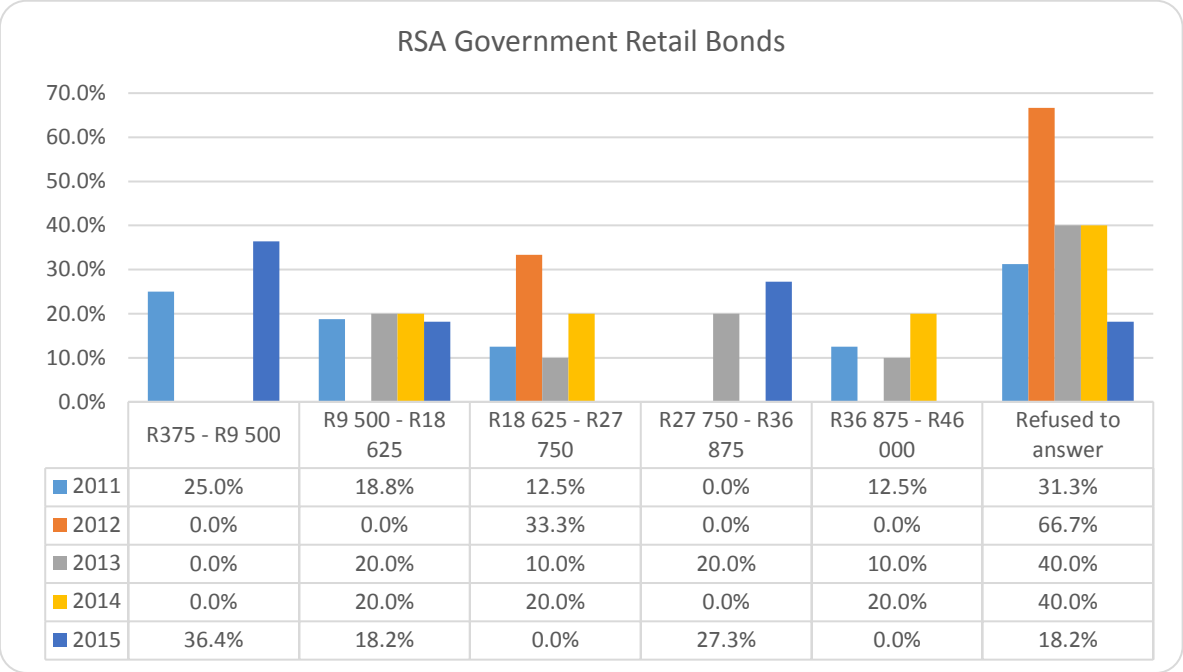
Research evidence (Cecchetti & Schoenholtz, 2015; Chakraborty & Digal, 2012) suggests that the more individuals acquire more income or become wealthier the more they have the desire to invest in various assets including bonds. On the contrary, Nduku and Simo-Kengne (2011:p.16) found that there is a negative relationship between income and saving. Gutter (1999) states that not only current permanent income determines individuals' commitment to save, but also future expected income has an impact on investment/savings choices.

This research has shown that, there were many individuals at lower levels of salary who had usage investment in stokvel. There was the least usage in RSA Government Retail Bonds by the same lower salary level

4.7.1. Investment choices in RSA Government Retail Bonds by salary, 2011 to 2015

Graph 4.7-1 above does not really reflect any constant pattern of some sort as far usage in RSA Government Retail Bonds was concerned. There was a cluster of investment/savings usage in the salary group R9 500 – R18 625 and R18 625 and R27 750. Salary groups R27 750-R36 875 and R36 875 shows some scattered lower usage in RSA Government Retail Bonds through the research period. Most of individuals refused to respond on income. Graph 4.7-1 indicates that high salary did not result in a higher usage in the RSA Government Retail Bonds. This orientation to

Graph 4.7-1: Investment choices in Retail Government Bonds by salary group, 2011 to 2015



	R375 - R9 500	R9 500 - R18 625	R18 625 - R27 750	R27 750 - R36 875	R36 875 - R46 000	Refused to answer
2011	25.0%	18.8%	12.5%	0.0%	12.5%	31.3%
2012	0.0%	0.0%	33.3%	0.0%	0.0%	66.7%
2013	0.0%	20.0%	10.0%	20.0%	10.0%	40.0%
2014	0.0%	20.0%	20.0%	0.0%	20.0%	40.0%
2015	36.4%	18.2%	0.0%	27.3%	0.0%	18.2%

Source: Author's computation

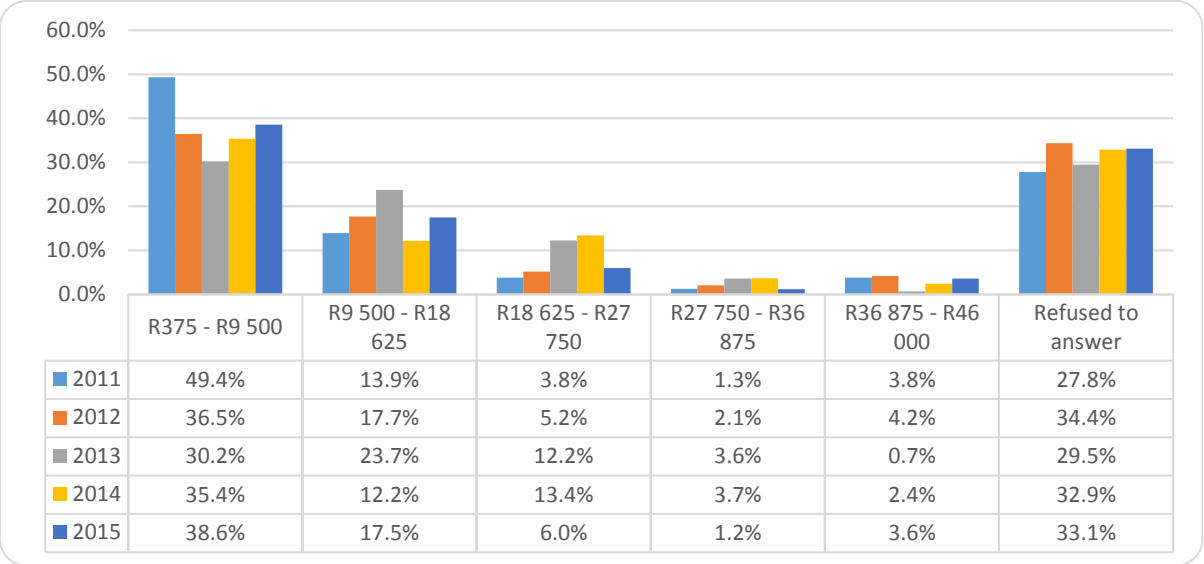
RSA Government Retail Bonds was consistent to the findings by Verhoef (2008) that wealthy individuals, or in the context of this research, higher level income earners, are not attracted to sophisticated financial intermediaries, particularly when compared to the investment usage in stokvels . Looking at the information that is required by National Treasury, the RSA Government Retail Bonds are more sophisticated to a greater extent. Investment in this instrument requires some basic reading and writing ability, potential investors have to understand the contract and provide documents

such as proof of residence and have some basic understanding of interest rates' functioning (National Treasury, 2017:p.1).

On the contrary, Lown *et al* (2015:p.491) and Nduku and Simo-Kengne (2011:p.16) found that there is positive relationship of household income and savings and that position does not hold for the investment in the RSA Government Retail Bonds in the research period concerned. The Preferred Habitat Theory might be relevant in this context because there is a higher usage in stokvel by the same level income individuals.

4.7.2. Investment choices in stokvel by salary, 2011 to 2015

Graph -4.7-2: Investment in Stokvel according to salary group, 2011 to 2015



	R375 - R9 500	R9 500 - R18 625	R18 625 - R27 750	R27 750 - R36 875	R36 875 - R46 000	Refused to answer
2011	49.4%	13.9%	3.8%	1.3%	3.8%	27.8%
2012	36.5%	17.7%	5.2%	2.1%	4.2%	34.4%
2013	30.2%	23.7%	12.2%	3.6%	0.7%	29.5%
2014	35.4%	12.2%	13.4%	3.7%	2.4%	32.9%
2015	38.6%	17.5%	6.0%	1.2%	3.6%	33.1%

Source: Author's computation

Since stokvel is flexible in many aspects as a saving vehicle, these same salaried individuals preferred stokvel to RSA Government Retail Bonds. This position is consistent to Preferred Habitat theory that investors would prefer short-term investment (Johnson, Zuber & Gandar, 2002:p.11).

According to Graph -4.7-2, the higher salary level did not lead to greater usage in stokvel by individuals; instead, there was more investment/savings usage in stokvel by lower salary level individuals. This is consistent with the Old Mutual Investment Monitor (2016:p.18) that investment into informal savings is not determined by higher income. In India, low-income households saved more than higher income households to

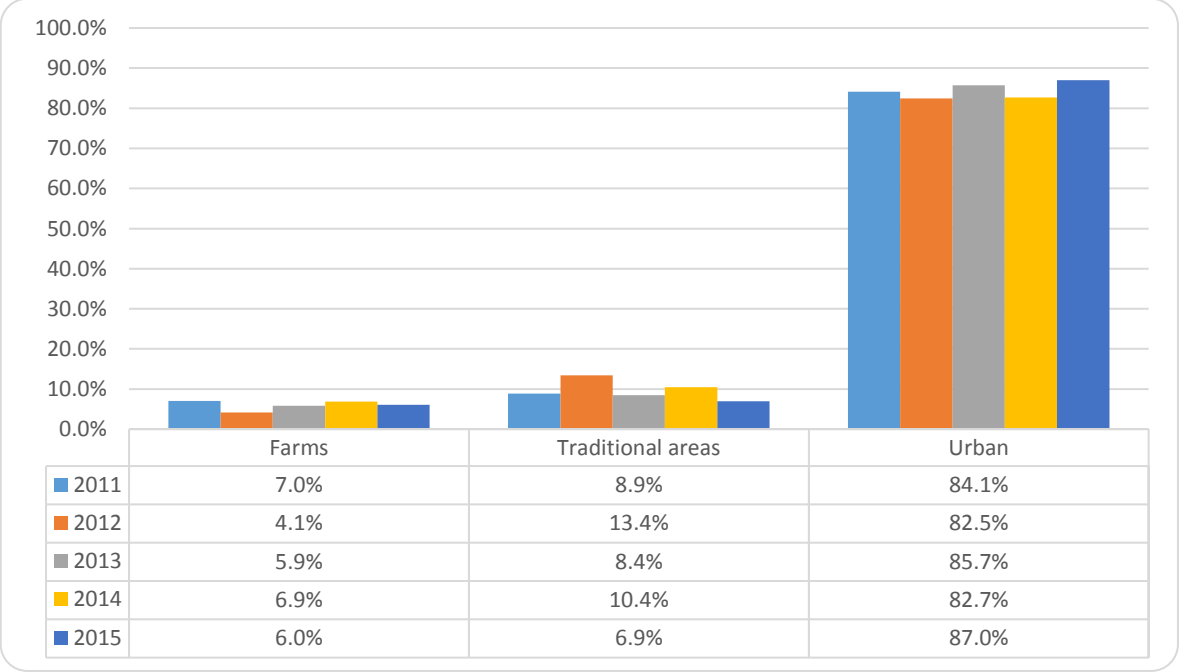
finance their housing needs. They did not have access to funds and as such they chose to save in chit which is similar to stokvel in function (Lall, Suri & Deichmann, 2006:pp.1031–1032). In other words, it was the objective of saving rather than the level of income that determined the savings investment with chit. In the design of investment products, financial institutions should design the investment products such that the lower-come individuals are enticed to invest and save in their products for their own benefit.

4.8. Investment Choices between the RSA Government Retail Bonds and Stokvel by Location, 2011 to 2015

It is important note that all usage in RSA Government Retail Bonds happened in urban areas. There was not usage in farms or traditional areas by salaried individuals in this research. There was no usage in RSA Government Retail Bonds by rural and traditional areas dwellers (See Graph 4.8-3). It is important to note that usage in RSA Government Retail Bonds was an average of 0,6% over the research period.

4.8.1. Total composition of the sample by location since, 2011 to 2015

Graph 4.8-1:% Total presentation of individuals in sample by geographical type

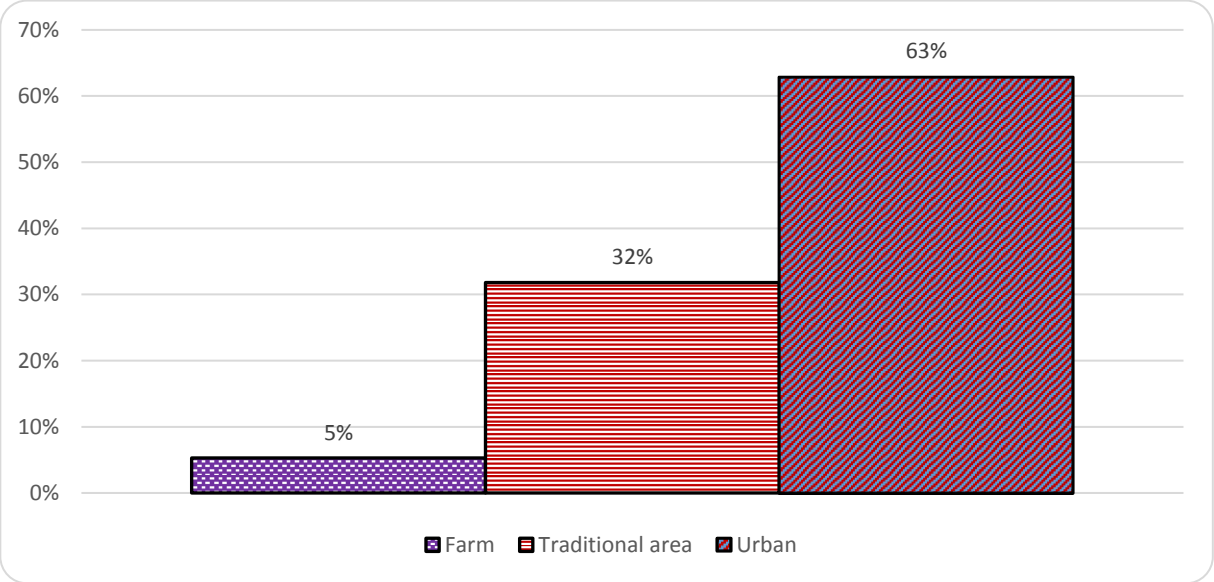


	Farms	Traditional areas	Urban
2011	7.0%	8.9%	84.1%
2012	4.1%	13.4%	82.5%
2013	5.9%	8.4%	85.7%
2014	6.9%	10.4%	82.7%
2015	6.0%	6.9%	87.0%

Source: Author's computation

Graph 4.8.1 above indicates the total that who had investment/savings usage per geographical type. Individuals living on farms were 4% to 7% represented in the sample, in traditional areas they were 7% to 13% represented and those living in the cities were 82% to 87% represented in the sample.

Graph 4.8-2: Presentation of total South African population in terms geographical type, 2011

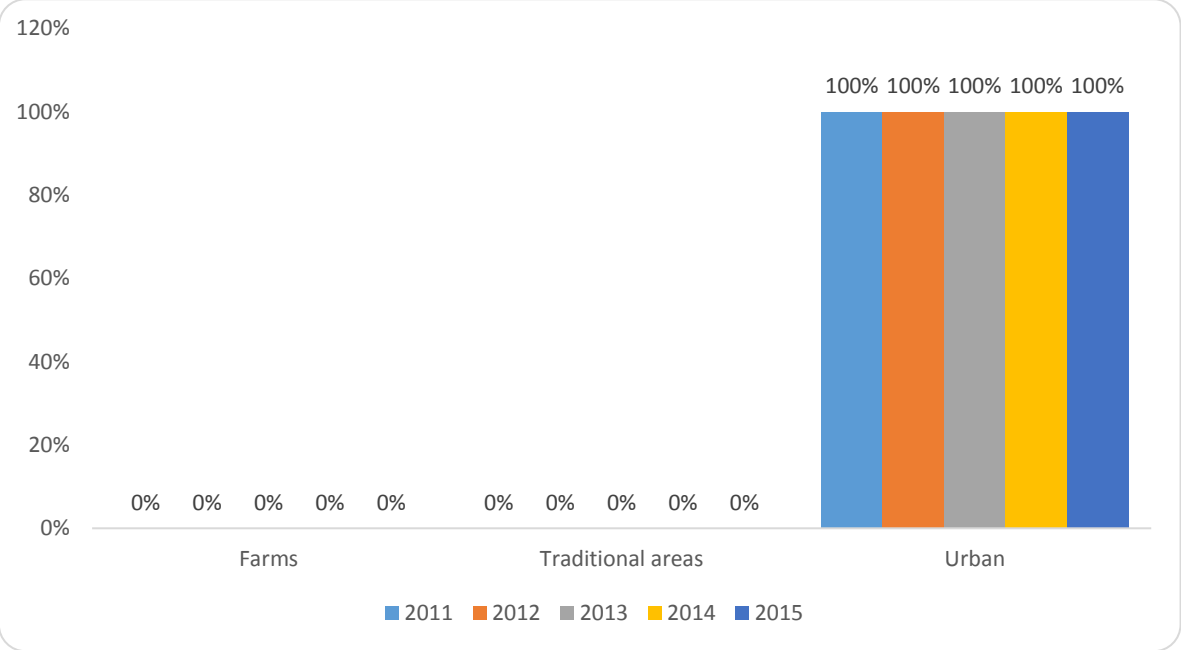


*Source:Adapted from Statistics South Africa Census. 2011

The presentation of individuals in the sample by race was an average of 6% for farm dwellers, average 10% for traditional areas and 84% for urban dwellers. According to Census 2011 representation of farm dwellers was 5%, traditional areas 32% and urban dwellers were 63%. When comparing the percentages of farm dwellers in the sample and the Census 2011 results, the sample reflects a fair proportion of the farm dwellers in the country because there is only a slight percentage spread (1%). Looking at individuals living in traditional and urban areas, there is a spread of about 20% between Census 2011 results and sample presentation of this research. One of the reasons for this big spread is that the research focused only on salaried individuals and Census has not isolated individuals who are not salaried or formally employed.

4.8.2. Investment choice in the RSA Government Retail Bonds by location, 2011 to 2015

Graph 4.8-3:% Have investment/savings usage in RSA Government Retail Bonds by geographical type, 2011 to 2015



Source: Author's computation

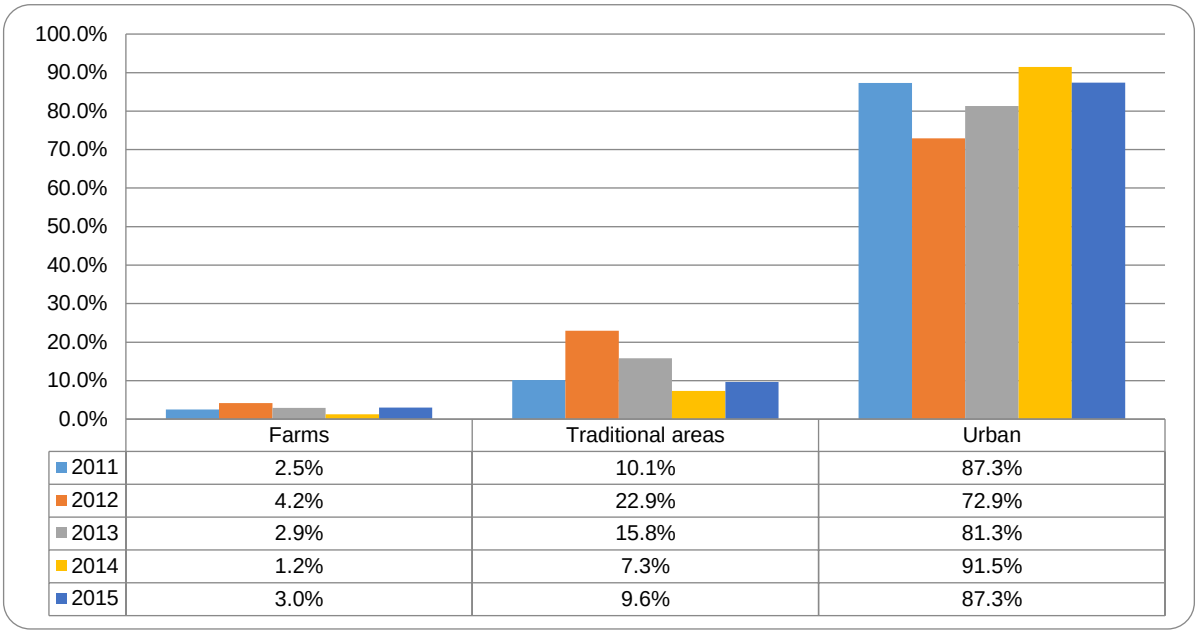
According to Graph 4.8-3 above, of those who responded to the question of investment/savings usage in RSA Government Retail Bonds, all of them were resident in urban areas over the five-year period since 2011.

RSA Government Retail Bonds usage of salaried was hundred per cent (100%) urban in terms of usage by location. The usage of the RSA Government Retail Bonds was expressly skewed towards urban dwellers. This could mean that as far as the National Treasury's marketing strategy is concerned, they were only effective in urban areas. People living on farms and in rural areas do not have easy access to formal financial institutions and are mainly poor (Kirsten, 2006:p.3; Mashigo & Schoeman, 2010:sec.4). The minimum required for the investment savings in the RSA Retail Government Bond is R1000.00 (Axelson, 2014:p.3) which might be inhibiting investment into the product. This investment disposition could also be consitent to the Prospect Theory which contends that investors could be more concerned with losses than the positive outcome they can achieve from their investments (Reilly & Brown, 2006:p.190).

Financial institutions, including the National Treasury, have to re-design the Retail Bonds in such a way that it adapts to the financial dynamics of rural and farm areas if they wish to increase the investor base from these areas.

4.8.3. Investment choice in stokvel by location, 2011 to 2015

Graph 4.8-4: % Have investment/savings usage in stokvel by geographical type, 2011 to 2015



	Farms	Traditional areas	Urban
2011	2.5%	10.1%	87.3%
2012	4.2%	22.9%	72.9%
2013	2.9%	15.8%	81.3%
2014	1.2%	7.3%	91.5%
2015	3.0%	9.6%	87.3%

Source: Author's computation

Graph 4.8-4 above, indicates that of all those who responded to the question on whether or not they have had investment/savings usage in stokvel, there was an average of 3% investment/savings usage in stokvel by farm dwellers, an average of 13% by those living in traditional areas and an average of 84% by those living in urban areas from 2011 through 2015. For 2011 and 2015, the percentage of those who invested/saved in stokvel was 3% respectively while there was a constant decline from 2012 to 2014. Almost the same pattern for stokvel investment/savings usage by traditional areas dweller, 2011 and 2015 were 10% respectively, while 2012 to 2014 shows a constant decline in investment/savings usage in stokvel. Urban areas show an opposite trend. In 2011 and 2015, there was 86% and 87% investment/savings usage by urban dwellers and there was a constant increase from 2012 to 2014 respectively.

On the contrary to (Mulaudzi, 2016:p.30) established that stokvels are more prevalent in townships and rural areas, this research results indicate that the stokvel usage was lowest on farms and traditional areas (rural areas). Perhaps the reason for the different findings was that this research investigated only the salaried individuals. However, the results of this research as far as stokvel usage by location is concerned, are consistent with studies by Kibuuka (2006:pp.21–25).

It is important to note that although stokvel usage was low on farms and traditional areas, there was a zero usage in RSA Retail Bonds for the same areas. This factor still emphasises the fact that the stokvel usage was a preferred investment choice relative to the RSA Government Retail Bonds.

4.9. Statistical analysis of Investment Choices in terms of the Demographics under review.

This section deals with statistical analysis of the investment choices in terms of race, age, level of education, salary, and location.

The research used the t-test to measure the difference between averages of the two investment choices as determined by age and salary level.

The formula for the t-test:

$$t = \frac{\bar{X} - \mu}{S/\sqrt{n}}$$

Where the t-statistic is the ratio that shows difference between the appraised value and the hypothesised value to its standard error.

$\bar{X}$ is the Sample mean

μ is the population mean

$S\ is\ the\ standard\ deviation\ of\ the\ sample$

$\sqrt{n}\ \ is\ the\ square\ root\ of\ the\ number\ of\ observations$

(Swanepoel(a),Swanepoel(b),van Graan, Allison & Santana, 2016: p238)

The distribution graph was also used to establish distribution of salary level for each investment choice between RSA Government Retail Bonds and Stokvel.

4.9.1. The Pearson chi2 test, Fisher's exact test and distribution in terms of race

Table 4.9-1: Pearson chi2 test and Fisher's exact test in terms of race

Race	Investment Gvt Sto..	Stokvel	Total
Asian/Indian	4	3	7
	0.6	6.4	7.0
	57.14	42.86	100.00
	8.33	0.53	1.15
Black	26	515	541
	42.6	498.4	541.0
	4.81	95.19	100.00
	54.17	91.64	88.69
Coloured	4	28	32
	2.5	29.5	32.0
	12.50	87.50	100.00
	8.33	4.98	5.25
White	14	16	30
	2.4	27.6	30.0
	46.67	53.33	100.00
	29.17	2.85	4.92
Total	48	562	610
	48.0	562.0	610.0
	7.87	92.13	100.00
	100.00	100.00	100.00

Pearson chi2(3) = 93.6807 Pr = 0.000
Cramér's V = 0.3919
Fisher's exact = 0.000

Source: Author's computation

[2]The probability for Pearson chi2 test and Fisher's exact test are both less than 5% meaning that the way investors chose investment vehicles differs significantly by race.

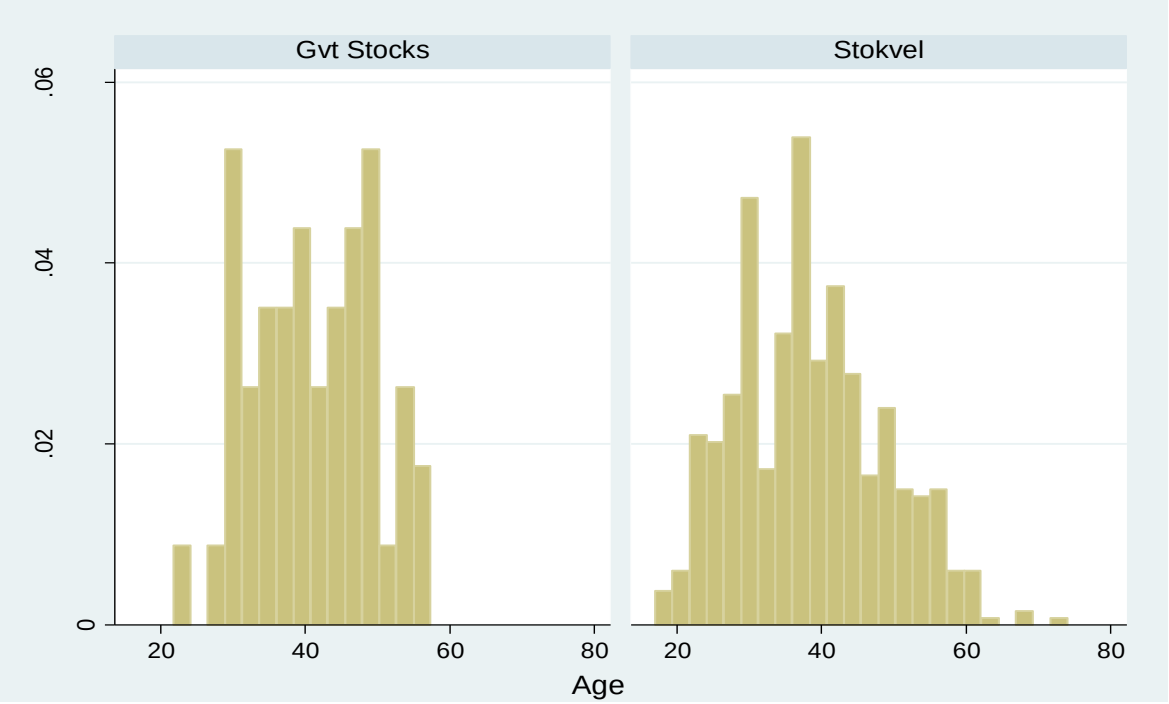
[2] 'Gvt sto' and 'Gvt' in all the statistical analysis tables refers to RSA Government Retail Bonds.

The correlation coefficient between race and investment choice is 0.3879 as indicated by the Cramer's V statistic. This implies that there is a weak to moderate association between race and investment choices.

The research by Kgomo (2007:p.34) could not establish who the investors in the RSA Retail Bonds were. This research has shown the breadth of use of the RSA Government Retail Bonds relative to the stokvel. The analysis of usage by race indicates that Blacks were dominant in stokvel usage and the results are consistent with the findings by Verhoef (2008:pp.60–66). The Preferred Habitat Theory alludes to the fact that investors have a preference of a particular maturity. Only alternatives offering better returns will encourage researchers to move out of their preferred investment/savings. In this instance, this theory did not hold for all races because Blacks, more than other race groups, preferred stokvel instead of the RSA Government Retail Bonds, although the latter offered a return higher than that offered by banks through the research period (Annexure 1).Contrary to Gutter, Fox and Montalto (1999:pp.150–158) Blacks were not risk averse according to this research, because they invested in stokvel although there was a high risk of fraud and default associated with stokvels investment (Covey, 1978:p.5; Swart, 2002:p.343).

4.9.2. The t-test and distribution of age groups in each investment choice.

Figure 4.9-1: Distribution of age groups in each investment choice.



Source: Author's computation

The two graphs show some differences in the age distribution of the investors amongst the two investment categories. The graph on RSA Government Retail Bonds shows that a considerable number of investors aged around 40 years invested in this investment instrument. It was the same with the stokvel investment choice, the graph on stokvels shows a more normal distribution around an average of 40 years.

Hypothesis test for Age:

H_0: $\mu_{\text{GVT Stocks}} - \mu_{\text{Stokvel}} = 0$

H_a: $\mu_{\text{GVT Stocks}} - \mu_{\text{Stokvel}} \neq 0$

The two sample t-test results show that there is no statistically significant difference between the average age of investors that invest in stokvels and RSA Government

Table 4.9-2: The t-test for mean difference RSA Government Retail Bonds and stokvel investment

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |      Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
Gvt Stoc |       48    41.02083    1.228535    8.511543    38.54934    43.49233
 Stokvel |      562    38.42883     .428426     10.1565    37.58731    39.27034
---------+--------------------------------------------------------------------
combined |      610    38.63279    .4071151      10.055    37.83327    39.43231
---------+--------------------------------------------------------------------
    diff |            2.592008     1.50961               -.3726748    5.55669
------------------------------------------------------------------------------
    diff = mean(Gvt Stoc) - mean(Stokvel)                         t =   1.7170
Ho: diff = 0                                     degrees of freedom =      608

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.9568         Pr(|T| > |t|) = 0.0865          Pr(T > t) = 0.0432
```

Source: Author's computation

Retail Bonds as the probability of the two tail t statistics is greater than 5%. The difference between the means of the two groups is not significantly different. Therefore, age is not a factor that can explain the choices between investment categories that is between investing in stokvels and investing in RSA Government Retail Bonds. The reason is that between 95% and 100% all individuals in this research are at working age.

According to the Life-cycle Theory, individuals' income and expenditure changes according to age. At a young age, individuals consume more of their income than

saving (Reilly & Brown, 2006:pp.39–41). In the context of this research, all same age individuals had the same attitude towards the investment choices presented to them. In addition, Lown *et al* (2015:p.496) found that individuals of different ages were equally distributed amongst different investment categories which average frequency or distribution in the investment categories were equal and therefore not statistically significant. The financial institutions can therefore, not solely rely on age to influence investment/savings in financial products.

4.9.3. The Pearson chi2 test, Fisher's exact test and distribution in terms of educational levels

Table 4.9-3: The t-test and distribution in terms of educational levels

Education	Investment Gvt Sto..	Stokvel	Total
Apprenticeship	3	23	26
	2.0	24.0	26.0
	11.54	88.46	100.00
	6.25	4.09	4.26
Diploma	15	83	98
	7.7	90.3	98.0
	15.31	84.69	100.00
	31.25	14.77	16.07
Matric	13	267	280
	22.0	258.0	280.0
	4.64	95.36	100.00
	27.08	47.51	45.90
No formal education	0	5	5
	0.4	4.6	5.0
	0.00	100.00	100.00
	0.00	0.89	0.82
Primary school	3	22	25
	2.0	23.0	25.0
	12.00	88.00	100.00
	6.25	3.91	4.10
Some high school	2	120	122
	9.6	112.4	122.0
	1.64	98.36	100.00
	4.17	21.35	20.00
University degree	12	42	54
	4.2	49.8	54.0
	22.22	77.78	100.00
	25.00	7.47	8.85
Total	48	562	610
	48.0	562.0	610.0
	7.87	92.13	100.00
	100.00	100.00	100.00

Pearson chi2(6) = 34.8712 Pr = 0.000
Cramér's V = 0.2391
Fisher's exact = 0.000

Source: Author's computation

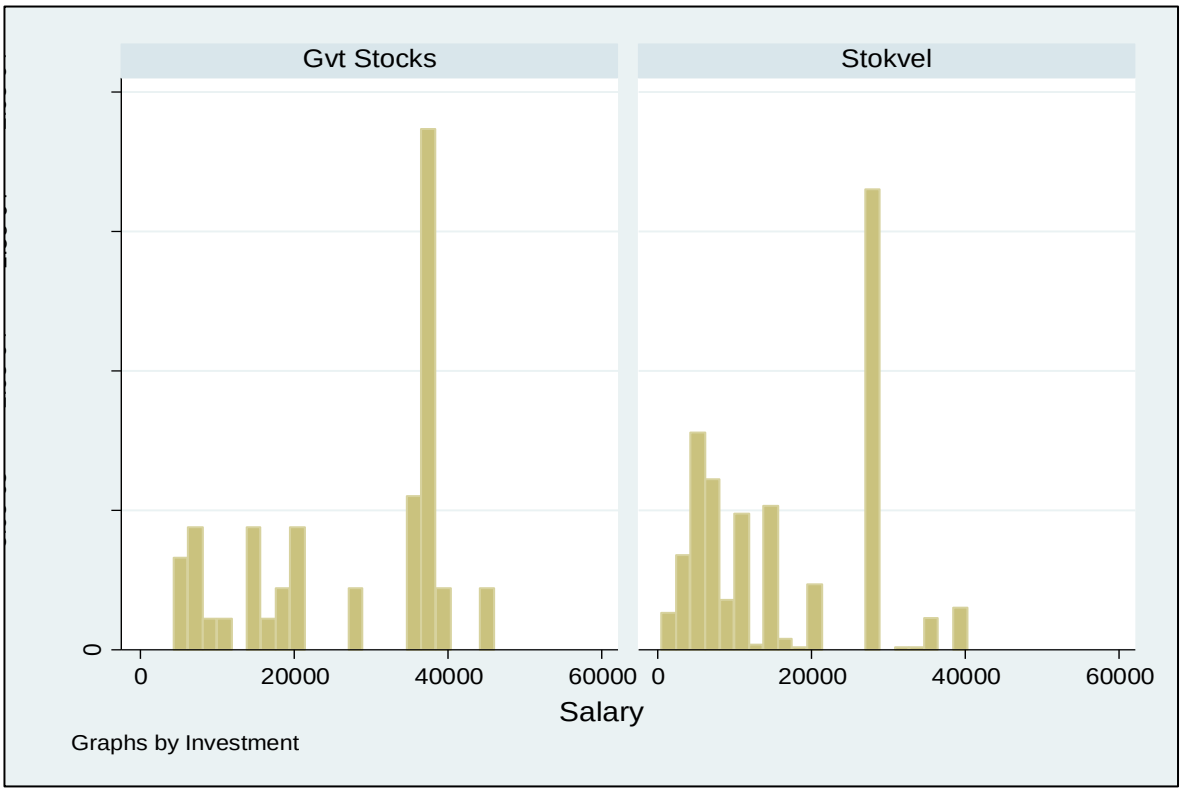
The probability for Pearson chi2 test and Fisher's exact test are both less than 5% meaning that the way investors choose investment vehicles differs significantly with level of education. The correlation between investment choices and education is weak with the Cramer's V coefficient at 0.2391.

The results of the t-test analysis are consistent with the results of this research in that, investment in the RSA Government Retail Bonds requires some high level of education (National Treasury, 2017:p.1). On the contrary, processes and regulations in the stokvel as an investment choice, are kept simple because of the low level of education (Mashigo & Schoeman, 2012:p.55). Table 4.9-3 indicates that for all levels of education, the usage in stokvel was highest relative to the RSA Government Retail Bonds.

The policy makers and other financial institutions have to align their product development with the educational level of the targeted market segment.

4.9.4. The t-test and distribution of salary levels in each investment choice

Figure 4.9-2: Investment choices in terms of salary levels



Source: Author's computation

The graphs show that the distribution of investors by salary is uneven between the two investment choices, but the distribution in the stokvel category is more clustered in the lower salary levels.

The distribution in the lower salary level in the stokvel category is consistent with the findings by Lall, Suri and Deichman (2006:pp.1031–1032) that most of the poor people utilised chit to save for themselves. They accumulated funds for themselves because they could not access funds in formal financial institutions. Although according Old Mutual (2016:p.18) informal savings are not dependent on income, this research found that most of the investment/savings usage in stokvel is concentrated at the lower salary levels. In the RSA Government Retail Bonds, usage there was more usage in the higher salary levels.

Hypothesis test for Salary levels:

H0: $\mu_{\text{GVT Stocks}} - \mu_{\text{Stokvel}} = 0$

Ha: $\mu_{\text{GVT Stocks}} - \mu_{\text{Stokvel}} \neq 0$

Table 4.9-4: Two-sample t-test with equal variance for salary levels

Two-sample t test with equal variances

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
Gvt Stoc	48	26718.27	1851.011	12824.18	22994.52	30442.03
Stokvel	562	16018.98	452.2557	10721.42	15130.65	16907.3
combined	610	16860.89	456.0949	11264.71	15965.18	17756.6
diff		10699.3	1638.856		7480.791	13917.8

diff = mean(Gvt Stoc) - mean(Stokvel) t = 6.5285

Ho: diff = 0 degrees of freedom = 608

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0

Pr(T < t) = 1.0000 Pr(|T| > |t|) = 0.0000 Pr(T > t) = 0.0000

Source: Author's computation

The two sample t-test results show that there is statistical significant difference in salary of investors between stokvels and government stocks. The difference between the averages of the two groups are statistically different, more precisely the difference is greater than zero and this is statistically significant. Therefore, salary is a factor that can explain the choices between investment choices that is between investing in stokvels and government stocks. These results are consistent with findings by Lall, Suri and Deichmann (2006:pp.1031–1032) that lower income individuals opted to

accumulate funds for themselves because they could not access formal financial sources.

The Market Preference Theory holds that individuals have a preference of an investment instrument of particular maturity. The stokvels, as investment instruments, are mainly short-term in nature (Mulaudzi, 2016:pp.63–64). In so far the salary is concerned, the distribution graph and the t-test above indicate that the low income-individuals preferred to invest/save with stokvels, which are mainly short-term in nature, and high-level income individuals preferred the RSA Government Retail Bonds, which are medium to long term in nature. Furthermore, the minimum required in the RSA Retail Bonds is fixed at R1000.00 and this amount can be high for the low-income individuals. The minimum amount required for stokvel is the amount that members agree to and that they can afford (Alexander Forbes, 2014:p.26). These different entry amounts are likely to have influenced investment choices in favour of stokvels when analysing the salary levels in this research.

4.9.5. The Pearson chi2 test, Fisher's exact test, distribution and distribution in terms of location

Table 4.9-5: The t-test and distribution in terms of location

Location	Investment: Gvt Sto..	Stokvel	Total
Farms	0	16	16
	1.3	14.7	16.0
	0.00	100.00	100.00
	0.00	2.85	2.62
Traditional areas	0	74	74
	5.8	68.2	74.0
	0.00	100.00	100.00
	0.00	13.17	12.13
Urban	48	472	520
	40.9	479.1	520.0
	9.23	90.77	100.00
	100.00	83.99	85.25
Total	48	562	610
	48.0	562.0	610.0
	7.87	92.13	100.00
	100.00	100.00	100.00

Pearson chi2(2) = 9.0172 Pr = 0.011
Cramér's V = 0.1216
Fisher's exact = 0.003

Source: Author's computation

The probability for Pearson chi2 test and Fisher's exact test are both less than 5% meaning that the way investors choose investment vehicles differs significantly with location. The Cramer's V coefficient is 0.1306, which indicates a week correlation between location and choice of investment category.

Contrary to the results of this research, Mulaudzi, (Mulaudzi, 2016:p.30) found that the stokvel is also more prevalent in rural areas. Perhaps the difference of usage concentration is because this research focuses only on salaried individuals.

Consistent to the analysis in this research, Kibuuka (2006:pp.21–25) established that there are more stokvels in urban areas than in rural areas. He indicates that the reason for the high density of stokvels in urban areas is that households are within easier reach of each other than in rural areas. The National Treasury (2015:p.19,43), has also implemented aggressive marketing strategies on RSA Government Retail Bonds all over the country and yet only urban individuals made some investment/savings in the RSA Government Retail Bonds. The Market Efficiency Theory, as far as information distribution is concerned, does hold because all individuals involved in this research were exposed to the same information at the same time. (It is the same sample for both investment choices). As far as a rational investment decision is concerned, it does seem that some investment choices of not investing the RSA Government Retail Bonds were less rational and therefore, the Market Efficiency Theory aspect related to rational decision making does not hold.

Investment policy makers need to go further than marketing strategies to tap into the stokvel marketing base. The recommended actions are outlined in the findings and conclusions chapter.

4.10. Conclusion

This section in this chapter has highlighted the trends of RSA Government Retail Bonds and stokvel investment/savings usage in comparative terms. The investment/savings usage of the stokvel has emerged higher than that of RSA Government Retail Bonds usage.

This chapter also recorded the investment/savings trends in terms of the demographic variables under review and summarised characteristics of each of the investment choices are outlined in the following chapter.

The comparative characteristics of RSA Government Retail Bonds and the stokvel were also outlined to establish their possible effect in each investment option made.

Chapter five summarises the key findings and makes some recommendations that can be followed by the National Treasury to absorb some of stokvel investment individuals or groups.

CHAPTER 5 Conclusions and recommendations

5.1. Introduction

The present study sought to establish the determinants of investments in RSA Retail Savings Bonds and stokvels. There were six main objectives underpinning this study. Firstly, it was to determine if the race had an effect on the investment choices of South African individual investors. Secondly, it was to determine if age had an effect on the investment choices of South African individual investors. Thirdly, it was to determine if the level of education had an effect on the investment choices of South African individual investors. Fourthly, it was to determine whether the level of remuneration had an influence on how South African individuals select investment vehicles. The fifth objective was to establish whether investment choices of South African investors was influenced by their location. Lastly, this study sought to compare the stokvel and RSA Government Bonds as investment vehicles for South African individual investors.

The rest of the chapter is organised as follows:

- Section 5.2 presents a summary of theories reviewed in this research
- Section 5.3 presents a summary of empirical findings of this study.
- Section 5.4 outlines the contribution of this study, recommendations and policy implications

5.2. Summary of theories reviewed in this research

The research reviewed some of the financial and investment such as the Market Segmentation Theory, the Preferred Habitat Theory, the Expectation Theory, the Efficient Market Hypothesis, the Market Portfolio Theory and Liquidity Premium Theory.

The Preferred Habitat Theory contends investors have a preference of particular maturity. Only higher returns or other factors will induce investors to move out of their preferred habitat. According to the Market Segmentation Theory, the demand and supply in short-term or long-term bonds are segmental. Higher returns in other maturities or segments will not influence change in investment choices. The Market Expectation Theory contends that the return on long-term investments is just an average of the future expected short-term returns and as such, investor will gain no

additional return in terms of different maturities. The Efficient Market Hypothesis and grounded on the premises that all investors receive same information at the same time and therefore is investors cannot benefit from market information asymmetry. The Modern Portfolio Theory is grounded on the premises that potential investors will opt for the long-term maturity investment instruments provided that they are compensated with higher return for the risk associated with long-term maturity investments. Similarly, the Liquidity Premium Theory is grounded on the premises that investors must be compensated with higher return for forgoing access their funds in the present.

Other behavioural theories discussed in this research were Overconfidence, the Financial Cognitive Dissonance Theory, the Theory of Regret and the Prospect Theory.

The overconfident investors will overestimate positive investment outcome and underestimate the negative outcome of their investment choices. Investors who are in Financial Cogntive Dissonance can hold on underperforming investments not wanting to accept the failure on their investment choices. The Theory of Regret centres on the forgone opportunity when a loss arises. When there is a loss in their investment choices, they will then keep on their underperforming investments in order to avoid reporting a loss. In terms of the Prospect Theory, there are psychological biases that arises when an investor is faced with conditions of uncertanity. Investors will make investment choices based on particular reference point other than the potential outcome of the investment.

5.3. Summary of Findings

5.3.1. Race as a factor on investment choices

According to this research more Blacks than any other race group, preferred to invest in stokvel than in RSA Government Retail Bonds. This disposition towards the two investment options in terms of race concurs with Gutter, Fox and Montalto's(1999:p.151) findings in the American context. The disposition towards the investment choices under review is contrary to the Preferred Habitat Theory where potential investors can switch investment when alternative investment instruments provide better returns (Johnson, Zuber & Gandar, 2002).

The probability test for means of investment choices and races yielded test of less than five percent which is statistically significant. Race can, as such, be used to explain the

difference in investment choices between the two Investment instruments although the correlation between race and investment choices was weak to moderate.

5.3.2. Age as a factor on investment choices

The age distribution for both investment choices was mainly centered around 40 years. According to Risenga (2012:p.96) age group 35 to 54 uses more debt to finance the consumption and expenditure. This means they are likely to be using a portion of debt to invest in stokvel or RSA Retail Bonds. Investment choices was ascending over the research period for 30-39 and descending for age 40-49 for the RSA Government Retail Bonds. Usage in the stokvel was descending for age group 30-39 and constant for age group 40-49 over the research period. The usage in stokvel was higher than the usage in RSA Government Retail Bonds. The outcome of the investment choices in terms of age agrees with the Theory of Market Segmentation for the two age groups in that there was a distinct segmentation in terms of age group. This further agree to the Life-Cycle Theory (Bodie, Treussard & Willen, 2007:pp.1–3) which contends that in the earlier ages individuals save less because their expenditure is high. That can be the reason why investment and saving is centred around the age of 40 than in the younger age groups.

The mean tests show no statistical significance between the average age of the investors and the investment choices. Therefore, age is not a factor that can be used to explain the investment choice between the RSA Government Retail Bonds and the stokvel.

5.3.3. Educational level as a factor on investment choices

There was highest investment in stokvel relative to investment usage in RSA Government Retail Bonds for all educational levels.

The highest investment choice by educational level for the Retail Government Bonds was amongst diploma and the university degree holders.

The investment choice made for stokvel in terms of education are contrary to Risenga's findings (2012:pp.105–106) that individuals with higher education are likely to save than those with lower education. This research has found that the highest investment choice by educational level for the stokvel was in the matriculation level and followed high school lastly by diploma and university degree holders. His findings do, however, hold for the investment in the RSA Government Retail Bonds. The most relevant

investment theory the had influenced their investment choices was the Cognitive Disonnance Theory (Ricciardi & Simon, 2000:p.4), where the psychological factors such trust and group thinking form the basis of choices.

The investment choices usage by ‘no formal education and primary school education was lowest for both the investment choices.

There was low correlation between investment choices and education. Nevertheless, the probability tests show statistically significant difference in educational levels and the investment choices and therefore education may be used to explain the investment choices between the RSA Government Retail Bonds and the stokvel.

5.3.4. Salary level as a factor on investment choices

An analysis of salary indicates that investment choices in the RSA Government Retail Bonds were scattered unevenly throughout the salary levels. For the stokvel investment choices, individuals were clustered in the lower salary levels. This factor is in synchrony with lower levels of education in stokvels.

Stokvel usage was highest at lowest salary level and usage decrease as salary levels increased. This means there was reduced stokvel usage by individuals who are earning a higher income. This disposition towards stokvel investment instrument in terms of salary concurred with the Old Mutual Investment Monitor (2016:p.18) and studies by Gülseven and Ekici (2016:p.42) in Russia where higher an increase in guaranteed income induced less saving and investment . The outcome of this research in terms of salary is, however, contrary to Chakraborty and Digal (2012:p.2) findings on investment and savings by individuals.

The sample tests indicate that there is statistically significant difference in salary of individuals and investment choices. Salary level can therefore be used to explain the investment choices between RSA Government Retail Bonds and the stokvel.

5.3.5. Location as factor on investment choices

The analysis of the investment choices in terms of location indicated that for RSA Government Retail Bonds, all individuals were urban dwellers. For the investment choice in stokvel, about 84% were urban dwellers, 13% traditional area dwellers and 3% farm dwellers. Many individuals who live in rural and traditional areas are poor and sparsely populated (Kirsten, 2006:p.3; Mashigo & Schoeman, 2010:sec.4). In terms of

location, the discussed financial theories in this research became less relevant because investment in stokvel and RSA Retail Bonds was geographically not within reach though more than ninety-percent (Table 4.3-2) of the individuals in the sample were aware of these investment options. This research also focused on salaried individuals, in other words the employed individuals and as such, the low usage in stokvel further attest to unemployment or lower income in rural and traditional areas.

The probability for Pearson chi2 test and Fisher's exact test indicate statistically significant differences of location and investment choices and, as such, location can be used to explain the investment choices and investment choices differ as location differs. There was a, however, weak correlation between investment choices and location.

5.3.6. The summary of RSA Government Retail Bonds and the Stokvel

The research has highlighted that the RSA Government Retail Bonds were more inconvenient in terms of accessibility, flexibility, trading and transacting places than the stokvel investment products

The legal requirements are too rigid for the RSA Government Retail Bonds as compared to the legal requirement for a stokvel existence.

Becoming an investor in the RSA Government Retail Bonds is more formalised than becoming a member of stokvel. RSA Government Retail Bonds lack social informal character that a stokvel has. Stokvel investors are motivated by a physical connection and its local nature. The amount required for initial investment is too restrictive as opposed to contributions by stokvel members who agree on the amount they can pay (Alexander Forbes, 2014:p.453).

The way the RSA Government Retail Bonds sold places potential investors at a conflict of investment/saving decision. The post offices, stores such as Boxers and other retail shops are mainly used for paying retail and municipal services accounts. There is an emotional (impulsive) buying that normally kicks in when individuals are in grocery or retail outlets, which results in unintended purchases. The proximity to luxury goods triggers the longing to purchase though it was not planned (Faber, 2010:pp.1–2). This environment suppresses any potential to save the available funds. Contrary to the Market Efficient Theory position, there is less rationality under these circumstances.

Stokvel is planned and when individuals meet, they have already accepted and committed to contribute and the environment permits that.

5.4. Contribution of this study, recommendations and policy implications

There have been scant studies that were done as far as the RSA Government Retail Bonds relative to stokvel usage is concerned. This study has shown why individuals have chosen to use stokvels which are riskier in terms of fraud and ignored the RSA Government Retail Bonds which safer and pays higher guaranteed return to investors. The study has brought to light characteristics that the Stokvel has in comparison to the RSA Government Retail Bonds, that is are flexibility, social character, accessibility, less formal investment/savings processes.

This study has shed light on the nature of investors in understanding that South Africans are good savers. The financial institutions will save costs by not dwelling on marketing the strategies that do not trigger financial interest from the target market.

This study has also indicated that different races have different disposition towards investment instruments. All racial groups, except the Asians/Indians, were more invested in stokvel than in the RSA Government Retail Bonds with Black on top of the list. The knowledge about the racial attitude to the investment under review will enable the investment product designers to align their products in line with the characteristics of various racial groups.

The literature review in this study has shown that in other parts of the world religion, kinship and solidarity has influenced individuals' investment and savings choices, these are factors that can be considered when developing and investment product for different households and individuals.

It has been the government's intention to encourage individuals to save. This study should contribute to the refinement of marketing strategies by the government in attracting households and individuals in purchasing the Retail Bonds. This research has brought to light, that not only income influences individual's investment choices, but also other factors such accessibility, flexibility, social character and formalities of purchases are pivotal in driving individuals' investment choices.

5.4.1. Limitations of this Research

This has limited the research to the salaried individuals in South Africa and only focused on two investment choices relative to each other. The use of this research cannot be fully inferred to individuals who own businesses, who are informally employed, receive grants and other income from the social security funds. When it so used proper premised and assumptions should be clearly spelt out for an objective analysis.

This research did not look into the depth of savings or investment into the RSA Government Retail Bonds or stokvel, but analysed the breath of usage of the two investment products.

Furthermore, there are other financial products that are competing with investment and savings which were not part of the scope of this study. Examples of financial products that were excluded are formal funeral schemes such as AVBOB, life insurances and normal banking with Post office and commercial banks.

5.4.2. A Suggested Area of Further researh

A further research is required to establish the relationship of the RSA Government Retail Bonds and the Stokvel with all or some of the investment products mentioned above. The research, thereof, should provide a bigger picture of the determinants, direction and the number of investors in each financial sector.

What this study has brought to light is that the salaried individuals of all ages and race groups, mainly urban, who are at lower levels of income and education, prefer the stokvel as opposed to RSA Government Retail Bonds.

5.4.3. Recommendations

This research recommended the following strategies for each of the issue identified;

5.4.3.1. Language adaptation

The current language used at the National Treasury for Marketing the RSA Government Retail Bonds is English (Moloto, 2018:p.1).

- The RSA Retail Bonds should be written in a simple language relevant to the people of a particular locality ensure understanding and acceptance by the local community (Cleary, 2005:pp.87–93).

5.4.3.2. Communication medium application

The stokvel members call the meetings which specifically intended to contribute to the pull of funds. Grouping of friends, colleagues and locals for stokvel savings motivating tool than trying to save alone (Verhoef, 2008:p.71).

The National Treasury has undertaken aggressive marketing strategies and yet the turn-out remained low and instead, this research has shown that there was constant decline in the RSA Government Retail Bonds investment.

- As mentioned below, the meetings should be held in synchrony with the local language, physical environment and other cultural aspects to ensure the message is conveyed correctly to the targeted audience.

5.4.3.3. Physical environment selection

The utilization of the retail shops to sell the Retail Bonds by the National Treasury only exposes potential investors to the conflict of will power versus impulsive buying and people turn to submit to impulsive buying (Faber, 2010:pp.1–2). Similarly, Olsen (1998:pp.10–11) contends that amongst, other things, emotions and the environment has an effect on individuals investment decisions. This environment renders an individual unable to commit to an investment call at that moment

The post office also has their own savings products and are less likely to aggressively promote the investment product that will bite into their own customer base as happened with Mzansi accounts when they were undermined by the commercial banks (Kirsten, 2006:pp.5–6). Similarly the RSA Government Retail Bonds were being undermined by banks selling similar bonds (National Treasury, 2015:p.19).

- The National Treasury can dedicate individuals to various regions to directly sell the RSA Retail Government product. An individual living within the community is likely to be trusted by the people.
- The person should be a member of a stokvel or any collective investment scheme in order to re-inforce trust of the products.

5.4.3.4. Partnering with non-financial public institutions

Some of the stokvel achieve their recruitment through socialization (Van Wyk, Botha & Goodspeed, 2012:p.88).

- While it cannot be easy for the National Treasury coordinate social parties, it can however partner with departments such as National Department of Sports and Recreation to promote the investments the RSA Retail Bonds on soccer days or during big sporting events.

5.4.3.5. Partnering with non-financial societal institutions

There are stokvels that are strictly meant for burial expense and this stokvels are long-term in nature.

- The National Treasury can entice these types of stokvel to invest in the RSA Government Retail Bonds by attaching a funeral benefit to the investment. The National Treasury does not need to source new funds to finance the promised funeral benefit, but it can payout a quarter of the accumulated profit at the time of the death of a member. For instance, if the group had invested R20 000 over 2 years (4 quarters) at an average of 7,5% fixed interest per annum paid half yearly, the payment at maturity will be R23 173 capital plus interest. A return of R3 173 will have been achieved. Say death incident occurs at the end of third period (18 months) the accumulated capital plus interest will be about R22 335, which means a profit of R2 335. Then Treasury can give the member R583 at the time when one is affected by death.
- The same principle can be applied to different collective investment schemes where a portion of the accumulated profit can be paid to a group member when the objective of the investment realizes before maturity of the investment.

5.4.3.6. Legal requirement

The inconveniences of having a number of documents for investing need to be minimized. The proof of residence, the marriage certificate, the details of the next of kin.

- Only the valid South African Identity document should be required for opening an investment. Once the investors are settled with the investment, then additional documents can be requested if necessary.

5.4.3.7. Minimum amount required

Stokvel members agree on the amount to be paid this ensures (Kibuuka, 2006:p.17). The National Treasury had a fixed amount that should be paid for investing in the RSA Government Retail Bonds and therefore the amount is not linked to the objectives of group or individual investors.

- The National Treasury should allow group investment to accumulate premium and then start paying interest when the funds reach a specified minimum depending on the number of members.
- The following analysis can be applied for cumulative investments by individuals or groups;

Number of members	Minimum required to qualify for interest payment	Accumulation over two payment	One member contribute	Annual interest at 7.5%[3]
1	R1,000.00	R500.00	R500.00	R75.00
2	R1,500.00	R750.00	R375.00	R112.50
3	R2,000.00	R1,000.00	R333.33	R150.00
4	R2,500.00	R1,250.00	R312.50	R187.50
5	R3,000.00	R1,500.00	R300.00	R225.00

Source: Authors computation

- The above matrix can be adjusted to suit types of stokvels to ensure flexibility of premiums.

It is important to note that risk and return factors did not do much to steer individuals from Stokvel investment to the RSA Government Retail Bonds, this strategy is only intended to keep the stokvel character whose funds are invested in an economically productive investment instrument.

[3] The compounded interest will slightly be higher than the one calculated in this table if investors opt to re-invest their interest income

5.4.3.8. Financial education adaptation

Formal school education alone does not mean financial education by default (Mulaudzi, 2016:p.72). Financial education remains important even for the academically educated individuals. Furthermore, this research has statistically proved that race can be used to explain investment choices and as such, financial education can be tailored to cater for racial or cultural differences (Gutter, Fox & Montalto, 1999:p.150).

It will not only be one of the recommendations above that can improve the better investment choices by individuals, but the combination of them can lead to individuals keeping the surplus funds in economically profitable and productive instruments such as the RSA Government Retail Bonds, without eroding the communal and social character of the stokvels.

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Annexure 1: Interest Rates By Banks And Return On RSA Government Retail Bonds

	Weighted average rate: Fixed deposits interest rate banks after 1% adjustment for transaction costs			RSA Retail Government Bonds		
Year	KBP2007J 1 year but less than 3 years	KBP2008J 3 years and more but less than 5 years	KBP2026J maturity of more than 5 years	2 Year Fixed Rate	3 Year Fixed Rate	5 Year Fixed Rate
2011	5,66%	7,40%	7,30%	7,33%	7,58%	8,04%
2012	5,36%	6,43%	6,86%	6,60%	6,96%	7,46%
2013	5,44%	6,35%	6,80%	6,25%	6,75%	7,25%
2014	5,90%	6,56%	7,06%	7,17%	7,67%	8,17%
2015	6,23%	6,59%	7,13%	7,65%	8,00%	8,38%

Annexure 2: Fixed Deposit Return In South African Banks

Data code	Economic indicator (variables)	2011	2012	2013	2014	2015
KBP2007J	Weighted average rate: Fixed deposits with original maturity of more than 1 year but less than 3 years	6,7%	6,4%	6,4%	6,9%	7,2%
KBP2008J	Weighted average rate: Fixed deposits with original maturity of 3 years and more but less than 5 years	8,4%	7,4%	7,4%	7,6%	7,6%
KBP2026J	Weighted average rate: Fixed deposits with original maturity of more than 5 years	8,3%	7,9%	7,8%	8,1%	8,1%

*Adapted from the Reserve Bank Website, 2011 to 2015

(Source:https://www.resbank.co.za/Research/Statistics/Pages/OnlineDownloadFacility.aspx)

Annexure 3: Annualised Inflation Linked Return On RSA Government Retail Bonds

Beginning	End	Actual	Actual	Actual	Annualised	Annualised	Annualised	Year
		3 Yr ILB	5 Yr ILB	10 Yr ILB	3 Yr ILB	5 Yr ILB	10 Yr ILB	
Jun-15	Nov-15	1,0%	1,5%	1,8%	1,1%	1,6%	1,9%	2015
Dec-14	May-15	1,3%	1,8%	2,0%				
Jun-14	Nov-14	1,0%	1,3%	2,3%	1,0%	1,3%	2,3%	2014
Dec-13	May-14	1,0%	1,3%	2,3%				
Jun-13	Nov-13	1,0%	1,3%	2,3%	1,0%	1,3%	2,3%	2013
Dec-12	May-13	1,0%	1,3%	2,3%				
Jun-12	Nov-12	-	-	-	1,0%	1,3%	2,3%	2012
Dec-11	May-12	1,0%	1,3%	2,3%				
Jun-11	Nov-11	1,8%	2,0%	2,5%	1,9%	2,1%	2,6%	2011
Dec-10	May-11	2,0%	2,3%	2,8%				

*Source: Adapted from National Treasury website (2018)

Annexure 3 above describes semi-annual figures that were annualized in order to make them comparable with the demographic variables in this research in terms of the period. An annualized rate of a three-year inflation linked bond (3 Yr ILB) that payed semi-annual rate for 2015 in May and November 2015 was obtained by adding (1,0%+1,3%)/2=1,1% (patterned cells).

Annexure 4: Annualised Fixed Rates Of RSA Government Retail Bonds

Years	2011	2012	2013	2014	2015
2 Year Fixed Rates	7,3%	6,6%	6,3%	7,2%	7,6%
3 Year Fixed Rates	7,6%	7,0%	6,8%	7,7%	8,0%
5 Year Fixed Rates	8,0%	7,5%	7,3%	8,2%	8,4%

*Source: Adapted from National Treasury website (2018)

Twelve monthly rates of fixed rates for each of Government Retail Bonds were summed and then divided by twelve.

$(M_{1r} + M_{ir} + \ldots + M_{12r})/12$, where M_{1r} = Fixed rate for January and M_{12r} = Fixed rate for December.

Annexure 5: Characteristics Of RSA Government Retail Bonds And The Stokvel

No	Characteristic	RSA Government Retail Bonds	Stokvel	Remarks
1	Return	Can opt to receive interest semi-annually of capitalize it (Brown, 2012) Return has been higher	Mainly rotate funds (Van Wyk, Botha & Goodspeed, 2012)	Return RSA Retail Bonds is very high because there no commensurate risk
2	Tax benefit	They were subject normal taxation in the research period (Julie Brownlee, 2015)	Invested funds are taxed as lump sum	
3	Liquidity.	Can withdraw before end of maturity but forfeits a portion of earned interest. Effectively locked (Brown, 2012)	Addresses short-term cash need, can be long-term (Napier & Masilela, 2008:p.2). Members receive pool of funds on rotational basis (Van Wyk, Botha & Goodspeed, 2012)	RSA Retail Bonds cannot be exchanged for cash with any individual
4	Maturity-Term	1,3,5 and 10 years	Pooled fund are paid monthly on rotating basis or at specified date in future (Van Wyk, Botha & Goodspeed, 2012) Burial stokvel can be long-term in nature (Business DayTelevision, 2018)	RSA Bonds maturity term rigid a maturity term rigid for the stokvel aligned to the
5	Security and Risk of invested funds	Banked, guaranteed (National Treasury, 2006) (Brown, 2012) No risk of loss of funds (de Jong & Mfundo, 2013)	Security based on trust (Covey, 1978) Members can default and fraud rife within stokvel. Rely on trust (Covey, 1978) Payment an the end of the cycle depends on trust worthiness of other to pay their premiums(Van Wyk, Botha & Goodspeed, 2012) There are pyramid schemes that operate as stokvel (Business DayTelevision, 2018)	Different in favour of RSA Government Retail Bonds Different in favour of RSA Government Retail Bonds
6	Accessibility (location)	Grocery shops, Pick'n pay and Treasury office, National Treasury website, at the bank (National Treasury, 2006; Brown, 2012)	Close to the originating group	RSA Government Retail Bonds mixed with grocery purchase. Planned contribution No physical contact with fellow investors

No	Characteristic	RSA Government Retail Bonds	Stokvel	Remarks
7	Legal requirement	Below 21 requires guardian approval (National Treasury, 2006:p.3)	No age limit Self-imposed regulation (Van Wyk, Botha & Goodspeed, 2012) .They govern according to their own rules ((South Africa, 2006:sec.2(c)) Though it provide credit to its members (South Africa, 2006:para.45(c)) they are exempt from complying with Banks Act in terms of common-bond exemption notice (Notice 887, Government Gazette No. 31342 quoted in (Van Wyk, Botha & Goodspeed, 2012) Mashigo & Schoeman (2012:p.55) pointed out that was the simple rules of the stokvel usage that attracted individuals to it and which was the contrary with RSA Government Retail Bonds.	No administration inconveniences in stokvel as with Retail RSA Government Retail Bonds
8	Becoming an investor	Contract is a prerequisite Any South African citizen	Community members know to each other. Stokvels are rarely formalized in a written agreement (Van Wyk, Botha & Goodspeed, 2012; Mashigo & Schoeman, 2012) No credits checks No credit checks (Covey, 1978; Verhoef, 2008)	More formalized with Retail Bonds Less formal with stokvel
9	Minimum required and Premium Payment	Set by the institution R1000 (Brown, 2012) Depend on availability of personal surplus funds	Set by members. Agreed by the members Weekly, fortnightly, Monthly Obliged to retain membership by not skipping (National Treasury, 2010:p.3)	Made to suit the needs of a group of individuals than with RSA Retail Bonds There is commitment to pay in stokvel than the RSA Retail Bonds
10	Motivation to save	Motivated by return only. There is no connection between investors	Social cohesion, common objective, easy credit to members (Verhoef, 2008; Van Wyk, Botha & Goodspeed, 2012)	Physical connection of investors